**Pacific Northwest
National Laboratory**

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Chemical data bases for the Multimedia Environmental Pollutant Assessment System (MEPAS): Version 1

D.L. Streng
S.R. Peterson (a)

December 1989

(a) ICF Northwest, Richland, Washington

Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RL01830

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Dear Reader:

Thank you for your interest in our report. This database document was prepared to formally document data used in a comprehensive nation-wide risk computation of potential environmental issues at 36 separate US DOE installations. The data in this volume were prepared for "source to effects" computations using the Multimedia Environmental Pollutant Assessment System (MEPAS®). Although this study was conducted in the mid 1980's, the data and the data citations for this environmental database continue to be a valuable source of data. This document contains physical, chemical, uptake, and toxicity parameters for the chemicals and radionuclides encountered in the risk computations as well as documentation of more generic techniques of parameter estimation.

The reader is cautioned that these data were generated to estimate the order of magnitude of potential impacts for the survey/ranking of a large number of potential problems -- and such may, or may not, be appropriate for other applications. The reader should pay special attention to the citations of the data.

Also since the publication of this volume, this database as well as the MEPAS software has continued to be developed and expanded. For example, the number of constituents in the database has approximately doubled and additional parameters have been added. The reader is referred to the website <http://mepas.pnl.gov:2080/earth/> for current information on the database and software. Our email address is mepas@pnl.gov.

We greatly appreciate your interest in our work and hope you find the contents of this volume useful.

Sincerely,

John W. Buck, MEPAS Project Manager

Gariann M. Gelston, User and Software Support Lead

PREFACE

The Multimedia Environmental Pollutant Assessment System (MEPAS) was developed by Pacific Northwest Laboratory for the U.S. Department of Energy (DOE) Office of Environment, Safety, and Health. MEPAS, an enhancement of the Remedial Action Priority System, is a set of computer programs used to prioritize hazardous, radioactive, and mixed-waste sites based on their potential hazard to public health. It is applicable to a wide range of environmental management and regulatory conditions, including inactive sites covered under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and active air and water releases covered under the Clean Air Act and the Clean Water Act. Under its Environmental Survey program, DOE is using MEPAS in a nationwide ranking of environmental concerns at DOE facilities.

MEPAS employs a simplified contaminant-transport and exposure model. It incorporates an interactive shell to assist the user in problem definition, data assembly and input, and report development. Two chemical data bases are used by MEPAS. These data bases contain necessary physical properties, toxicities, and transfer parameters for 394 potential pollutants. This report documents the sources of the values contained in Version 1 of the data bases, and the methods used to estimate parameter values are also discussed.

EXECUTIVE SUMMARY

The two data bases used by MEPAS are the chemical data base (referred to as CHEMLIB) and the sorption distribution coefficient (K_d) data base. The chemical data base contains parameters and constants for 394 chemicals and radionuclides. Because MEPAS can be run only for chemicals and radionuclides included in the chemical data base, the current chemicals and radionuclides in the data base are limitations on MEPAS. The chemical data base contains information on 1) constituent identification, 2) physical parameters, 3) environmental decay parameters, 4) environmental transfer parameters, 5) radiological dosimetry parameters, and 6) chemical toxicity parameters. In contrast, the sorption distribution coefficient data base contains a matrix of values for each inorganic and radioactive constituent. The matrix provides distribution coefficients (K_d values) for three pH regimes and three regimes of total weight percent of adsorbent clay, organic matter, and iron and aluminum oxyhydroxides.

This report describes the purpose of each of the parameters in the data bases and the methods used to evaluate the parameters. The current values for all parameters in the data bases are presented, with notes and reference sources given for each value. The purpose of this report is to document the parameter values in the data bases. As with any computer system, the program and data bases are subject to change as new methods and data become available. Therefore, the information provided in this report should be understood to represent only the first version of the data bases; future versions are likely to contain information for more pollutants and to have revised values for some of the current pollutants.

ACKNOWLEDGMENTS

Development of the Multimedia Environmental Pollutant Assessment System (MEPAS) has involved a wide spectrum of engineering and scientific technologies and the specialized expertise of several researchers. The modeling efforts and data base requirement efforts were performed by PNL scientists with expertise in the following areas:

Groundwater and Surface Water Transport:	G. Whelan
Atmospheric Transport:	J. G. Droppo, Jr., and J. W. Buck
Exposure and Hazard Evaluation:	D. L. Streng.

The data bases were tested as modifications were made and through continued use on the U.S. Department of Energy's Environmental Survey efforts. During this period, comments and suggestions provided by A. Toblin of NUS Corporation were particularly useful in identifying pollutants to be added to the data base and in identifying corrections and enhancements to the program.

Early efforts in assembling the information needed in the chemical data base were aided by Shawn Sager and Stan Peterson of ICF Technology, Inc., who provided (under subcontract) the necessary parameter values for the first group of chemical constituents. Their efforts are greatly appreciated.

The efforts of W. T. Farris of CH2M Hill in reviewing and assembling reference sources for parameter values given in this report are appreciated. The authors would also like to thank L. K. Grove for editing and the Sigma V Text Processing team for typing the document.

MEPAS development was funded by the U.S. Department of Energy's (DOE's) Office of Environment, Safety, and Health, Office of Environmental Audit under the direction of R. Aiken, and Office of Environmental Guidance under the direction of P. vanHaagen, K. Samec, and R. Dailey. Special thanks go to them for their comments, guidance, and support in the development effort.

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1.0 INTRODUCTION

The Multimedia Environmental Pollutant Assessment System (MEPAS) computer program (Hartz and Whelan 1988; Hoopes et al. 1988; Whelan et al. 1986, 1987, 1988) was developed for the U.S. Department of Energy's (DOE's) Office of Environment, Safety, and Health. The exposure assessment portion of this computer program uses two data bases: 1) a chemical data base containing physical, environmental, toxicological, and radiological parameter values for 394 potential pollutants of interest for DOE facilities and 2) a sorption distribution coefficient data base containing suggested K_d values for radionuclides and inorganic pollutants. This report describes the purpose of each of the chemical data base parameters and the methods used to evaluate parameter values (Section 2.0). The current values for all parameters in the chemical data base are presented in Section 3.0, with notes and reference sources given for each value. Section 4.0 provides sorption distribution coefficient (K_d) values and a description of the reasoning behind their selection. Section 5.0 contains a list of references cited. Summary tables of parameter values are provided in Appendix A, and source references for the parameter values in the tables in Section 3.0 are listed in Appendix B. The purpose of this report is to document the current version of the data bases (Version 1). As with any computer system, the program and data bases are subject to change as new methods and data become available. Therefore, the information provided in this report should be understood to represent only the initial version; future versions of the data bases are likely to contain information for more pollutants and to have revised values for some of the current pollutants.

2.0 CHEMICAL DATA BASE DESCRIPTION

The chemical data base developed in support of the MEPAS computer program contains parameter values used primarily in the exposure pathway and risk assessment component of the program. The parameters are described in this section, along with the methods used to evaluate parameter values. The general methods given apply to a variety of pollutant types. Details of evaluation for a specific pollutant are given in Section 3.0 in the subsection for that pollutant.

Much of the data initially entered into the data base was taken from a compilation provided by ICF Technology, Inc., as a subcontractor to the MEPAS development effort. The data provided by ICF^(a) for most constituents have been entered into the data base, although a few parameter values have been changed to reflect measurements reported more recently. The ICF effort was an attempt to obtain information on all of the constituents making up the following lists of important priority pollutants: NPDES Priority Pollutants, RCRA Appendices VIII and IX, and CERCLA Superfund. Because much research is still required for defining all characteristics associated with each of the chemicals included on these lists, values for all constituents and all properties were not provided. In the absence of published values, appropriate equations were used to derive the physical-chemical properties of the chemicals, where possible. Several data bases were used by ICF to obtain the chemical-specific properties, including:

AUTOCHEM: as installed in the U.S. Environmental Protection Agency's (EPA's) Graphical Exposure Modeling System (GEMS), developed by General Sciences Corporation (GSC). GEMS was developed for the EPA's Exposure Evaluation Division (EED), Office of Toxic Substances (OTS).

AQUIRE: as available in the Chemical Information System provided by CIS, Inc.

CHEMFATE: the Syracuse Research Corporation's Environmental Fate Data Bases (EFDB).

(a) Memorandum, "Chemical Data Base Development," from S. Sager of ICF-Clement Associates, Inc., to G. Whelan of Pacific Northwest Laboratory, Richland, Washington, dated July 20, 1987.

Log P Parameter Data Base: Pomona College of Medicinal Chemistry Project.

During the evaluations for the Environmental Survey, additional constituents were identified that had not been included in the compilation provided by ICF. Also, because values for all parameters were not provided for all constituents, it was necessary to develop methods for rapidly estimating parameter values for new constituents.

The data base contains physical, environmental, toxicological, and radiological parameters as required by the exposure pathway and risk assessment models used in MEPAS. These parameters and their uses are summarized by parameter type in Table 2.1. The subsections that follow describe the parameters grouped by the types as given in the table.

2.1 CONSTITUENT IDENTIFICATION

Three parameters are used to define each constituent (pollutant) in the data library: 1) a short (20-character) descriptive name, 2) a unique identifier, and 3) a list of common names. The short name is used in the MEPAS shell to quickly scan for a particular constituent. The unique identifier is used internally by the program to determine the absolute identification of a particular constituent. The list of common names helps the user in identifying constituents that are often referred to by more than one name.

The short name normally contains the complete common name for the pollutant. However, for some chemicals, particularly organic chemicals with long names, the 20-character field is too small to contain the entire name. In such cases, an abbreviated name is used to provide as good a description of the pollutant name as possible. The MEPAS shell displays a list of the common names that the user can quickly scan. If there is any question about the exact name of a chemical in this list, the user can move the cursor to the particular chemical and the entire list of common names (including the complete chemical name) will be displayed on the screen.

The second identification field is the unique identifier. This identifier is the radionuclide name (e.g., PU239) for radionuclides and the Chemical Abstract Service Registry (CAS) number for chemicals. The CAS

TABLE 2.1. Parameters Contained in the MEPAS Data Base

Parameter Description	Units	Summary of Use
Identification:		
Short Name	none	Quick identification of pollutants
Unique Identifier	none	Absolute identification within the program
Common Names	none	Identification of chemicals having several names
Physical Parameters:		
Molecular Weight	g/mol	For organics, used in volatilization calculation
Water Solubility	mg/L	
Vapor Pressure	mm Hg	Volatilization calculation
Henry's Law Constant	atm·m ³ /mol	Volatilization, deposition velocity, and shower inhalation calculations
Octanol-Water Partition	none	Parameter estimation, volatilization, deposition, and velocity calculations
Carbon Matter Partition	ml/g	Estimation of K _d values for groundwater transport
Environmental Removal Half-times:		
In Air	days	Removal from plant surfaces by degradation and radiological decay
In Water	days	Removal from drinking water and farm products by degradation and radiological decay during distribution to consumers
In Soil	days	Removal from farm land by volatilization and radiological decay
Environmental Transfer Factors:		
Bioaccumulation in Fish	none	Fish concentration calculation
Bioaccumulation in Shellfish	none	Shellfish concentration calculation

TABLE 2.1. (contd)

<u>Parameter Description</u>	<u>Units</u>	<u>Summary of Use</u>
Environmental Transfer Factors: (contd)		
Soil to Edible Plant (wet wt.)	none	Plant and animal feed calculations
Feed to Animal Meat	d/kg	Animal meat concentration calculation
Feed to Cow Milk	d/L	Milk concentration calculation
Water Purification Factor	none	Domestic water concentration
Deposition Velocity	m/sec	Concentration on plant surfaces from atmospheric deposition
Atmospheric Dispersion Class	none	Behavior of pollutant during atmospheric transport and deposition
Radiological Dosimetry Factors (for radionuclides only):		
Ingestion Dose Factor	rem/pCi	Dose evaluation for all ingestion pathways
Inhalation Dose Factor	rem/pCi	Dose evaluation for all inhalation pathways
Air Immersion Factor	rem/h per pCi/m ³	Dose evaluation for air submersion
Ground Exposure Factor	rem/h per pCi/m ²	Dose evaluation for ground and shoreline exposures
Water Immersion Factor	rem/h per pCi/L	Dose evaluation for swimming and boating
Chemical Toxicity Factors:		
Inhalation Cancer Potency	kg-d/mg	Cancer risk from chemical inhalation exposures
Ingestion Cancer Potency	kg-d/mg	Cancer risk from chemical ingestion exposures
Inhalation Reference Dose	mg/kg/d	Risk from inhalation of non-carcinogens
Ingestion Reference Dose	mg/kg/d	Risk from ingestion of non-carcinogens

numbers are of the general form NNNNN-MM-K, containing up to eight digits and two dashes. The first field (NNNNN) is always 50 or greater. There are always two digits for MM and one digit for K. To simplify entry of CAS numbers, the dashes have been eliminated from the data base. Thus, for example, the CAS number of hydroxyquinoline, which is 148-24-3, is represented in the data base as 148243. For some chemicals in the data base, no CAS number has been defined. In such cases, a unique name of 8 or fewer characters has been established.

The third field contains the complete common name and synonyms by which the constituent is known. A list of all of the common names for all constituents in the data base is presented in Table 2.2. This table also provides a cross reference to the unique identifier and short name. This list provides users with an easy method of determining whether a constituent is currently contained in the data base and, if so, how the constituent is represented in the data base list. The Registry of Toxic Effects of Chemical Substances (RTECS) provides a good reference from which to identify CAS numbers and common names. The RTECS is described under chemical toxicity parameters in Section 2.6.

2.2 PHYSICAL PARAMETERS

Several physical parameters are required for MEPAS to perform the transport and exposure assessment calculations. The number of parameters required depends on the pollutant type. Organic chemicals require the full set of physical parameters (see Table 2.1), while radionuclides and elemental species require fewer parameters. The physical parameter category includes molecular weight, water solubility, vapor pressure, Henry's Law constant, octanol-water partition coefficient, and carbon matter partition coefficient. The physical parameters and methods for their estimation are described in the following subsections.

2.2.1 Molecular Weight

The molecular weight of the constituent is used in the soil and pond volatilization models, applicable only to organic chemicals. However, for

TABLE 2.2. Common Names of Environmental Pollutants and Their Identifiers in the Chemical Data Base

Pollutant Name	Short Name	Identifier
Acenaphthene	ACENAPHTHENE	83329
Acenaphthylene	ACENAPHTHYLENE	208968
Acephate	ORTHENE OR ACEPHATE	30560191
Acetone	ACETONE	67641
Acetonitrile	ACETONITRILE	75058
Acetophenone	ACETOPHENONE	98862
Acetoxyethane	ETHYL ACETATE	141786
1-Acetoxyethylene	VINYL ACETATE	108051
2-Acetylaminofluorene	2-ACETYLAMINOFLUORE	53963
Acrolein	ACROLEIN(PROPENAL)	107028
Acryldehyde	ACROLEIN(PROPENAL)	107028
Acrylamide	ACRYLAMIDE	79061
Acrylonitrile	ACRYLONITRILE	107131
Actinium-225	ACTINIUM-225	AC225
Actinium-227	ACTINIUM-227	AC227
Afnor	ROZOL/QUICK/MURIOL	3691358
Aldrex	ALDRIN	309002
Aldrin	ALDRIN	309002
3-Alkoxy(C12-15)-2-hydroxy-n-propyl trimethyl ammonium chloride	ALKOXY-ME-CHOLINE	ALKOXYCL
Alkyl aryl sulfonate cleaner (as alkyl benzene sulfonate)	ALK-ARYL SULFONATES	42615292
Alleron	PARATHION	56382
Allyl alcohol	ALLYL ALCOHOL	107186
Alpha-hexachlorocyclohexane	ALPHA-HEXACHLOROCYCL	319846
Alpha-lindane	ALPHA-HEXACHLOROCYCL	319846
Alpha-Picoline	PICOLINE	109068
Aluminum	ALUMINUM	7429905
Americium-243	AMERICIUM-243	AM243
Americium-242	AMERICIUM-242	AM242
Americium-241	AMERICIUM-241	AM241
Americium-242M	AMERICIUM-242M	AM242M
Aminobenzene	ANILINE	62533
4-Aminobiphenyl	4-AMINOBIIPHENYL	92671
1-Amino-4-chlorobenzene	P-CHLOROANILINE	106478
4-Amino-3,5,6-trichloro picolinic acid potassium salt	TORDON 22K	2545600
Ammonia	AMMONIA	7664417
Ammonium Hydroxide	AMMONIA	7664417
Aniline	ANILINE	62533
Anthracene	ANTHRACENE	120127
Antimony-125	ANTIMONY-125	S8125
Antimony	ANTIMONY	7440360
Aqua fortis	NITRIC ACID	7697372
Aqua-vex	SILVEX	93721
Aroclor 1232	AROCLOR 1232 (PCB)	11141165
Aroclor 1260	AROCLOR 1260 (PCB)	11096825
Aroclor 1221	AROCLOR 1221 (PCB)	1104282
Aroclor 1016	AROCLOR 1016 (PCB)	12674112
Aroclor 1248	AROCLOR 1248 (PBC)	12672296
Aroclor 1242	ARACLOR 1242 (PCB)	53469219
Aroclor 1254	AROCLOR 1254 (PCB)	11091691
Aroclor (General Classification)	PCBs (GENERAL)	1336363
Arsenic	ARSENIC	7440382
Asbestos	ASBESTOS (CROC)	12001284
Asphalt	ASPHALT	8052424
Aviation Fuel	JP-4	JP-4
Azabenzene	PYRIDINE	110861
Azine	PYRIDINE	110861
B(a)p	BENZO(A)PYRENE	50328
Barium	BARIUM	7440393
BEHA	DIOCTYL ADIPATE	103231
BELT	CHLORDANE	57749
Benlat	TERSAN 1991	17804352
Benvel	VELSICOL R OR MDBA	1918009
Benz(a)anthracene	BENZO(A)ANTHRACENE	56553

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
1,2-benzanthracene	BENZO(A)ANTHRACENE	56553
Benz(a)phenanthrene	CHRYSENE	218019
Benz(e)acephenanthrylene	BENZO(B)FLUORANTHENE	205992
Benzene	BENZENE	71432
Benzene (dimethyl)	XYLENE (MIXED)	1330207
Benzidine	BENZIDINE	92875
Benzine	MINERAL SPIRITS	8030306
Benzo(a)pyrene	BENZO(A)PYRENE	50328
Benzo(b)fluoranthene	BENZO(B)FLUORANTHENE	205992
Benzo(def)phenanthrene	PYRENE	129000
Benzo(k)fluoranthene	BENZO(K)FLUORANTHENE	207089
11,12-benzo(k)fluoranthene	BENZO(K)FLUORANTHENE	207089
Benzoic Acid	BENZOIC ACID	65850
Benzol	BENZENE	71432
Benzolene	BENZENE	71432
3,4-benzopyrene	BENZO(A)PYRENE	50328
Beryllium-7	BERYLLIUM-7	BE7
Beryllium	BERYLLIUM	7440417
Beta-BHC	BETA -HEEH	319857
Beta-HCH	BETA -HEEH	319857
Beta-hexachlorocyclohexane	BETA -HEEH	319857
Beta-Lindane	BETA -HEEH	319857
BHC	GAMMA-HEEH (LINDANE)	58899
Bihexyl	N-DODECANE	112403
4-Biphenylamine	4-AMINOBIPHENYL	92671
Bis(2-chloroethyl ether)	BIS(2-CHLOROETHYL)	111444
Bis(2-chloroisopropyl)ether	BIS(2-CHLOROISOPRO)	108601
Bis(2-ethylhexyl phthalate)	BIS(2ET-HEXYL)PHTHLT	117817
Blue asbestos	ASBESTOS (CROC)	12001284
Borate ion	BORATE(AS NA SALT)	1303964
Boron (elemental)	BORON	744428
Bromodichloromethane	BROMODICHLOROMETHAN	75274
Bromoform	TRIBROMOMETHANE	75252
Bromomethane	BROMOMETHANE	74839
Burnt lime	CALCIUM OXIDE	1305788
1-Butanol	1-BUTANOL	71363
2-Butanone	METHYL ETHYL KETONE	78933
2-Butylene dichloride	TRANS-1,4-DICHLORO-B	110576
Cadmium	CADMIUM	7440439
CaId	ROZOL/QUICK/MURIOL	3691358
Calcium Hypochlorite	CALCIUMHYPOCHLORITE	7778543
Calcium oxide	CALCIUM OXIDE	1305788
Carbax	DICOFOL/DTMC/CARBAX	115322
Carbinol	METHANOL	67561
Carbolic acid	PHENOL	108952
Carbon-14	CARBON-14	C14
Carbon bisulfide	CARBON DISULFIDE	75150
Carbon disulfide	CARBON DISULFIDE	75150
Carbon tetrachloride	CARBON TETRACHLORIDE	56235
Celluphos 4	TRIBUTYL PHOSPHATE	126738
Cement dust	CEMENT DUST	CEMENT D
Cerium-144	CERIUM-144	CE144
Cesium-135	CESIUM-135	CS135
Cesium-134	CESIUM-134	CS134
Cesium-137+D	CESIUM-137+D	CS137
Chlorallylene	3-CHLOROPROPENE(ALLY	107051
Chlorate ion	CHLORATE (AS NA SLT)	7775099
Chlordane	CHLORDANE	57749
Chlorine gas	CHLORINE	7782505
Chlorobenzene	CHLOROBENZENE	108907
Chlorobenzilate	CHLOROBENZILATE	510156
2-Chloro-1,3-butadiene	2-CHLOR-1,3-BUTADIEN	126998
Chlorodibromomethane	CHLORODIBROMOMETHANE	124481
Chlorodiphenyl (54% Cl)	AROCLOR 1254 (PCB)	11091691

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
Chlorodiphenyl (21% Cl)	AROCLOR 1221 (PCB)	1104282
Chlorodiphenyl (16% Cl)	AROCLOR 1016 (PCB)	12674112
Chlorodiphenyl (32% Cl)	AROCLOR 1232 (PCB)	11141165
Chlorodiphenyl (60% Cl)	AROCLOR 1260 (PCB)	11096825
Chlorodiphenyl (42% Cl)	ARACOR 1242 (PCB)	53469219
Chlorodiphenyl (48% Cl)	AROCLOR 1248 (PBC)	12672296
Chloroethane	CHLOROETHANE	75003
Chloroethyl ether	BIS(2-CHLOROETHYL)	111444
Chloroform	CHLOROFORM	67663
4-Chloro-m-creosol	P-CHLORO-M-CRESOL	59507
Chloromethane	CHLOROMETHANE (METHY)	74873
2-Chloronaphthalene	2-CHLORONAPHTHALENE	91578
Chlorophenol	2-CHLOROPHENOL	95578
2-Chlorophenol	2-CHLOROPHENOL	95578
4-Chlorophenyl phenyl ether	4-CHLORO PH PH ETHER	7005723
Chloroprene	2-CHLOR-1,3-BUTADIEN	126998
3-Chloropropene	3-CHLOROPROPENE (ALLY	107051
Chlorure	1,1-DICHLOROETHANE	75343
Chromium III	CHROMIUM III	CR-III
Chromium VI	CHROMIUM VI	7440473
Chrysene	CHRYSENE	218019
CIBA 8514	KEPONE	143500
Cinnamene	STYRENE	100425
C.I. pigment metal 2	COPPER	7440508
Cis-1,3-Dichloropropylene	CIS-1,3-DICHLOROPROP	10061015
Clairsit	TRICHLOROMETHANETHIO	594423
Coal dust	COAL DUST	COAL DST
Coal liquid	CRUDE OIL	8002059
Coal oil	CRUDE OIL	8002059
Coal oil	KEROSENE	8008206
Coal tar	COAL TAR	8007452
Cobalt-60	COBALT-60	CO60
Cobalt-57	COBALT-57	CO57
Cobalt carbonyl	COBALT	7440484
Cobalt chloride	COBALT	7440484
Cobalt metal dust	COBALT	7440484
Cobalt oxide	COBALT	7440484
Copper	COPPER	7440508
Crocidolite	ASBESTOS (CROC)	12001284
Crude oil	CRUDE OIL	8002059
Curium-245	CURIUM-245	CM245
Curium-244	CURIUM-244	CM244
Curium-243	CURIUM-243	CM243
Curium-242	CURIUM-242	CM242
Cyanide ion, CN-	CYANIDE ION	57125
2,5-cyclohexadiene-1,4-diene	P-BENZOQUINONE	106514
Cyclohexane	CYCLOHEXANE	110827
Cyclohexanone	CYCLOHEXANONE	108941
Cyclopenta(de)naphthalene	ACENAPHTHYLENE	208968
2,4-D, Amidox	2,4-D	94757
DANA	N-NITROSODIETHYLAMIN	55185
DBN	N-NITROSODI-N-BUTYLA	924163
DBP	DI-N-BUTYL PHTHALATE	84742
DCEE	BIS(2-CHLOROETHYL)	111444
DCM	METHYLENE CHLORIDE	75092
DCP	2,4-DICHLOROPHENOL	120832
DDD	DDD	72548
DDE	DDE	72559
DDT	DDT	50293
DEHP	BIS(2ET-HEXYL)PHTHLT	117817
Delta-BHC	DELTA-HEEH	319868
Delta-HCH	DELTA-HEEH	319868
Delta-hexachlorocyclohexane	DELTA-HEEH	319868

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
Delta-lindane	DELTA-HEEH	319868
Dequestrol	EDTA	60004
Devol orange B	O-NITROANILINE	88747
DFA	(N,N')-DIPHENYLAMINE	122394
Diacel navy DC	3,3'-DIMETHOXYBENZID	119904
4,4-Diamine	3,3-DICHLOROBENZIDIN	91941
4,4'-Diaminobiphenyl	BENZIDINE	92875
Diazinon	DIAZINON	333415
Dibenzol(a,h)anthracene	DIBENZOL(A,H)ANTRAC	53703
1,2-Dibrom-3-chlor-propane	1,2-DIBROMO-3-CHLOR	96128
Dibromochloromethane	CHLORODIBROMOMETHANE	124481
Dibromomethane	DIBROMOMETHANE	74953
Dicamba	VELSICOL R OR MDBA	1918009
Dichlorfenidim	DIURON	330541
1,3-Dichlorobenzene	1,3-DICHLOROBENZENE	541731
1,2 Dichlorobenzene	1,2 DICHLOROBENZENE	95501
3,3'-Dichlorobenzidine	3,3-DICHLOROBENZIDIN	91941
4,4'-Dichlorobenzilic acid ethyl ester	CHLOROBENZILATE	510156
1,4-Dichlorobnezene	1,4-DICHLOROBENZENE	106467
Dichlorobromomethane	BROMODICHLOROMETHAN	875274
Dichlorodifluoromethane	DICHLORODIFLUOROMETH	75718
Dichlorodiisopropyl ether	BIS(2-CHLOROISOPRO)	108601
1,2-Dichloroethane	1,2 DICHLOROETHANE	107062
1,1-Dichloroethane	1,1-DICHLOROETHANE	75343
1,1-Dichloroethylene	1,1 DICHLOROETHYLENE	75354
Dichloromethane	METHYLENE CHLORIDE	75092
2,4-Dichlorophenol	2,4-DICHLOROPHENOL	120832
2,6-Dichlorophenol	2,6-DICHLOROPHENOL	87560
1,2-Dichloropropane	1,2-DICHLOROPROPANE	78875
2,2-Dichlorovinyl dimethyl phosphate	VAPONITE	62737
Dichlorvos	VAPONITE	62737
Dicofol	DICOFOL/DMC/CARBAX	115322
Dicophane	DDT	50293
Dieldrin,	DIELDRIN	60571
Diesel fuel	DIESEL FUEL	DIESEL F
Diesel Oil	DIESEL FUEL	DIESEL F
Diethylene oxide	TETRAHYDRO FURAN	109999
Diethyl ether	ETHYL ETHER	60297
Diethyl phthalate	DIETHYL PHTHALATE	84662
1,2-Dihydro-acenaphthylene	ACENAPHTHENE	83329
3,3'-Dimethoxybenzidine	3,3'-DIMETHOXYBENZID	119904
Dimethylamine	DIMETHYLAMINE (DMA)	124403
1,2-Dimethylbenzene	o-XYLENE	95476
1,4-Dimethylbenzene	p-XYLENE	106423
1,3-Dimethylbenzene	m-XYLENE	108383
3,3'-Dimethylbenzidine	3,3'-DIMETHYLBENZIDE	119937
Dimethyl ether	DIMETHYL ETHER	115106
Dimethyl ketone	ACETONE	67641
Dimethyl methane	PROPANE	74986
2,4-Dimethylphenol	2,4-DIMETHYLPHENOL	105679
Dimethyl phthalate	DIMETHYLPHTHALATE	131113
Dimethyl yellow	P-DIMETHYLAMINOAZOBEN	60117
Di-n-butyl Phthalate	DI-N-BUTYL PHTHALATE	84742
Dinitrobenzene	M-DINITROBENZENE	99650
4,6-Dinitro-O-cresolo	4,6-DINITRO-O-CRESOL	534521
2,4-Dinitrophenol	2,4-DINITROPHENOL	51285
2,4-Dinitrotoluene	2,4-DINITROTOLUENE	121142
Diocetyl adipate	DIOCTYL ADIPATE	103231
Di-n-octylphthalate	DI-N-OCTYLPHTHALATE	117840
Dinoseb	2-SEC-BUTYL-4,6-DIN	88857
Di-n-propylnitrosamine	DI-N-PROPYLNITROSAMI	621647
1,4-Dioxane	1,4-DIOXANE	123911
1,2-Diphenylhydrazine	1,2-DIPHENYLHYDRAZINE	122667
Diphenylamine	(N,N')-DIPHENYLAMINE	122394

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
Dipping acid	SULFURIC ACID	7664939
Dipropylmethane	HEPTANES	142825
Disulfoton	DISULFOTON	298044
Disystax	DISULFOTON	298044
Diuron	DIURON	330541
DMA	DIMETHYLAMINE (DMA)	124403
DMDT	METHOXYCHLOR	72435
DMF	DMF DI-ME FORMAMIDE	68122
DMNA	N-NITROSODIMETHYLAMI	62759
DNBP	2-SEC-BUTYL-4,6-DIN	88857
DNT	2,4-DINITROTOLUENE	121142
DOA	DIOCTYL ADIPATE	103231
DOP	BIS(2ET-HEXYL)PHTHLT	117817
Dowicide 6	2,3,4,6,-TETRACHLORO	58902
Dowtherm 209	2-METHOXY-1-PROPANO	107982
Dowtherm E	1,2 DICHLOROBENZENE	95501
DPN	DI-N-PROPYLNITROSAMI	621647
Drinox	HEPTACHLOR	76448
DTMC	DICOFOL/DTMC/CARBAX	115322
(E)-1,3-dichloropropene	TRANS-1,3-DICHLOROPR	10061026
EDTA	EDTA	60004
Elaol	DI-N-BUTYL PHTHALATE	84742
Endosulfan (alpha)	ENDOSULFAN I (ALPHA)	115297A
Endosulfan (beta)	ENDOSULFAN II (BETA)	115297B
Endrin	ENDRIN	72208
EP 30	PENTACHLOROPHENOL	87865
Estone	2,4-D	94757
1,2-ethandiol	ETHYLENE GLYCOL	107211
Ethane	ETHANE	74840
Ethanol	ETHANOL	64175
Ethoxyethane	ETHYL ETHER	60297
Ethyl acetate	ETHYL ACETATE	141786
Ethyl alcohol	ETHANOL	64175
Ethyl benzene	ETHYL BENZENE	100414
Ethyl chloride	CHLOROETHANE	75003
Ethylene dichloride	1,2 DICHLOROETHANE	107062
2,2'-Ethylenedioxy)diethanol	TRIETHYLENE GLYCOL	112276
Ethylene glycol	ETHYLENE GLYCOL	107211
Ethyl ester	ETHYL METHACRYLATE	97632
Ethyl ether	ETHYL ETHER	60297
Ethyl methacrylate	ETHYL METHACRYLATE	97632
Europium-154	EUROPIUM-154	EU154
Europium-152	EUROPIUM-152	EU152
Europium-155	EUROPIUM-155	EU155
2-FAA	2-ACETYLAMINOFLUORE	53963
Fast garnet base B	1-NAPHTHYLAMINE	134327
Fenia	PHENACETIN	62442
Fernesta	2,4-D	94757
Flacavon R	TRIS(2,3-DIBROMOPROP	126727
Flouranthene	FLUORANTHENE	206440
Fluorene	FLUORENE	86737
Fluoride	FLUORIDE	7782414
Fluoro	FLUORIDE	7782414
Formaldehyde	FORMALDEHYDE	50000
Formalin	FORMALDEHYDE	50000
Formic aldehyde	FORMALDEHYDE	50000
Freon 20	CHLOROFORM	67663
Freon 10	CARBON TETRACHLORIDE	56235
Freon 113	FREON 113	76131
Freon 11	TRICHLOROMONOFUOROM	75694
Freon 30	METHYLENE CHLORIDE	75092
Fruminal	DISULFOTON	298044
Fuel oil	DIESEL FUEL	DIESEL F
Fuel oil	FUEL OIL #2	FUEL OIL

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
Fumazone	1,2-DIBROMO-3-CHLOR	96128
Furan	FURAN	110009
Furfuran	FURAN	110009
Gamma-BHC	GAMMA-HEEH (LINDANE)	58899
Gamma-HCH	GAMMA-HEEH (LINDANE)	58899
Gamma-hexachlorocyclohexane	GAMMA-HEEH (LINDANE)	58899
Gasoline (represented as benzene)	GASOLINE	8006619
Glycol ethylene ether	1,4-DIOXANE	123911
Glyphosate	GLYPHOSATE	1071836
Halon	DICHLORODIFLUOROMETH	75718
HCBD	HEXACHLOROBUTADIENE	87683
Heod	DIELDRIN	60571
Heptachlor	HEPTACHLOR	76448
Heptachlor epoxide	HEPTACHLOR EPOXIDE	1024573
Heptanes	HEPTANES	142825
Hexachlorobenzene	HEXACHLOROBENZENE	118741
Hexachlorobutadiene	HEXACHLOROBUTADIENE	87683
Hexachlorocyclopentadiene	HEXACHLOROCYCLOPENTA	77474
Hexachlorodibenzofurans	HEXACHLORODIBENZOFUR	55684941
Hexachlorodibenzo-p-dioxin	HEXACHLORODIBENZO-P-	34465468
Hexachloroethane	HEXACHLOROETHANE	67721
Hexachlorophene	HEXACHLOROPHENE	70304
Hexadrin	ENDRIN	72208
Hexahydrobenzene	CYCLOHEXANE	110827
Hexahydrotoluene	METHYLCYCLOHEXANE	108872
Hexahydro-1,3,4-Trinitro-1,3,5-Triazine	RDX6H-3NO2-TRIAZINE	121824
Hexanes	HEXANES	110543
Hexanon	CYCLOHEXANONE	108941
Hexanone-2	2-HEXANONE ME-BU-KET	591786
Hexone	4-METHYL-2-PENTANONE	108101
HHDN	ALDRIN	309002
Hydraulic fluid	HYDRAULIC FLUID	HYDR FLU
Hydrazine, Diamine	HYDRAZINE	302012
Hydrofluoric acid	HYDROGEN FLUORIDE	7669393
Hydrogen fluoride	HYDROGEN FLUORIDE	7669393
1-Hydroxy-2,4-dimethylbenzene	2,4-DIMETHYLPHENOL	105679
3-Hydroxypropene	ALLYL ALCOHOL	107186
Hydroxyquinoline	HYDROXYQUINOLINE	148243
Hylenet	TOLUENE DIISOCYANATE	584849
IDRYL	FLUORANTHENE	206440
Indeno (1,2,3-CD)pyrene	INDENO(1,2,3-cd)PYRE	193395
Iodine-129	IODINE-129	I129
Iodine-135	IODINE-135	I135
Iodine-131	IODINE-131	I131
Iron	IRON	15438310
Isobutane	ISOBUTANE	75285
Isobutanol	ISOBUTYL ALCOHOL	78831
Isobutyl alcohol	ISOBUTYL ALCOHOL	78831
Isopentane	ISOPENTANE	78784
Isophorone	ISOPHORONE	78591
Isopropanol	ISOPROPYL ALCOHOL	67630
Isopropene cyanide	METHYLACRLONITRILE	126987
Isopropyl alcohol	ISOPROPYL ALCOHOL	67630
Isosafrole	ISOSAFROLE	120581
JP-4 jet fuel	JP-4	JP-4
Kalmin	PHENACETIN	62442
Kaydol	MINERAL OIL	8012951
Kelthane	DICOFOL/DTMC/CARBAX	115322
Kepone	KEPONE	143500
Kerosene	KEROSENE	8008206
Kopsol	DDT	50293
Krenite	4,6-DINITRO-O-CRESOL	534521
Krypton-85	KRYPTON-85	KR85
Lead-212	LEAD-212	P8212

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
Lead-210	LEAD-210	PB210
Lead	LEAD	7439921
Lead oxide	LEAD OXIDE	1317368
Lindane	GAMMA-HEEH (LINDANE)	58899
Lipán	4,6-DINITRO-O-CRESOL	534521
Litharge	LEAD OXIDE	1317368
Lithium hydroxide	LITHIUM HYDROXIDE	1310652
Lithium ion (as lithium chloride)	LITHIUM ION	7447418
LPG	ISOBUTANE	75285
Magnesium	MAGNESIUM	7786303
Malix (alpha)	ENDOSULFAN I (ALPHA)	115297A
Malix (beta)	ENDOSULFAN II (BETA)	115297B
Manganese-54	MANGANESE-54	MN54
Manganese	MANGANESE	7439965
MB	BROMOMETHANE	74839
MBC	TERSAN 1991	17804352
MBX	BROMOMETHANE	74839
MDBA	VELSICOL R OR MDBA	1918009
m-Dinitrobenzene	M-DINITROBENZENE	99650
MEBR	BROMOMETHANE	74839
Mercury	MERCURY	7439976
Merex	KEPONE	143500
Methanal	FORMALDEHYDE	50000
Methanol, methyl alcohol	METHANOL	67561
Methapyrilene	METHAPYRILENE	91805
Methoxychlor	METHOXYCHLOR	72435
2-Methoxy-1-propanol	2-METHOXY-1-PROPANO	107982
Methylacrlonitrile	METHYLACRLONITRILE	126987
Methyl bromide	BROMOMETHANE	74839
2-Methyl Butane	ISOPENTANE	78784
Methyl chloride	CHLOROMETHANE(METHY)	74873
Methyl chloroform	1,1,1-TRICHLOROETHAN	71556
Methyl cyanide	ACETONITRILE	75058
Methylcyclohexane	METHYLCYCLOHEXANE	108872
Methylcyclopentane	METHYLCYCLOPENTANE	96377
4,4'-Methylenebis (2-chloroaniline)	4,4'-METHYLENE-BIS(2	101144
Methylene bromide	DIBROMOMETHANE	74953
Methylene chloride	METHYLENE CHLORIDE	75092
Methylene dithiocyanate	METHYLENE DITHIOCYAN	6317186
Methyl ether	DIMETHYL ETHER	115106
Methyl ethyl ketone	METHYL ETHYL KETONE	78933
Methylnaphthalene	2-METHYLNAPHTHALENE	91576
4-Methyl-2-pentanone	4-METHYL-2-PENTANONE	108101
4-Methylphenol	4-METHYLPHENOL(P-CRE	106445
2-Methylphenol	2-METHYLPHENOL(O-CRE	95487
Methyl phenyl ketone	ACETOPHENONE	98862
2-Methyl propane	ISOBUTANE	75285
2-Methyl-2-propanethiol	2(METHYLTHIO)PROPANE	75661
2-Methylpyridine	PICOLINE	109068
Metox	METHOXYCHLOR	72435
m-Hydrophenol	RESORCINOL	108463
Mineral naphtha	BENZENE	71432
Mineral oil	MINERAL OIL	8012951
Mineral pitch	ASPHALT	8052424
Mineral spirits	MINERAL SPIRITS	8030306
MOCA	4,4'-METHYLENE-BIS(2	101144
Molybdiun ion	MOLYBDENUM	7439987
Monochloroethylene	VINYL CHLORIDE	75014
Motor oil	MOTOR OIL	MOTOR OL
Motox	TOXAPHENE	8001352
Muriol	ROZOL/QUICK/MURIOL	3691358
m-Xylene	m-XYLENE	108383
Nadone	CYCLOHEXANONE	108941
Naphtha	MINERAL SPIRITS	8030306

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
Naphthalene	NAPHTHALENE	91203
Naphthalin	NAPHTHALENE	91203
1-Naphthlamine	1-NAPHTHYLAMINE	134327
2-Naphthlamine, USAF CB-22	2-NAPHTHYLAMINE	91598
1,4-Naphthopquinone	1,4-NAPHTHOPQUINONE	130154
n-butane	n-BUTANE	106978
n-butyl alcohol	1-BUTANOL	71363
n-butylmethyl ketone	2-HEXANONE ME-BU-KET	591786
NCI-C55345	2,4-DICHLOROPHENOL	120832
N-dodecane	N-DODECANE	112403
NDPA	DI-N-PROPYLNITROSAMI	621647
Neantine	DIETHYL PHTHALATE	84662
Neoprene	2-CHLOR-1,3-BUTADIEN	126998
Neptunium-237	NEPTUNIUM-237	NP237
N-fluoren-2-yl acetamide	2-ACETYLAMINOFLUORE	53963
Nickel-63	NICKEL-63	NI63
Nickel-56	NICKEL-56	NI56
Nickel	NICKEL	7440020
Niobium-95	NIOBIUM-95	NB95
Niobium-93M	NIOBIUM-93M	NB93M
Nitrate	NITRATE	14797558
Nitric acid	NITRIC ACID	7697372
2,2',2"-Nitrioltriethanol	TRIETHANOLAMINE	102716
Nitrobenzene	NITROBENZENE	98953
Nitrobenzol (liquid)	NITROBENZENE	98953
Nitrogen dioxide	NITROGEN DIOXIDE	10102440
Nitro kleanup	2,4-DINITROPHENOL	51285
5-Nitro-o-toluidine	5-NITRO-O-TOLUIDINE	99558
4-Nitrophenol	4-NITROPHENOL	100027
4-Nitrosomorpholine	N-NITROSOMORPHOLINE	59892
NMOR	N-NITROSOMORPHOLINE	59892
N,N-dimethyl formamide	DMF DI-ME FORMAMIDE	68122
N-Nitro-di-n-butylamine	N-NITROSODI-N-BUTYLA	924163
N-Nitrodosdipropylamine	N-NITROSODIPROPYLAMI	621649
N-Nitrodosiphenylamine	N-NITROSODIPHNYLAMNE	86306
N-Nitrosodiethylamine	N-NITROSODIETHYLAMIN	55185
N-Nitrosodimethylamin	N-NITROSODIMETHYLAMI	62759
N-Nitrosomorpholine	N-NITROSOMORPHOLINE	59892
N-Nitrosopiperidine	N-NITROSOPIPERIDINE	100754
N-nitroso-1-propyl-1-propanamine	N-NITROSODIPROPYLAMI	621649
N-Nitrosopyrrolidine	N-NITROSOPYRROLIDINE	930552
No. 6 fuel	NO. 6 FUEL	NO. 6 FL
Nonane	NONANE	111842
n-Pentane	n-PENTANE	109660
N-(Phosphonomethyl) Glycine	GLYPHOSATE	1071836
NPIP	N-NITROSOPIPERIDINE	100754
NPYR	N-NITROSOPYRROLIDINE	930552
Nurelle	2,4,5-TRICHLOROPHENO	95954
o-cresylic acid	2-METHYLPHENOL(O-CRE	95487
Octahydro-1,3,5,7-tetranitro Octagen	HMX(H-NO2 TETZOCINE	2691410
Octalene	ALDRIN	309002
Octalox	DIELDRIN	60571
Octane	OCTANE	111659
Oil of vitriol	SULFURIC ACID	7664939
Omal	2,4,6-TRICHLOROPHENO	88062
O-nitroaniline	O-NITROANILINE	88747
Orthene	ORTHENE OR ACEPHATE	30560191
Ortho-klor	CHLORDANE	57749
Ortril	ORTHENE OR ACEPHATE	30560191
o-tolidine	3,3'-DIMETHYLBENZIDE	119937
oxacyclopentadiene	FURAN	110009
o-xylene	o-XYLENE	95476
Palladium-107	PALLADIUM-107	PD107
Paper fiber	PAPER FIBER	PAPFIBER

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
Paracide	1,4-DICHLOROBENZENE	106467
Paranaphthalene	ANTHRACENE	120127
Paranitroaniline (solid)	P-NITROANILINE	100016
Parathion	PARATHION	56382
Paroleine	MINERAL OIL	8012951
P-benzoquinone	P-BENZOQUINONE	106514
PCB 1016	AROCLOR 1016 (PCB)	12674112
PCB 1021	AROCLOR 1221 (PCB)	1104282
PCB 1242	ARACLOL 1242 (PCB)	53469219
PCB 1248	AROCLOR 1248 (PBC)	12672296
PCB 1254	AROCLOR 1254 (PCB)	11091691
PCB 1260	AROCLOR 1260 (PCB)	11096825
PCB 1232	AROCLOR 1232 (PCB)	11141165
PCB (General Classification)	PCBs (GENERAL)	1336363
PCE	TETRACHLOROETHYLENE	127184
P-chloroaniline	P-CHLOROANILINE	106478
P-chloro-m-cresol	P-CHLORO-M-CRESOL	59507
p-cresol	4-METHYLPHENOL (P-CRE	106445
PDB	1,4-DICHLOROBENZENE	106467
P-dimethylaminoazobenzene	P-DIMETHYLAMINOAZOBEN	60117
Pentachlorobenzene PCB	PENTACHLOROBENZENE	608935
Pentachloroethane	PENTACHLOROETHANE	76017
Pentachloronitrobenzene	PENTACHLORONITROBENZ	82688
Pentachlorophenol	PENTACHLOROPHENOL	87865
Pentaerythrite tetranitrate	PETN5 ERYTHRITOL-4NO	78115
Pentalin	PENTACHLOROETHANE	76017
Perchloro-methyl mercaptan	TRICHLOROMETHANETHIO	594423
Permite	PENTACHLOROPHENOL	87865
Pethion	PARATHION	56382
PETN	PETN5 ERYTHRITOL-4NO	78115
Petroleum pitch	ASPHALT	8052424
Petroleum spirits	MINERAL SPIRITS	8030306
Petroleum	CRUDE OIL	8002059
Petrol (represented as benzene)	GASOLINE	8006619
Phenacetin	PHENACETIN	62442
Phenacide	TOXAPHENE	8001352
Phenanthrene	PHENANTHRENE	85018
Phenol	PHENOL	108952
Phenylamine	ANILINE	62533
Phenyl chloride	CHLOROBENZENE	108907
Phenylethane	ETHYL BENZENE	100414
Phosphate ion (as tri-sodium salt)	PHOSPHATE ION	7601549
Phosphorus-32	PHOSPHORUS-32	P32
Phyuno oil	SAFROLE	94597
Picloram, potassium salt	TORDON 22K	2545600
Picoline	PICOLINE	109068
2-Picoline	PICOLINE	109068
Pirofos	TETRAETHYLDITHIOPYRO	3689245
Plutonium-241	PLUTONIUM-241	PU241
Plutonium-240	PLUTONIUM-240	PU240
Plutonium-239	PLUTONIUM-239	PU239
Plutonium-238	PLUTONIUM-238	PU238
P-nitroaniline	P-NITROANILINE	100016
Polonium-210	POLONIUM-210	PO210
Polyacrylamide	POLYACRYLAMIDE	9003058
Polychlorinated furans	POLYCHLORNTED FURANS	55684944
Potash lye	POTASium HYDROXIDE	1310583
Potassium hydroxide	POTASium HYDROXIDE	1310583
Potassium ion (as Potassium chloride)	POTASSIUM ION	7447407
Potassium-40	POTASSIUM-40	K40
Propane	PROPANE	74986
2-Propanol	ISOPROPYL ALCOHOL	67630
2-Propanone	ACETONE	67641
2-Propenal	ACROLEIN (PROPENAL)	107028

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
2-Propenamide	ACRYLAMIDE	79061
1-propene,1,3-dichloro-(2)-(9Cl)	CIS-1,3-DICHLOROPROP	10061015
Propenenitrile	ACRYLONITRILE	107131
Propenol	ALLYL ALCOHOL	107186
Propen	SILVEX	93721
Propylene dichloride	1,2-DICHLOROPROPANE	78875
Protactinium-233	PROTACTINIUM-233	PA233
Protactinium-231	PROTACTINIUM-231	PA231
p-xylene	p-XYLENE	106423
Pyrene	PYRENE	129000
Pyridine	PYRIDINE	110861
Quick	ROZOL/QUICK/MURIOL	3691358
Quicklime	CALCIUM OXIDE	1305788
Quicksilver	MERCURY	7439976
8-quinolinol	HYDROXYQUINOLINE	148243
Quintox	DIELDRIN	60571
Radium-223	RADIUM-223	RA223
Radium-226	RADIUM-226	RA226
Radium-225	RADIUM-225	RA225
Radon-220+D (MOCK)	RADON-220+D (MOCK)	RN220
Radon-222+D (MOCK)	RADON-222+D (MOCK)	RN222
Raney alloy	NICKEL	7440020
RDX	RDX6H-3NO2-TRIAZINE	121824
REDAX	N-NITROSODIPHNYLAMNE	86306
Resorcinol	RESORCINOL	108463
Restryl	METHAPYRILENE	91805
Rhodiachlor	HEPTACHLOR	76448
Rhothane	DDD	72548
Road tar	ASPHALT	8052424
Rozol	ROZOL/QUICK/MURIOL	3691358
Ruthenium-106	RUTHENIUM-106	RU106
Ruthenium-103	RUTHENIUM-103	RU103
Safrole	SAFROLE	94597
Samarium-151	SAMARIUM-151	SM151
Scaldip	(N,N')-DIPHENYLAMINE	122394
2-sec-butyl-4,6-dintrophanol	2-SEC-BUTYL-4,6-DIN	88857
Selenium-79	SELENIUM-79	SE79
Selenium	SELENIUM	7782492
Sextone	CYCLOHEXANONE	108941
Silicate ion	SILICATE ION	6834920
Silver	SILVER	7440224
Silvex	SILVEX	93721
Soda lye	SODIUM HYDROXIDE	1310732
Sodium-22	SODIUM-22	NA22
Sodium hydroxide	SODIUM HYDROXIDE	1310732
Sodium ion (as sodium chloride)	SODIUM ION	7647145
Solfo black B	2,4-DINITROPHENOL	51285
Solvanol	DIETHYL PHTHALATE	84662
Solvarone	DIMETHYLPHTHALATE	131113
Spurge	2-SEC-BUTYL-4,6-DIN	88857
Strontium-90	STRONTIUM-90	SR90
Strontium-89	STRONTIUM-89	SR89
Strontium ion (as strontium chloride)	STRONTIUM ION	10476854
Styrene	STYRENE	100425
Styrene-butadiene co-polymer	STRYENE-BUTADIENE	9003558
Styron	STYRENE	100425
Sulfate ion	SULFATE	12808798
Sulfuric acid	SULFURIC ACID	7664939
Sulfur-35	SULPHUR-35	S35
Sulfuric acid	SULFURIC ACID	7664939
TATB	TATB3NH2-3NO2-BN2NE	3058386
TCDD	2,3,7,8TCDD DIOXIN	1746016
TCE	TRICHLOROETHYLENE	79016
Technetium-99	TECHNECIUM-99	TC99

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
Tenalin	METHAPYRILENE	91805
Tersan 1991	TERSAN 1991	17804352
1,2,4,5-Tetrachlorobenzene	1,2,4,5-TETRACHLOROB	95943
2,3,7,8-Tetrachlorodibenzo-p-Dioxin	2,3,7,8TCDD DIOXIN	1746016
1,1,1,2-Tetrachloroethane	1,1,1,2-TETRACHLOROE	630206
Tetrachloroethylene	TETRACHLOROETHYLENE	127184
Tetrachloromethane	CARBON TETRACHLORIDE	56235
1,1,2,2-Tetrachloroethane	1,1,2,2-TETRACHLOROET	79345
Tetraethyl dithio pyrophosphate	TETRAETHYLDITHIOPYRO	3689245
2,3,4,6,-Tetrahydrophenol	2,3,4,6,-TETRACHLORO	58902
Tetrahydro furan	TETRAHYDRO FURAN	109999
1,3,5,7-Tetrazocine	HM(XH-NO2 TETZOCINE	2691410
Thallium	THALLIUM	7440280
Thermal	PCBs (GENERAL)	1336363
Thiomul (alpha)	ENDOSULFAN I (ALPHA)	115297A
Thiomul (beta)	ENDOSULFAN II (BETA)	115297B
Thorium-227	THORIUM-227	TH227
Thorium-228	THORIUM-228	TH228
Thorium-232	THORIUM-232	TH232
Thorium-230	THORIUM-230	TH230
Thorium-234	THORIUM-234	TH234
Thorium-229	THORIUM-229	TH229
Tin-126	TIN-126	SN126
Tin	TIN	7440315
TNT	TNT 3NO2-TOLUENE	118967
Toluene	TOLUENE	108883
Toluene diisocyanate	TOLUENE DIISOCYANATE	584849
Toluol	TOLUENE	108883
Tordon 22K	TORDON 22K	2545600
Toxaphene	TOXAPHENE	8001352
Trans-acetylene dichloride	1,2 DICHLOROETHYLENE	156605
Trans-1,4-Dichlorobutene-2	TRANS-1,4-DICHLORO-B	110576
Trans-1,2-Dichloroethylene	1,2 DICHLOROETHYLENE	156605
Trans-1,3-Dichloropropene	TRANS-1,3-DICHLOROPR	10061026
Triamino-trinitrobenzene	TATB3NH2-3NO2-BNZNE	3058386
Tribromomethane	TRIBROMOMETHANE	75252
Tributyl phosphate	TRIBUTYL PHOSPHATE	126738
1,2,4-Trichlorobenzene	1,2,4TRICHLOROENZNE	120821
1,1,1-Trichloroethane	1,1,1-TRICHLOROETHAN	71556
1,1,2-Trichloroethane	1,1,2-TRICHLOROETHAN	79005
Trichloroethylene	TRICHLOROETHYLENE	79016
Trichloromethane	CHLOROFORM	67663
Trichloromethanethiol	TRICHLOROMETHANETHIO	594423
Trichloromonofluoromethane	TRICHLOROMONOFUOROM	75694
2,4,6-Trichlorophenol	2,4,6-TRICHLOROPHENO	88062
2,4,5-Trichlorophenol	2,4,5-TRICHLOROPHENO	95954
1,2,3-Trichloropropane	1,2,3TRICHLOROPRPANE	96184
Tricon BW	EDTA	60004
Triethanolamine	TRIETHANOLAMINE	102716
Triethylene Glycol	TRIETHYLENE GLYCOL	112276
Trimethylbenzene (mixed isomers)	TRIMETHYLBENZENE	25551137
2,4,6-Trimethylphenol	2,4,6-TRIMETHYLPHENO	527606
Trinitrotoluene (dry)	TNT 3NO2-TOLUENE	118967
Tris(2,3-dibromopropyl)phosphate	TRIS(2,3-DIBROMOPROP	126727
Tritisan	PENTACHLORONITROBENZ	82688
Tritium (as tritiated water, HTO)	TRITIUM	H3
Tritium (as HT)	TRITIUM, ELEMENTAL	H3-EL
Ucon 113	FREON 113	76131
Unsym-Trichlorobenzene	1,2,4TRICHLOROENZNE	120821
Uranium-233	URANIUM-233	U233
Uranium-234	URANIUM-234	U234
Uranium-235	URANIUM-235	U235
Uranium-239	URANIUM-239	U239
Uranium-236	URANIUM-236	U236

TABLE 2.2. (contd)

Pollutant Name	Short Name	Identifier
Uranium-238	URANIUM-238	U238
Uranium oxyfluoride	UO2F2	13536840
Uranium, Pyrophoric	URANIUM	7440611
Uranyl Fluoride	UO2F2	13536840
USAF CY-10	1,4-NAPHTHOPQUINONE	130154
Vanadium	VANADIUM	7440622
Vaponite	VAPONITE	62737
Velsicol 1068	CHLORDANE	57749
Velsicol compound 'R'	VELSICOL R OR MDBA	1918009
Vinyl acetate	VINYL ACETATE	108051
Vinyl chloride	VINYL CHLORIDE	75014
Vinyl cyanide	ACRYLONITRILE	107131
Vinylidene chloride	1,1 DICHLOROETHYLENE	75354
Vinyl trichloride	1,1,2-TRICHLOROETHAN	79005
Vitran	TRICHLOROETHYLENE	79016
Vonduron	DIURON	330541
Wood ether	DIMETHYL ETHER	115106
Xylene	XYLENE (MIXED)	1330207
Yttrium-90	YTTRIUM-90	Y90
Zinc-65	ZINC-65	ZN65
Zinc compounds	ZINC COMPOUNDS	7646857
Zirconium-93	ZIRCONIUM-93	ZR93
Zirconium	ZIRCONIUM	7440672

the sake of completeness, the molecular weight is included for all constituents. For mixtures, an approximate molecular weight is entered based on either the types of chemicals in the mixture or, as in the case of gasoline, the constituent that poses the greatest potential of risk (benzene).

The molecular weight for radionuclides is generally set equal to the atomic weight. For example, the molecular weight of ^{239}Pu is set equal to 239. For other chemicals (including ions), the molecular weight is determined from the molecular formula.

2.2.2 Water Solubility

Water solubility is expressed in units of mg/L at a temperature in the range of 20° to 30°C. Measured values are used where information is available. Alternatively, values are estimated by methods like those in the program AUTOCHEM as installed in EPA's GEMS. Three methods are used in GEMS to estimate solubility:

Method S-1 is used for nonacidic compounds and when $0.5 < \log Kow < 8$:

$$\log S = -1.1123 \log Kow + 0.686 - 0.0099(T_m - 25)$$

where S is water solubility, Kow is the octanol-water partition coefficient, and Tm is the melting point in degrees Celsius.

Method S-2 is used for nonacidic compounds and when $-0.5 < \log Kow < 0.5$:

$$\log S = -1.034 \log Kow + 0.455 - 0.0099(Tm - 25)$$

Method S-3 is used for acids only, with $-0.5 < \log Kow < 3.2$:

$$\log S = -0.65 \log Kow + 0.0279 - 0.0099(Tm - 25)$$

The measured solubility values provided in the data base were generally determined under laboratory conditions without considering the effects of complex mixtures or varying aquatic chemical or geochemical conditions. These values should therefore be used with caution.

Some of the chemicals in the data base are miscible with water, so that complete solubility is represented. For such chemicals, the solubility value is set to 1×10^6 mg/L, representing pure solute at a density of 1.0 (the density of water). Water density is used rather than the density of the pure solute because most compounds have a density approximately equal to unity, and because use of a uniform value allows the value to be used as a flag to identify miscible compounds. (However, the value is not currently used in this manner in MEPAS.)

2.2.3 Vapor Pressure

The vapor pressure of a chemical is the pressure exerted by its vapor, at a given temperature, in equilibrium with the pure compound (liquid or solid). The vapor pressure is used to estimate the rate of emission of volatile chemicals from soils and water sources into the atmosphere. Vapor pressures for MEPAS are generally taken at 25°C, unless otherwise noted. When measured values are not available, the estimation methods available in GEMS have been used. Two such methods are available:

- Method VP-1 or the Antoine Method, which is used for liquids and gases and is generally applicable over the pressure range from 10^{-3} to 760 mm Hg.

- Method VP-2 or the Modified Watson Method, which is used for liquids and solids and is applicable from 10^{-7} to 760 mm Hg.

Both methods use structural information and the normal boiling point for the compound.

2.2.4 Henry's Law Constant

Henry's Law Constant is used to estimate the amount of a volatile chemical available for inhalation during domestic showering and to estimate the effective deposition velocity from air onto plant surfaces (in cases when a value is not given in the data library). The Henry's Law Constant relates the amount of a chemical in the gas phase to the amount in the liquid phase for an air-water system.

Values for Henry's Law Constants are reported in two forms: dimensional and nondimensional. The values contained in MEPAS are given in the dimensional form. The relationship between the two forms is as follows:

$$H' = H/(RT)$$

where H' = nondimensional Henry's Law Constant

H = Henry's Law Constant, $\text{atm}\cdot\text{m}^3/\text{mol}$

R = Gas law constant, $\text{atm}\cdot\text{m}^3/\text{mol}\cdot^\circ\text{K}$

T = absolute temperature, $^\circ\text{K}$.

At 20°C , the value for RT is $2.4 \times 10^{-2} \text{ atm}\cdot\text{m}^3/\text{mol}$. The conversion between forms of the Henry's Law Constants is then given by the equations:

$$H' = 41.67 H$$

and

$$H = 0.024 H'.$$

Values for Henry's Law Constants are based on measured values where possible. When an estimate must be relied upon, the method used in the GEMS

program is used. This method estimates the Henry's Law Constant as the ratio of the vapor pressure to the water solubility, both values being taken at the temperature of interest (25°C). For gases, the vapor pressure is assumed to be 760 mm Hg.

2.2.5 Octanol-Water Partition

The octanol-water partition coefficient (Kow) describes the equilibrium partitioning of a chemical between octanol and water phases. This parameter is used in MEPAS to estimate, as necessary, transfer factors between water and aquatic foods, transfer factors between soil and plants, transfer factors between animal feed and animal products (meat and milk), and air-to-plant deposition velocities for volatile chemicals. Use of Kow in this manner is only necessary when values for the specific parameter are not contained in the data base.

Values for Kow for many chemicals have been compiled by Hansch and Leo (1979). Other sources of measured values are also available. When measured values cannot be found, an estimate can be made using the log P program contained in GEMS. This method uses the chemical structure, as defined by the SMILES notation, to estimate a value for Kow.

2.2.6 Carbon Matter Partition

The carbon matter partition coefficient (Koc) describes the partitioning of a chemical between the aqueous phase and the soil in contact with the water. The carbon matter partition coefficient is used in MEPAS to estimate the adsorption coefficient, K_d .

When measured values of the carbon matter partition coefficient are not available, an estimate can be made using correlation relationships. The first correlation method relates Koc to water solubility, S. This correlation, which is based on a variety of chemicals, including many pesticides, is referred to as Method K-1:

$$\log Koc = -0.55 \log S + 3.64$$

A second method based on the octanol-water partition coefficient has also been used. This correlation, which is based mostly on aromatic and polynuclear aromatic chemicals, is referred to as Method K-2:

$$\log K_{oc} - \log K_{ow} = 0.21$$

The distribution coefficient, K_d , is estimated from the value for K_{oc} using the following expression:

$$K_d = 10^{-4} K_{oc} S_d$$

where S_d is the soil distribution coefficient (dimensionless) and

$$S_d = 57.735 (\% \text{ organic matter}) + 2.0 (\% \text{ clay}) + 0.4 (\% \text{ silt}) + 0.005 (\% \text{ sand})$$

This value for K_d is evaluated by the shell from soil composition characteristics provided by the user, who is given information from which estimates of soil composition can be made.

2.3 ENVIRONMENTAL DECAY PARAMETERS

The transformation of radionuclides and chemicals from their original form to other forms is described in MEPAS by environmental decay rate constants. Such transformations are assumed to be described by exponential decay functions of the general form:

$$C(t) = C_0 \exp(-\lambda t)$$

where $C(t)$ = amount of contaminant present at time t , in mg or pCi

C_0 = amount of contaminant initially present (time zero), in mg or pCi

λ = decay constant for transformation of the constituent, in d^{-1} ,

t = current time measured from time zero, in d.

The decay rate constant can also be expressed as an effective "half time" by the expression:

$$T_e = 0.6931472/\lambda$$

where T_e is the effective half time for decay, in d, and 0.6931472 is the natural logarithm of 2. The term "half-life" is generally used in place of "half time" in referring to decay of radionuclides.

The decay rate constants are defined for each radionuclide and chemical in the chemical data base for three media: 1) water, 2) soil, and 3) air. These decay rate constants are used in the exposure pathway models as appropriate to the media being considered. The data base contains the effective half times rather than the decay rate constants because half-time information is more generally reported in the literature, especially for radionuclides. Evaluation of half times is described in the following subsections for radionuclides and chemicals.

2.3.1 Radionuclide Half-Life Data

The radioactive decay of radionuclides is well understood, and accurate measurements of decay half-lives are available for all radionuclides included in MEPAS. Because some radionuclides decay into radioactive decay products, it is necessary to consider the sequence of decay. These radioactive decay sequences or decay chains can be complex and involve many radionuclides, each having its own decay rate. Data on radioactive decay and decay chains are available from several sources; the sources of data used for MEPAS are Kocher (1979) and the interactive program containing data on radiation dosimetry described in subsection 2.5.

The MEPAS interactive shell will automatically add decay products to the source term list for any radionuclide defined in the source terms. The parent-decay product relationships included in MEPAS are summarized in Table 2.3. This table indicates parents, decay products derived from the parent, and the radiological half life for each radionuclide.

TABLE 2.3. Radioactive Contaminants, Decay Products, and Half-Lives^(a)

Name	Parent	Decay Product	Half-Life (yr)
Actinium-227	AC227		2.18×10^1
Thorium-227		TH227	5.12×10^{-2}
Radium-223		RA223	3.12×10^{-2}
Americium-241	AM241		4.58×10^2
Neptunium-237		NP237	2.14×10^6
Protactinium-233		PA233	7.39×10^{-2}
Uranium-233		U233	1.59×10^5
Americium-242	AM242		1.83×10^{-3}
Americium-242m	AM242M		1.52×10^2
Americium-242		AM242	1.83×10^{-3}
Curium-242		CM242	4.50×10^{-1}
Plutonium-238		PU238	8.77×10^1
Uranium-234		U234	2.45×10^5
Thorium-230		TH230	8.00×10^4
Americium-243	AM243		7.38×10^3
Plutonium-239		PU239	2.44×10^4
Antimony-125	SB125		2.77
Beryllium-7	BE7		1.50×10^{-1}
Cadmium-109	CD109		1.24
Calcium-45	CA45		4.50×10^{-1}
Californium-252	CF252		2.65
Curium-248		CM248	3.39×10^5
Plutonium-244		PU244	8.26×10^7
Carbon-14	C14		5.73×10^3
Cerium-144	CE144		7.80×10^{-1}
Cesium-134	CS134		2.05
Cesium-135	CS135		3.00×10^6

(a) Effects of decay products not listed as part of a chain are accounted for in the dosimetry factors of the parent radionuclide.

TABLE 2.3. (contd)

<u>Name</u>	<u>Parent</u>	<u>Decay Product</u>	<u>Half-Life (yr)</u>
Cesium-137	CS137		3.01×10^1
Chlorine-36	CL36		3.10×10^5
Chromium-51	CR51		7.60×10^{-2}
Cobalt-57	C057		7.40×10^{-1}
Cobalt-58	C058		1.94×10^{-1}
Cobalt-60	C060		5.27
Curium-242	CM242		4.50×10^{-1}
Plutonium-238		PU238	8.77×10^1
Uranium-234		U234	2.45×10^5
Thorium-230		TH230	8.00×10^4
Curium-243	CM243		2.85×10^1
Plutonium-239		PU239	2.41×10^4
Uranium-235		U235	7.04×10^8
Curium-244	CM244		1.81×10^1
Plutonium-240		PU240	6.57×10^3
Uranium-236		U236	2.34×10^6
Curium-245	CM245		8.50×10^3
Plutonium-241		PU241	1.44×10^1
Americium-241		AM241	4.58×10^2
Neptunium-237		NP237	2.14×10^6
Protactinium-233		PA233	7.39×10^{-2}
Uranium-233		U233	1.59×10^5
Europium-152	EU152		1.30×10^1
Europium-154	EU154		8.60
Europium-155	EU155		4.96
Gold-195	AU195		5.00
Iodine-129	I129		1.57×10^7
Iron-55	FE55		2.69
Lead-210	PB210		2.23×10^1
Polonium-210		PO210	3.78×10^{-1}

TABLE 2.3. (contd)

Name	Parent	Decay Product	Half-Life (yr)
Manganese-54	MN54		8.55×10^{-1}
Neptunium-237	NP237		2.14×10^6
Protactinium-233		PA233	7.39×10^{-2}
Uranium-233		U233	1.59×10^5
Nickel-59	NI59		7.50×10^4
Nickel-63	NI63		1.00×10^2
Niobium-95	NB95		9.61×10^{-2}
Plutonium-238	PU238		8.77×10^1
Uranium-234		U234	2.45×10^5
Thorium-230		TH230	8.00×10^4
Plutonium-239	PU239		2.41×10^4
Uranium-235		U235	7.04×10^8
Plutonium-240	PU240		6.57×10^3
Uranium-236		U236	2.34×10^6
Plutonium-241	PU241		1.44×10^1
Americium-241		AM241	4.58×10^2
Neptunium-237		NP237	2.14×10^6
Protactinium-233		PA233	7.39×10^{-2}
Uranium-233		U233	1.59×10^5
Plutonium-242	PU242		3.76×10^5
Uranium-238		U238	4.47×10^9
Thorium-234		TH234	6.60×10^{-2}
Plutonium-244	PU244		8.26×10^7
Plutonium-240		PU240	6.57×10^3
Polonium-210	PO210		3.78×10^{-1}
Promethium-147	PM147		2.60
Protactinium-231	PA231		3.25×10^4
Actinium-227		AC227	2.18×10^1
Thorium-227		TH227	5.12×10^{-2}
Radium-223		RA223	3.12×10^{-2}
Radium-223		RA223	3.12×10^{-2}

TABLE 2.3. (contd)

Name	Parent	Decay Product	Half-Life (yr)
Radium-226	RA226		1.60×10^3
Lead-210		PB210	2.23×10^1
Polonium-210		PO210	3.78×10^{-1}
Rubidium-83	RB83		2.27×10^{-1}
Ruthenium-106	RU106		1.01
Scandium-46	SC46		2.29×10^{-1}
Selenium-75	SE75		3.28×10^{-1}
Silver-110M	AG110M		6.84×10^{-1}
Sodium-22	NA22		2.60
Strontium-85	SR85		1.70×10^{-1}
Strontium-89	SR89		1.40×10^{-1}
Strontium-90	SR90		2.85×10^1
Yttrium-90		Y90	7.31×10^{-3}
Sulfur-35	S35		2.40×10^{-1}
Technetium-99	TC99		2.13×10^5
Thorium-227	TH227		5.12×10^{-2}
Radium-223		RA223	3.12×10^{-2}
Thorium-228	TH228		1.91
Thorium-229	TH229		7.34×10^3
Radium-225		RA225	4.05×10^{-2}
Actinium-225		AC225	2.74×10^{-2}
Thorium-230	TH230		8.00×10^4
Thorium-232	TH232		1.41×10^{10}
Tin-113	SN113		3.10×10^{-1}
Tritium	H3		1.24×10^1

TABLE 2.3. (contd)

<u>Name</u>	<u>Parent</u>	<u>Decay Product</u>	<u>Half-Life (yr)</u>
Uranium-233	U233		1.59×10^5
Thorium-229		TH229	7.34×10^3
Radium-225		RA225	4.05×10^{-2}
Actinium-225		AC225	2.74×10^{-2}
Uranium-234	U234		2.45×10^5
Thorium-230		TH230	8.00×10^4
Uranium-235	U235		7.04×10^8
Protactinium-231		PA231	3.25×10^4
Actinium-227		AC227	2.18×10^1
Thorium-227		TH227	5.12×10^{-2}
Radium-223		RA223	3.12×10^{-2}
Uranium-238	U238		4.47×10^9
Thorium-234		TH234	6.60×10^{-2}
Yttrium	Y91		1.61×10^{-1}
Zinc-65	ZN65		6.70×10^{-1}
Zirconium-95	ZR95		1.75×10^{-1}

2.3.2 Chemical Degradation Half Times

A chemical may be transformed from its original form to other forms by several mechanisms, such as oxidation, hydrolysis, chemical reactions, photolysis, and biodegradation. Some of these processes occur predominantly in one medium and slowly or not at all in other media. For example, hydrolysis is more likely to occur in water than in air, while photo-oxidation is more likely to occur in air than in soil or water.

The following list summarizes the handling of environmental degradation of chemicals in MEPAS:

- Inorganic chemicals do not degrade in the environment; however, exceptions are noted in the data tables of Section 3.0.
- Degradation of chemicals in water is not considered.
- Volatilization from farmland soil is estimated using a decay half time defined for soil.

- Degradation in air is not considered for most chemicals; however, exceptions are noted in the data tables of Section 3.0.

For the MEPAS chemical data base it was assumed that most inorganic chemicals are stable and do not transform. Therefore, a default decay rate of 1×10^{-8} per day is assigned to these chemicals, which is equivalent to a half time of 6.93×10^7 days (roughly 200,000 years). Because this half time is much larger than the times considered in MEPAS (maximum of 7000 years), the inorganic chemicals do not disappear from the environment.

Data on transformation of chemicals in air, soil, and water are available for some chemicals but generally involve much uncertainty. This uncertainty derives from the influence of the many environmental factors that affect the modes of transformation. For example, biodegradation in soil is quite variable, depending on the type and presence of organisms, soil pH, soil type, and temperature, among other factors. Because of the difficulty of generically defining transformation rates that are applicable to a broad spectrum of sites, the assumption has been made that chemicals are stable, and degradation has not been considered. This assumption is conservative and will result in estimated exposures that are higher than would otherwise be predicted. However, exceptions have been made for a few chemicals where reasonably good estimates of transformation were available and appropriate. Future versions of the chemical data base are expected to contain more estimates of transformation rates.

The escape of volatile chemicals from farmland soil following deposition from irrigation water is accounted for using a volatilization half time. The MEPAS volatilization source model has been used to estimate the initial rate of release of volatile chemicals from a uniformly contaminated layer of soil 15 cm thick (plow depth). The initial release rate (expressed as g/day) divided by the total amount in the soil (g) provides an effective removal rate constant (per day). This rate constant is then converted to an effective volatilization removal half time, which is entered in the data base as the soil removal half time for the chemical of interest.

A similar approach could be developed for volatilization from surface waters. However, this has not been done for the current version of the MEPAS

data base. Implementation of such an approach will also require modification of the MEPAS computer programs.

2.4 ENVIRONMENTAL TRANSFER PARAMETERS

The models used in MEPAS for estimating exposure from aquatic foods and farm products require transfer factors to describe the amount of a pollutant that is transferred from environmental media to edible foods. Also included in this category of parameters are the water purification factor (for domestic water use) and the atmospheric deposition class. All of the transfer factors provided in the chemical data base are described in the following subsections.

2.4.1 Food Transfer Factor

Where possible, the values for food transfer factors have been taken from compilations in the literature. The primary references for elements and radionuclides are Napier et al. (1980) and Strenge et al. (1986). Strenge et al. (1986) present values selected by the Nuclear Regulatory Commission for evaluating potential impacts from nuclear power reactors as part of their reactor licensing process.

The correlations used for aquatic foods have been described in the RAPS mathematical formulations report (Whelan et al. 1987). For finfish, the correlation is from Veith et al. (1980):

$$\log (B_{if}) = 0.76 \log (Kow_i) - 0.23$$

and for shellfish the correlation is from Southworth et al. (1978):

$$\log (B_{if}) = 0.819 \log (Kow_i) - 1.146$$

where B_{if} = bioaccumulation factor for contaminant i and aquatic food f ,
in L/kg, .

Kow_i = octanol-water partition coefficient for contaminant i ,
dimensionless.

The correlations initially selected for farm product pathways in RAPS/MEPAS have been replaced with correlations suggested by Travis and Arms (1988). All of the correlations relate the desired transfer factor to the octanol-water partition coefficient for a particular pollutant.

The beef transfer factor correlation evaluated by Travis and Arms considered 36 chemicals, with values of $\log(Kow)$ ranging from 1.34 to 6.89. Using a geometric mean functional regression method, the following correlation was obtained:

$$\log(F_{mi}) = -7.6 + \log(Kow_i)$$

where F_{mi} = transfer coefficient for contaminant i that relates daily intake rate by an animal to the concentration in meat, d/kg

Kow_i = octanol-water partition coefficient for contaminant i ,
dimensionless.

The milk transfer factor was based on data for 28 organic compounds, with $\log(Kow)$ values ranging from 2.84 to 6.89. The geometric mean regression of these data resulted in the following correlation:

$$\log(F_{mi}) = -8.10 + \log(Kow_i)$$

where F_{mi} = transfer coefficient for contaminant i that relates daily intake rate by an animal to the concentration in milk, d/L.

The same symbol (F_{mi}) is used for both the meat and milk transfer factors for consistency with the nomenclature used in the original report describing the mathematical formulations of RAPS (Whelan et al. 1987).

The correlation of soil-to-plant transfer with Kow was evaluated by Travis and Arms for 29 chemicals, with $\log(Kow)$ values varying from 1.15 to 9.35. The geometric mean regression of these data provided the following correlation:

$$\log (Bv_i) = 0.986 - 0.578 \log (Kow_i)$$

where Bv_i = transfer factor from soil to edible plant parts for contaminant i (for chemicals: mg/kg wet plant per mg/kg dry soil; for radionuclides: pCi/kg wet plant per pCi/kg dry soil).

Note that the correlation originally presented by Travis and Arms was based on plant concentrations expressed as dry weight. The correlation now included in MEPAS was obtained by assuming that the dry weight concentration is 4 times the wet weight concentration (i.e., by assuming that the plant is 75% water).

2.4.2 Water Purification Factor

The water purification factor is applied to domestic use of groundwater and surface water supplies if the water is processed in a water-treatment facility. The water purification factors included in MEPAS are based on standard treatment practices including filtration and flocculation processes. The values do not take into account special treatment processes. The factor represents the fraction of the pollutant that remains after the water passes through the treatment process. A default value of 1.0 (no removal) is given in the data base if no information is available for a pollutant. Values for elements and radionuclides are taken from Napier et al. (1980).

2.4.3 Deposition Velocity

The deposition velocity is used in MEPAS only for estimating the amount of pollutant transferred from air to plant surfaces, as part of the farm products pathway for atmospheric releases. Data for radionuclides and elements are based on values given by Napier et al. (1980). A default deposition velocity of 0.001 m/sec is used for materials that are particulates or that will attach to ambient atmospheric particles.

For volatile organic pollutants, an empirical model has been developed based on limited data and theoretical considerations of partitioning between air, plant water, and plant organic material. The empirical model contains a limiting value of 0.001 m/sec for nonvolatile organic pollutants to be

consistent with the default value for particulates. The empirical model is given by the following equation:

$$Vd_i = CF * V1$$

where Vd_i = deposition velocity for contaminant i , m/sec

CF = greater of $1./(1000 V1)^{0.25}$ and 1.0

$V1 = 4.80349E-8 (0.9 + 0.1 Kow_i) / [1000 H1c_i + (4.8E-5) (0.9 + 0.1 Kow_i)]$

Kow_i = octanol-water partition coefficient for contaminant i , dimensionless

$H1c_i$ = Henry's Law Constant for contaminant i , atm·m³/mol

and numerical values represent empirical constants of the model. This correlation is used only when the data base does not contain a value for the deposition velocity and contains positive values for both the Henry's Law Constant and the octanol-water partition coefficient.

2.4.4 Atmospheric Deposition Class

Each constituent in the chemical data base is assigned an atmospheric deposition class index. This deposition class determines how atmospheric deposition and deposition will be handled in modeling transport of the constituent from the source to receptor locations. Seven deposition classes are currently available in MEPAS:

- 1 - particles (radius = 7.5 microns)
- 2 - particles (radius = 3.0 microns)
- 3 - particles (radius = 0.3 microns)
- 4 - depositing gas, surface resistance of reactive gas
- 5 - non-depositing gas
- 6 - gas emission/particle deposition (same deposition rate as 3)
- 7 - depositing gas, zero surface resistance of gas.

The current version of MEPAS defines particulate transport according to deposition class 3 as being representative of ambient particulate material. Any radionuclide or inorganic chemical for which a deposition class of 1, 2, or 3 is given in the data library will be treated as a class 3 particulate. Assignment of deposition classes for organic chemicals considers the

volatility of the chemical and partitioning characteristics as defined by the Henry's Law constant and the octanol-water partition coefficient. The following criteria based on these parameters are used to assign the classes:

1. Class 4 is assigned if: $H_{lc} \leq 5 \times 10^{-4}$ and
 $\log K_{ow} < 1.5$
2. Class 5 is assigned if: $H_{lc} > 5 \times 10^{-4}$ and
 $\log K_{ow} < 5.0$
3. Class 6 is assigned if criteria 1 and 2 are not met.

Class 7 is not currently used.

2.5 RADIATION DOSIMETRY PARAMETERS

The radiation dosimetry parameters relate radionuclide intake and external radiation exposure to the dose received by an individual. The dose factors provide the dose as the effective dose equivalent or EDE, in units of rem, which is the form required for the hazard index evaluation model of MEPAS. The EDE represents the dose received by an individual, with consideration given to the exposure of specific organs weighted by the probability of cancer resulting from exposure to the organs. The dose factors are radionuclide-specific because radiations emitted are specific to radionuclides, and because uptake and distribution within the body are element-specific. The reader is referred to ICRP Publications 26 (ICRP 1977) and 30 (ICRP 1979-1982) for details of the models used to evaluate dose equivalents.

Internal dose factors (reflecting inhalation and ingestion) provide the EDE received over a 50-year period from intake occurring during the first year. To determine the total dose received over the lifetime of an individual, the one-year intake dose values must be multiplied by 70 (the assumed lifetime). This results in a slight overestimate of lifetime dose for some radionuclides, because an individual would have to live 120 years (70 years of intake plus 50 years of continuing dose from one year's intake) to receive the full dose commitment implied in the calculation. At worst, this estimate will be no more than a factor of two greater than the correct dose, and it is nearly exact for many radionuclides.

The external dose factors provide exposure rates relative to unit media concentrations and do not have an exposure commitment period associated with them. When an individual leaves the proximity of the contaminated media, the exposure stops and no further dose is received.

Unless otherwise indicated, radiation dosimetry parameters are based on values generated by K. F. Eckerman of Oak Ridge National Laboratory using the models and data recommended in ICRP Publications 26 and 30. The internal dose factors generated by Eckerman are nearly identical to those presented in a recent DOE publication (DOE 1988b). The internal dosimetry factors have been listed by DOE (1988b) for two absorption classes for ingestion and three respiratory-tract-retention classes for inhalation. In selecting dose factors for inhalation and ingestion, Eckerman generally took the most conservative class. Therefore, for a few isotopes of plutonium and americium, values have been taken from DOE (1988b).

The external radiation dose factors and radiological half-life values were generated by D. C. Kocher, also of Oak Ridge National Laboratory. These external dose factors are nearly identical to those presented in a recent DOE publication based on Kocher's work (DOE 1988a). The radiological factors have been retrieved from a data base provided by Dr. Eckerman using an interactive program developed by D. A. Baker as part of MEPAS. The program, RADF, contains data for 825 radionuclides. When the radionuclide symbol is entered, RADF will provide all of the radiological dosimetry factors (in appropriate units) for the radionuclide.

2.5.1 Ingestion Dose Factor

The ingestion dose factor is used in MEPAS for all pathways that involve ingestion of radionuclides, including drinking water, aquatic foods, farm products, soil, water while swimming, and water while showering. The ingestion dose factor is expressed as the 50-year EDE (in rem) received from intake during the first year (in pCi). Values for ingestion dose factors are taken from the work of Eckerman described above.

2.5.2 Inhalation Dose Factor

The inhalation dose factor is used in MEPAS for all pathways involving inhalation of radionuclides, including general exposure to radionuclides transported in air and inhalation of resuspended activity. Like the ingestion dose factors, the inhalation dose factors are expressed as the 50-year EDE (in rem) received from intake during the first year (in pCi). Values for the inhalation dose factors are taken from the work of Eckerman.

2.5.3 Air Immersion Factor

Immersion in air contaminated by a passing plume of released radioactivity will result in radiation exposure if the radionuclides in the plume emit gamma or beta radiation. The estimation of dose from airborne particulates assumes that the amount of radiation emitted per unit volume of air is equal to the amount of radiation absorbed per unit volume of air. This assumption is generally referred to as the semi-infinite plume assumption. In effect, the plume is assumed to be semi-infinite (bounded only by the ground plane) and to have uniform air concentration that is equal to the estimated air concentration at the downwind location of interest. Air immersion dose factors are defined for each radionuclide and provide an estimate of the radiation dose rate received from total immersion in the plume. The dose is expressed as the effective-dose-equivalent dose rate per unit activity in the plume (rem/h per pCi/m³). Values for the air immersion dose factor are taken from the compilations of K. F. Eckerman, as provided in the RADF program.

2.5.4 Ground Exposure Factor

Radioactive material deposited on the ground may expose individuals who walk or stand on the ground. The dose from the deposited radionuclides is estimated using ground exposure dose conversion factors that relate ground concentration (pCi/m²) to dose rate (rem/h). The dose factors are calculated assuming the source area to be an infinite plane, with the exposure point at 1 m above the plane. Values for the ground exposure dose factor are taken from the compilations of K. F. Eckerman, as provided in the RADF program.

2.5.5 Water Immersion Factor

The swimming exposure pathway includes a contribution to radiation dose received while immersed in water and while in boats on the water. The dose is received from gamma-emitting radionuclides contained in the water. The water immersion dose factors represent the dose rate (rem/h) received while totally immersed in contaminated water of unit concentration (pCi/L). The boating exposure scenario uses the immersion factors multiplied by a geometric correction factor of 0.5 to account for the fact that the boat is approximately on the surface of the water and occupants are exposed to half of the source strength. Values for the water immersion dose factor are taken from the compilations of K. F. Eckerman, as provided in the RADF program.

2.5.6 Radon Dosimetry Factors

Radon released to the atmosphere will be transported downwind and cause radiation exposure through inhalation, ingestion of contaminated crops, and direct irradiation of airborne and deposited material. Special dose factors have been developed for MEPAS to represent the processes of transporting and transferring radon and radon decay products through exposure pathways. Two radon isotopes are considered, with the decay products indicated in Table 2.4.

As radon is released and transported downwind, decay products begin to form and are assumed to attach to particulate material in the air. The radon is assumed to be released at a continuous rate from a source of radium parent. For the radon-220 decay chain, the most prevalent radionuclide (i.e., the one with the longest half-life) is ^{212}Pb . The assumption is made that the decay products behave as lead in the environment. The dosimetry factors are based on assumed equilibrium of the radon and decay products in the environment as indicated in Table 2.5. This table indicates the contribution to dose from each decay product. The total dose factor is the sum (over all radionuclides in the decay chain) of the product of the dose factor times the equilibrium activity ratio. The inhalation and ingestion dose conversion factors are controlled by decay products ^{212}Pb and ^{212}Bi . External dose conversion factors are assumed to have contributions from ^{220}Rn

TABLE 2.4. Radon Isotope Decay Products

Radon-220 ^(a)		Radon-222 ^(b)	
Radionuclide	Half-Life	Radionuclide	Half-Life
Radon-220	55.6 s	Radon-222	3.82 d
Polonium-216	0.146 s	Polonium-218	3.05 min
Lead-212	10.64 h	Lead-214	26.8 min
Bismuth-212	60.55 min	Bismuth-214	19.9 min
Thallium-208	3.053 min	Lead-210	22.26 yr
Lead-208	Stable	Bismuth-210	5.01 d
		Polonium-210	138.4 d
		Lead-206	Stable

- (a) Bismuth-212 decays 64.07% to ^{212}Po and 35.93% to ^{208}Tl . The ^{212}Po decay product radiations are included in the decay of bismuth-212.
- (b) The polonium-214 decay product radiations are included in the decay of bismuth-214.

TABLE 2.5. Radon-220 Dosimetry Factor Summary

Radionuclide	Half-Life (h)	Equilibrium Activity Ratio	Dose Factor for Radionuclide				
			Inhalation	Ingestion	Air	Ground	Water
Radon-220	1.52×10^{-2}	1.0	0.0	0.0	3.0×10^{-13}	6.2×10^{-15}	6.6×10^{-13}
Polonium-216	4.05×10^{-5}	1.0	0.0	0.0	8.7×10^{-15}	1.7×10^{-16}	1.9×10^{-14}
Lead-212	10.64	1.45×10^{-3}	1.7×10^{-7}	4.6×10^{-8}	8.6×10^{-11}	1.9×10^{-12}	1.9×10^{-10}
Bismuth-212	1.01	1.45×10^{-3}	2.2×10^{-8}	1.1×10^{-9}	1.2×10^{-10}	2.6×10^{-12}	2.4×10^{-10}
Thallium-208	5.09×10^{-2}	5.21×10^{-4}	0.0	0.0	2.3×10^{-9}	3.5×10^{-11}	4.9×10^{-9}
Lead-208	Stable	---					
Total Dose Factor			2.8×10^{-10}	6.8×10^{-11}	1.8×10^{-12}	3.1×10^{-14}	3.9×10^{-12}

even though most of the radon will have decayed by the time the activity reaches the exposure locations of interest.

Similar assumptions are made in evaluating the dosimetry factors for ^{222}Rn . In this decay chain, the longest-lived radionuclide is at the end, ^{210}Pb . Also, the decay products between radon and the final lead isotope have much shorter half-lives than radon, so that they can be assumed to be in

equilibrium with the radon in air. A summary of the ^{222}Rn dosimetry factors is given in Table 2.6. For both radon decay chains, transfer of the decay products through food chains is assumed to be described by transfer factors for lead. The effective decay half-life for each decay chain is taken as the half-life for the dominant lead isotope.

2.6 CHEMICAL TOXICITY PARAMETERS

Toxicity parameters are required for chemicals to relate exposure level to relative risk. MEPAS uses cancer potency factors to evaluate risk from carcinogenic chemicals, and reference doses (RfD) to evaluate relative risks from exposure to noncarcinogenic chemicals. At least one of these parameters must be defined for inhalation exposure and one for ingestion (oral) exposure. Both types of toxicity parameters are defined for inhalation or ingestion (or both) of some chemicals. The report on the MEPAS mathematical formulations (Droppo et al. 1989) contains details on use of the toxicity parameters to estimate potential health hazards.

The general hierarchy in evaluating toxicity parameters is given by the following criteria:

1. Use values from EPA's Integrated Risk Information System (IRIS) if they are available for inhalation and ingestion.
2. If an IRIS value is available for only one intake route (inhalation or ingestion), use that IRIS value for both routes.

TABLE 2.6. Radon-222 Dosimetry Factor Summary

Radionuclide	Half-Life (d)	Equilibrium Activity Ratio	Dose Factor for Radionuclide				
			Inhalation	Ingestion	Air	Ground	Water
Radon-222	3.82	1.0	0.0	0.0	2.3×10^{-13}	4.6×10^{-15}	4.9×10^{-13}
Polonium-218	2.12×10^{-3}	1.0	0.0	0.0	0.0	0.0	0.0
Lead-214	1.86×10^{-2}	1.0	7.8×10^{-9}	6.3×10^{-10}	1.5×10^{-10}	3.2×10^{-12}	3.2×10^{-10}
Bismuth-214	1.38×10^{-2}	1.0	6.6×10^{-9}	2.8×10^{-10}	9.1×10^{-10}	1.7×10^{-11}	2.0×10^{-9}
Lead-210	8.13×10^3	4.7×10^{-4}	1.4×10^{-5}	5.4×10^{-6}	7.9×10^{-13}	3.6×10^{-14}	2.0×10^{-12}
Bismuth-210	5.01	4.7×10^{-4}	2.0×10^{-7}	6.4×10^{-9}	3.1×10^{-12}	3.8×10^{-13}	3.3×10^{-12}
Polonium-210	138.4	4.7×10^{-4}	9.4×10^{-6}	1.9×10^{-6}	5.2×10^{-15}	1.0×10^{-16}	1.1×10^{-10}
Total Dose Factors			2.5×10^{-8}	4.3×10^{-9}	1.1×10^{-9}	2.0×10^{-11}	2.3×10^{-9}

3. When no IRIS values are available, use threshold limit values (TLVs), if available, to estimate an effective inhalation reference dose. Use of TLVs to estimate inhalation reference doses is discussed below. Use the inhalation reference dose for ingestion also.
4. When neither IRIS nor TLV values are available, use the acute exposure data for small animals from the Registry of Toxic Effects of Chemical Substances (RTECS). Use of RTECS data is discussed below. Data from Sax et al. (1989) may also be used in the same manner as RTECS data.
5. If these sources of data do not provide estimates of toxicity parameters, then base toxicity estimates on a chemical of similar structure and properties.

The primary source of toxicity parameters is EPA's IRIS, which is an on-line computer information system. When data for a chemical constituent are not available from IRIS, other methods must be used to estimate toxicity parameter values. It is recognized that some of the methods and assumptions mentioned above do not have a strong technical basis. For example, the use of inhalation toxicity values for the ingestion route provides only an approximation and may not accurately represent the ingestion toxicity. However, use of such methods is currently necessary for the MEPAS application, and the methods do at least give an approximate indication of the relative hazard potential for chemicals. The following discussions describe how the toxicity data sources can be used to evaluate chemical toxicity parameters.

2.6.1 IRIS Data Base

The primary source of cancer potency factors and reference doses is IRIS. This interactive system is available for use by government and industry for rapid dissemination of current EPA policies regarding health risk estimation for specific chemicals. Current values for cancer potency factors and reference doses may be obtained directly from IRIS for input to the RAPS/MEPAS data base. The values reported in Section 3.0 of this report are current as of June 20, 1989.

The information and chemical lists in IRIS are limited, and often either data for a chemical of interest will not be included in IRIS or parameter values will be included for only one exposure mode (inhalation or ingestion

intake). For the purposes of evaluations performed by MEPAS, the cancer potency factors for inhalation and ingestion exposure are assumed to be equal when only one value is provided in IRIS. The same is true for reference doses. However, the assumption of equality is only used when no values are provided for one of the exposure modes. For example, if IRIS contains a cancer potency factor for inhalation and a reference dose for ingestion, there is no need to define either a cancer potency factor for ingestion or a reference dose for inhalation, because at least one toxicity parameter value is available for each exposure mode.

2.6.2 Use of TLVs

When data are not available from IRIS, other methods must be used to estimate toxicity parameters. The first option is to use TLVs as defined by the American Conference of Governmental Industrial Hygienists (ACGIH 1987) to estimate an effective reference dose for inhalation. The TLV values represent air concentrations (mg/m^3) that are not to be exceeded in the work environment. The values represent exposure to workers for a typical 8-hour work day, 5 days per week, for a 50-year career. The TLV time-weighted average values (TWA) can be converted to a value representative of continuous exposure by a member of the public as follows:

$$\text{RfD} = \text{TWA} (40 \text{ h/wk}) / (168 \text{ h/wk}) (28.8 \text{ m}^3/\text{d}) / (23 \text{ m}^3/\text{d}) (50 \text{ yr}/70 \text{ yr}) \\ (23 \text{ m}^3/\text{d}) (1/70 \text{ kg}) (1/10 \text{ safety factor})$$

$$\text{RfD} (\text{mg}/\text{kg}/\text{d}) = 0.007 \text{ TWA} (\text{mg}/\text{m}^3)$$

This expression considers differences in work time, ventilation rate (breathing), and a safety factor of 10. The RfD evaluated by this expression is an effective value for inhalation. If an oral toxicity value is also needed, then this RfD would also be used for the ingestion route.

2.6.3 Use of Acute Toxicity Data (LD_{50})

The second option when IRIS data are not available involves using acute mortality data (usually for animals) to estimate an effective reference

dose. When TLVs are not available for a chemical, an effective RfD can be estimated from the acute toxicity data available in the Registry of Toxic Effects of Chemical Substances (RTECS) published by the National Institute for Occupational Safety and Health. Data for most chemicals known to man are included in this compilation. The usual form of the toxicity information in RTECS is LD₅₀ values for animals by various exposure routes. The most appropriate data to use are the values for small-animal toxicity via the oral intake route.

The effective RfD is evaluated as follows:

$$\text{RfD} = \text{LD}_{50} \times 4 \times 10^{-5}$$

where LD₅₀ is the acute lethal dose to 50 percent of animals (mg/kg) and 4×10^{-5} is an empirical conversion factor (mg/kg/d per mg/kg). The empirical conversion factor is based on a study by Layton et al. (1987) in which data for chemicals having known RfDs and LD₅₀s were compared. The conversion factor represents the median value of the reported ratios of RfD to LD₅₀ values. The 50% value is taken so that additional conservatism is not introduced into the estimation of reference dose above that already included in evaluations performed by EPA. The estimated reference doses are, therefore, on the same level of conservatism as the EPA values, making relative comparison of health impacts more meaningful.

2.6.4 Other Methods

When the above methods fail to provide estimates for cancer potency values or RfDs, indirect methods must be used. Data on chemicals with similar structures must be evaluated to provide an estimate for the chemicals of concern.

3.0 CONSTITUENT INFORMATION

The parameter values and references for all constituents in the MEPAS chemical data base are presented in this section. Each subsection presents the data contained in the data base for one constituent. A total of 392 constituents are currently in the data base. Data for radionuclides are presented first (subsections 3.1 through 3.74), and the remaining sections give the data for all other constituents and mixtures.

The methods used to determine parameter values have been described in Section 2.0. The tables in the subsections that follow refer to these methods in the reference column where appropriate. The reference codes are summarized in Table 3.1.

TABLE 3.1. Reference Codes for Parameter Value Sources

<u>Reference Code</u>	<u>Description of Code</u>
Calculated from Kow	The value is estimated from the octanol-water partition coefficient using the correlation relationship defined in Section 2.4 for the particular transfer factor.
CHEMEST	Data from CHEMEST validation data base as implemented in the GEMS AUTOCHEM model.
CLOGP#	Log Kow calculated using CLOGP#, a computerized method of Leo's fragment constant method. Leo's method presented by Lyman et al. 1982 and available in GEMS.
Default	<p>Default values have been assigned for some parameters when values were not available from the literature. The default values are believed to represent a reasonable approximation for use within MEPAS. The following default values are used:</p> <ol style="list-style-type: none">1) Vapor pressure of gases is set to a maximum of 760 mm Hg2) Deposition velocity of particulates and nonvolatile organic chemicals is set to 0.001 m/sec3) Environmental degradation half times are set to a maximum of 6.9×10^7 days to represent no degradation

TABLE 3.1. (contd)

<u>Reference Code</u>	<u>Description of Code</u>
	4) Water purification factor is set to 1.0, representing no purification
	5) Henry's Law constant for low-volatility compounds is set to a minimum of 3×10^{-7} when data are unavailable.
Depositing Gas	The material considered to behave as a depositing gas for atmospheric transport calculations.
Eckerman	The radiation dosimetry factor is based on values provided in the data base generated by K. F. Eckerman of ORNL (see Section 2.5).
Empirical	Molecular weight derived from empirical formula.
Gas as Particulate	The material is considered to be a gas but attaches to particulates and behaves as a particulate for atmospheric transport calculations.
GEMS - E	Estimated using GEMS AUTOCHEM model.
GEMS - M	Value provided from GEMS library of measured values.
= ing	A toxicity value for (RfD or CPF) for inhalation is set equal to the value for ingestion.
= inh	A toxicity value (RfD or CPF) for ingestion is set equal to the value for inhalation.
IRIS	The toxicity value (RfD or CPF) is a verified value taken from EPS's on-line integrated Risk Information System (IRIS).
Isotope	Molecular weight determined from isotope atomic weight.
Name (year), or name only	The value given is based on information presented in the indicated reference (citations provided in Appendix B).
Non-depositing gas	The material is considered to behave as a non-depositing gas for atmospheric transport calculations.
Not Defined	No value is defined for the parameters because none is required in MEPAS for a given chemical.

TABLE 3.1. (contd)

<u>Reference Code</u>	<u>Description of Code</u>
No value in data base	No value provided in the data base for water solubility. This does not affect the analyses of MEPAS for the chemical.
OHM-TADS	Data from Oil and Hazardous Materials Technical Assistance Data System maintained by EPA.
Particulate	The material is considered to behave as a particulate for atmospheric transport calculations.
Pathway not used	A value for the parameter is not provided because the pathway is not considered to be realistic for a particular chemical.
PCALC	From the table of calculated log Kow, as provided by ICF (1987a).
RTECS - D	Physical property data provided in the Registry of Toxic Effects of Chemical Substances (RTECS) published by NIOSH (1987).
RTECS - T	The reference dose of ingestion is estimated from small-animal LD50 values provided in the Registry of Toxic Effects of Chemical Substances (RTECS) published by NIOSH (1987).
TLV	The inhalation toxicity value (RfD or CPF) is based on reported Threshold Limit Value (TLV).
TLV Asphyxiant	The chemical toxicity parameter (reference dose) is based on reduction of oxygen concentration in air to less than 18%.
VOL-S	The value for the half-time of a volatile chemical in soil is estimated using the soil volatilization model described in Section 2.3.
Method DVM	Deposition velocity is determined using the empirical model for volatile organic chemicals.
Method K-1	Koc estimated from $\log Koc = -0.55 \log sol - 3.64$ where sol = solubility.
Method K-2	Koc estimated from $\log Koc = \log Kow - 0.21$.

TABLE 3.1. (contd)

<u>Reference Code</u>	<u>Description of Code</u>
Method S-1	Water solubility determined using the correlation for non-acidic compounds and $0.5 < \log K_{ow} < 8$.
Method S-2	Water solubility determined using the correlation for non-acidic compounds and $-0.5 < \log K_{ow} < 0.5$.
Method S-3	Water solubility determined using the correlation for acids with $-0.5 < \log K_{ow} < 0.5$.
Method S-4	Solubility of 1×10^6 mg/L assigned; literature reported infinite solubility.
Method VP-1	Vapor pressure determined using the Antoine method.
Method VP-2	Vapor pressure determined using the modified Watson method.

3.1 Data Summary for ACTINIUM-225

ID: AC225

Common Synonyms: ACTINIUM-225

Physical Properties:

		<u>Reference</u>
Molecular Weight	225.00	Isotope
Water Solubility, mg/L		No value in data base
Radiological Decay Half-life, days	1.0E+01	Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.5E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+03	Napier et al. (1980)
Soil-to-Edible Plant	2.5E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.5E-06	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	1.1E-07	Eckerman
Inhalation Dose Factor, rem/pCi	1.1E-05	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	7.9E-12	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	1.9E-13	Eckerman
Water Immersion Factor, rem/hr per pCi/L	1.8E-11	Eckerman

3.2 Data Summary for ACTINIUM-227

ID: AC227

Common Synonyms: ACTINIUM-227

Physical Properties:

		<u>Reference</u>
Molecular Weight	227.00	Isotope
Water Solubility, mg/L		No value in data base
Radiological Decay Half-life, days	8.0E+03	Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>	<u>Reference</u>	
Bioaccumulation in Fish	2.5E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+03	Napier et al. (1980)
Soil-to-Edible Plant	2.5E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.5E-06	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	1.4E-05	Eckerman
Inhalation Dose Factor, rem/pCi	6.7E-03	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	7.3E-14	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	2.5E-15	Eckerman
Water Immersion Factor, rem/hr per pCi/L	1.7E-13	Eckerman

3.3 Data Summary for AMERICIUM-241

ID: AM241

Common Synonyms: AMERICIUM-241

Physical Properties:

Molecular Weight	241.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.6E+05

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

Transfer Parameter

Bioaccumulation in Fish	2.5E+01
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	2.5E-04
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	4.5E-06
Inhalation Dose Factor, rem/pCi	5.2E-04
Air Immersion Factor, rem/hr per pCi/m ³	1.1E-11
Ground Exposure Factor, rem/hr per pCi/m ²	3.5E-13
Water Immersion Factor, rem/hr per pCi/L	2.7E-11

Reference

DOE (1988)
Eckerman
Eckerman
Eckerman
Eckerman

3.4 Data Summary for AMERICIUM-242

ID: AM242

Common Synonyms: AMERICIUM-242

Physical Properties:

Molecular Weight	242.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	6.7E-01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

Transfer Parameter

Bioaccumulation in Fish	2.5E+01
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	2.5E-04
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.3E-09
Inhalation Dose Factor, rem/pCi	6.0E-08
Air Immersion Factor, rem/hr per pCi/m ³	9.0E-12
Ground Exposure Factor, rem/hr per pCi/m ²	2.7E-13
Water Immersion Factor, rem/hr per pCi/L	2.0E-11

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.5 Data Summary for AMERICIUM-242M

ID: AM242M

Common Synonyms: AMERICIUM-242M

Physical Properties:

Molecular Weight	242.00	Isotope
Water Solubility, mg/L		No value in data base
Radiological Decay Half-life, days	5.6E+04	Napier et al. (1980)

Reference

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.5E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+03	Napier et al. (1980)
Soil-to-Edible Plant	2.5E-04	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.5E-06	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	2.1E-06	Eckerman
Inhalation Dose Factor, rem/pCi	5.1E-04	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	2.8E-13	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	3.4E-14	Eckerman
Water Immersion Factor, rem/hr per pCi/L	7.0E-13	Eckerman

3.6 Data Summary for AMERICIUM-243

ID: AM243

Common Synonyms: AMERICIUM-243

Physical Properties:

Molecular Weight	243.00	Isotope
Water Solubility, mg/L		No value in data base
Radiological Decay Half-life, days	2.7E+06	Napier et al. (1980)

Reference

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.5E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+03	Napier et al. (1980)
Soil-to-Edible Plant	2.5E-04	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.5E-06	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	4.5E-06	DOE (1988)
Inhalation Dose Factor, rem/pCi	5.2E-04	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	2.9E-11	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	7.6E-13	Eckerman
Water Immersion Factor, rem/hr per pCi/L	7.1E-11	Eckerman

3.7 Data Summary for ANTIMONY-125

ID: SB125

Common Synonyms: ANTIMONY-125

Physical Properties:

Molecular Weight	125.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.0E+03

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

Transfer Parameter

Bioaccumulation in Fish	1.0E+00
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	1.1E-02
Feed-to-Animal Meat, d/kg	3.0E-03
Feed-to-Cow Milk, d/L	7.5E-04
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.8E-09
Inhalation Dose Factor, rem/pCi	1.2E-08
Air Immersion Factor, rem/hr per pCi/m ³	2.5E-10
Ground Exposure Factor, rem/hr per pCi/m ²	5.2E-12
Water Immersion Factor, rem/hr per pCi/L	5.4E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.8 Data Summary for BERYLLIUM-7

ID: BE7

Common Synonyms: BERYLLIUM-7

Physical Properties:

Molecular Weight	7.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	5.3E+01

Reference

Isotope
No value in data base
Eckerman

Environmental Transfer Factors:

Transfer Parameter

Bioaccumulation in Fish	2.0E+00
Bioaccumulation in Shellfish	1.0E+01
Soil-to-Edible Plant	4.7E-04
Feed-to-Animal Meat, d/kg	8.0E-04
Feed-to-Cow Milk, d/L	2.0E-06
Water Purification Factor	.20
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.3E-10
Inhalation Dose Factor, rem/pCi	3.2E-10
Air Immersion Factor, rem/hr per pCi/m ³	2.9E-11
Ground Exposure Factor, rem/hr per pCi/m ²	6.0E-13
Water Immersion Factor, rem/hr per pCi/L	6.3E-11

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.9 Data Summary for CARBON-14

ID: C14

Common Synonyms: CARBON-14

Physical Properties:

Molecular Weight	14.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	2.1E+06

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:^(a)Transfer Parameter

Bioaccumulation in Fish	4.6E+03
Bioaccumulation in Shellfish	9.1E+03
Water Purification Factor	1.00
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Default
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.1E-09
Inhalation Dose Factor, rem/pCi	2.1E-09
Air Immersion Factor, rem/hr per pCi/m ³	3.3E-14
Ground Exposure Factor, rem/hr per pCi/m ²	0.0E+00
Water Immersion Factor, rem/hr per pCi/L	3.5E-14

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

(a) Special models are used for transfer of ¹⁴C from soil to plants and from plants to animal products. Transfer factors are not required for the special models.

3.10 Data Summary for CERIUM-144

ID: CE144

Common Synonyms: CERIUM-144

Physical Properties:

Molecular Weight	144.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	2.8E+02

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+00
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	5.0E-04
Feed-to-Animal Meat, d/kg	1.0E-03
Feed-to-Cow Milk, d/L	1.0E-05
Water Purification Factor	.20
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.1E-08
Inhalation Dose Factor, rem/pCi	3.7E-07
Air Immersion Factor, rem/hr per pCi/m ³	1.1E-11
Ground Exposure Factor, rem/hr per pCi/m ²	2.5E-13
Water Immersion Factor, rem/hr per pCi/L	2.4E-11

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.11 Data Summary for CESIUM-134

ID: CS134

Common Synonyms: CESIUM-134

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

134.00
7.5E+02

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

2.0E+03
1.0E+02
2.0E-03
3.0E-02
5.0E-03
.90
1.0E-03
1

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:Reference

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

7.4E-08
4.7E-08
9.3E-10
1.8E-11
2.0E-09

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.12 Data Summary for CESIUM-135

ID: CS135

Common Synonyms: CESIUM-135

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

135.00
8.4E+08

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

2.0E+03
1.0E+02
2.0E-03
3.0E-02
5.0E-03
.90
1.0E-03
1

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:Reference

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

7.1E-09
4.5E-09
7.9E-14
0.0E+00
8.3E-14

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.13 Data Summary for CESIUM-137+D

ID: CS137

Common Synonyms: CESIUM-137+D

Physical Properties:

		<u>Reference</u>
Molecular Weight	137.00	Isotope
Water Solubility, mg/L		No value in data base
Radiological Decay Half-life, days	1.1E+04	Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>	<u>Reference</u>	
Bioaccumulation in Fish	2.0E+03	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	2.0E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	3.0E-02	Napier et al. (1980)
Feed-to-Cow Milk, d/L	5.0E-03	Napier et al. (1980)
Water Purification Factor	.90	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	5.0E-08	Eckerman
Inhalation Dose Factor, rem/pCi	3.2E-08	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	3.4E-10 ^(a)	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	6.8E-12 ^(a)	Eckerman
Water Immersion Factor, rem/hr per pCi/L	6.9E-10 ^(a)	Eckerman

(a) External exposure factors include contribution from ¹³⁷Cs decay product; ^{137m}Ba assumed to be in equilibrium at 94.6% branching ratio.

3.14 Data Summary for COBALT-57

ID: C057

Common Synonyms: COBALT-57

Physical Properties:

		<u>Reference</u>
Molecular Weight	57.00	Isotope
Water Solubility, mg/L		No value in data base
Radiological Decay Half-life, days	2.7E+02	Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>	<u>Reference</u>	
Bioaccumulation in Fish	5.0E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	2.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	9.4E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	1.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	5.0E-04	Napier et al. (1980)
Water Purification Factor	.20	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	1.2E-09	Eckerman
Inhalation Dose Factor, rem/pCi	9.1E-09	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	7.3E-11	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	1.7E-12	Eckerman
Water Immersion Factor, rem/hr per pCi/L	1.7E-10	Eckerman

3.15 Data Summary for COBALT-60

ID: C060

Common Synonyms: COBALT-60

Physical Properties:

Molecular Weight	60.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.9E+03

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>	<u>Reference</u>
Bioaccumulation in Fish	5.0E+01
Bioaccumulation in Shellfish	2.0E+02
Soil-to-Edible Plant	9.4E-03
Feed-to-Animal Meat, d/kg	1.0E-03
Feed-to-Cow Milk, d/L	5.0E-04
Water Purification Factor	.20
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.7E-08
Inhalation Dose Factor, rem/pCi	2.2E-07
Air Immersion Factor, rem/hr per pCi/m ³	1.5E-09
Ground Exposure Factor, rem/hr per pCi/m ²	2.6E-11
Water Immersion Factor, rem/hr per pCi/L	3.3E-09

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.16 Data Summary for CURIUM-242

ID: CM242

Common Synonyms: CURIUM-242

Physical Properties:

Molecular Weight	242.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.6E+02

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>	<u>Reference</u>
Bioaccumulation in Fish	2.5E+01
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	6.9E-08
Inhalation Dose Factor, rem/pCi	1.8E-05
Air Immersion Factor, rem/hr per pCi/m ³	6.0E-14
Ground Exposure Factor, rem/hr per pCi/m ²	1.2E-14
Water Immersion Factor, rem/hr per pCi/L	1.5E-13

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.17 Data Summary for CURIMUM-243

ID: CM243

Common Synonyms: CURIMUM-243

Physical Properties:

Molecular Weight	243.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.0E+04

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.5E+01
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.5E-06
Inhalation Dose Factor, rem/pCi	3.6E-04
Air Immersion Factor, rem/hr per pCi/m ³	7.4E-11
Ground Exposure Factor, rem/hr per pCi/m ²	1.7E-12
Water Immersion Factor, rem/hr per pCi/L	1.7E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.18 Data Summary for CURIMUM-244

ID: CM244

Common Synonyms: CURIMUM-244

Physical Properties:

Molecular Weight	244.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	6.6E+03

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.5E+01
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.2E-06
Inhalation Dose Factor, rem/pCi	2.8E-04
Air Immersion Factor, rem/hr per pCi/m ³	5.1E-14
Ground Exposure Factor, rem/hr per pCi/m ²	1.0E-14
Water Immersion Factor, rem/hr per pCi/L	1.3E-13

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.19 Data Summary for CURIUM-245

ID: CM245

Common Synonyms: CURIUM-245

Physical Properties:

Molecular Weight	245.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	3.1E+06

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.5E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+03	Napier et al. (1980)
Soil-to-Edible Plant	2.5E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.5E-06	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	2.3E-06	Eckerman
Inhalation Dose Factor, rem/pCi	5.5E-04	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	4.1E-11	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	9.9E-13	Eckerman
Water Immersion Factor, rem/hr per pCi/L	9.4E-11	Eckerman

3.20 Data Summary for EUROPIUM-152

ID: EU152

Common Synonyms: EUROPIUM-152

Physical Properties:

Molecular Weight	152.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	5.0E+03

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.5E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+03	Napier et al. (1980)
Soil-to-Edible Plant	2.5E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.5E-06	Napier et al. (1980)
Water Purification Factor	.20	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	6.5E-09	Eckerman
Inhalation Dose Factor, rem/pCi	2.2E-07	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	6.8E-10	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	1.3E-11	Eckerman
Water Immersion Factor, rem/hr per pCi/L	1.5E-09	Eckerman

3.21 Data Summary for EUROPIUM-154

ID: EU154

Common Synonyms: EUROPIUM-154

Physical Properties:

Molecular Weight	154.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	3.2E+03

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.5E+01
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.20
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	9.6E-09
Inhalation Dose Factor, rem/pCi	2.9E-07
Air Immersion Factor, rem/hr per pCi/m ³	7.5E-10
Ground Exposure Factor, rem/hr per pCi/m ²	1.4E-11
Water Immersion Factor, rem/hr per pCi/L	1.6E-09

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.22 Data Summary for EUROPIUM-155

ID: EU155

Common Synonyms: EUROPIUM-155

Physical Properties:

Molecular Weight	155.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.8E+03

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.5E+01
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.20
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.5E-09
Inhalation Dose Factor, rem/pCi	4.1E-08
Air Immersion Factor, rem/hr per pCi/m ³	3.3E-11
Ground Exposure Factor, rem/hr per pCi/m ²	8.3E-13
Water Immersion Factor, rem/hr per pCi/L	7.8E-11

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.23 Data Summary for IODINE-129

ID: 1129

Common Synonyms: IODINE-129

Physical Properties:

Molecular Weight	129.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	5.7E+09

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.5E+01
Bioaccumulation in Shellfish	5.0E+00
Soil-to-Edible Plant	2.0E-02
Feed-to-Animal Meat, d/kg	2.0E-02
Feed-to-Cow Milk, d/L	1.0E-02
Water Purification Factor	.80
Deposition Velocity, m/sec	1.0E-02
Atmospheric Deposition Class	4

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Depositing Gas

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.8E-07
Inhalation Dose Factor, rem/pCi	1.7E-07
Air Immersion Factor, rem/hr per pCi/m ³	4.9E-12
Ground Exposure Factor, rem/hr per pCi/m ²	2.6E-13
Water Immersion Factor, rem/hr per pCi/L	1.5E-11

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.24 Data Summary for IODINE-131

ID: 1131

Common Synonyms: IODINE-131

Physical Properties:

Molecular Weight	131.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	8.0E+00

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.5E+01
Bioaccumulation in Shellfish	5.0E+00
Soil-to-Edible Plant	2.0E-02
Feed-to-Animal Meat, d/kg	2.0E-02
Feed-to-Cow Milk, d/L	1.0E-02
Water Purification Factor	.80
Deposition Velocity, m/sec	1.0E-02
Atmospheric Deposition Class	4

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Depositing Gas

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	5.3E-08
Inhalation Dose Factor, rem/pCi	3.3E-08
Air Immersion Factor, rem/hr per pCi/m ³	2.2E-10
Ground Exposure Factor, rem/hr per pCi/m ²	4.7E-12
Water Immersion Factor, rem/hr per pCi/L	4.8E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.25 Data Summary for IODINE-135

ID: I135

Common Synonyms: IODINE-135

Physical Properties:

Molecular Weight	135.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	2.8E-01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	4.0E+02
Bioaccumulation in Shellfish	7.5E+01
Soil-to-Edible Plant	2.0E-02
Feed-to-Animal Meat, d/kg	2.0E-02
Feed-to-Cow Milk, d/L	1.0E-02
Water Purification Factor	.80
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	4

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Depositing Gas

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.2E-09
Inhalation Dose Factor, rem/pCi	1.2E-09
Air Immersion Factor, rem/hr per pCi/m ³	9.7E-10
Ground Exposure Factor, rem/hr per pCi/m ²	1.7E-11
Water Immersion Factor, rem/hr per pCi/L	2.1E-09

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.26 Data Summary for KRYPTON-85

ID: KR85

Common Synonyms: KRYPTON-85

Physical Properties:

Molecular Weight	85.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	3.9E+03

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	0.0E+00
Bioaccumulation in Shellfish	0.0E+00
Soil-to-Edible Plant	0.0E+00
Feed-to-Animal Meat, d/kg	0.0E+00
Feed-to-Cow Milk, d/L	0.0E+00
Water Purification Factor	.00
Deposition Velocity, m/sec	0.0E+00
Atmospheric Deposition Class	5

Reference

Pathway not used
Pathway not used
Pathway not used
Pathway not used
Pathway not used
Napier et al. (1980)
Default
Non-depositing Gas

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	0.0E+00
Inhalation Dose Factor, rem/pCi	0.0E+00
Air Immersion Factor, rem/hr per pCi/m ³	3.1E-12
Ground Exposure Factor, rem/hr per pCi/m ²	1.9E-13
Water Immersion Factor, rem/hr per pCi/L	4.9E-12

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.27 Data Summary for LEAD-210

ID: PB210

Common Synonyms: LEAD-210

Physical Properties:

Molecular Weight
 Water Solubility, mg/L
 Radiological Decay Half-life, days

210.00
 0.0
 8.2E+03

Reference

Isotope
 Weast (1979)
 Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
 Bioaccumulation in Shellfish
 Soil-to-Edible Plant
 Feed-to-Animal Meat, d/kg
 Feed-to-Cow Milk, d/L
 Water Purification Factor
 Deposition Velocity, m/sec
 Atmospheric Deposition Class

1.0E+02
 1.0E+02
 6.8E-02
 2.9E-04
 1.0E-05
 .90
 1.0E-03
 1

Reference

Napier et al. (1980)
 Napier et al. (1980)
 Napier et al. (1980)
 Streng et al. (1986)
 Napier et al. (1980)
 Napier et al. (1980)
 Default
 Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
 Inhalation Dose Factor, rem/pCi
 Air Immersion Factor, rem/hr per pCi/m³
 Ground Exposure Factor, rem/hr per pCi/m²
 Water Immersion Factor, rem/hr per pCi/L

5.4E-06
 1.4E-05
 7.8E-13
 3.6E-14
 2.0E-12

Reference

Eckerman
 Eckerman
 Eckerman
 Eckerman
 Eckerman

3.28 Data Summary for LEAD-212

ID: PB212

Common Synonyms: LEAD-212

Physical Properties:

Molecular Weight
 Water Solubility, mg/L
 Radiological Decay Half-life, days

212.00
 0.0
 4.4E-01

Reference

Isotope
 Weast (1979)
 Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
 Bioaccumulation in Shellfish
 Soil-to-Edible Plant
 Feed-to-Animal Meat, d/kg
 Feed-to-Cow Milk, d/L
 Water Purification Factor
 Deposition Velocity, m/sec
 Atmospheric Deposition Class

1.0E+02
 1.0E+02
 6.8E-02
 2.9E-04
 1.0E-05
 .90
 1.0E-03
 1

Reference

Napier et al. (1980)
 Napier et al. (1980)
 Napier et al. (1980)
 Streng et al. (1986)
 Napier et al. (1980)
 Napier et al. (1980)
 Default
 Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
 Inhalation Dose Factor, rem/pCi
 Air Immersion Factor, rem/hr per pCi/m³
 Ground Exposure Factor, rem/hr per pCi/m²
 Water Immersion Factor, rem/hr per pCi/L

4.5E-08
 1.7E-07
 8.6E-11
 1.9E-12
 1.9E-10

Reference

Eckerman
 Eckerman
 Eckerman
 Eckerman
 Eckerman

3.29 Data Summary for MANGANESE-54

ID: MN54

Common Synonyms: MANGANESE-54

Physical Properties:

Molecular Weight	54.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	3.1E+02

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	4.0E+02
Bioaccumulation in Shellfish	9.0E+04
Soil-to-Edible Plant	3.0E-02
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	1.0E-04
Water Purification Factor	.50
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.8E-09
Inhalation Dose Factor, rem/pCi	6.7E-09
Air Immersion Factor, rem/hr per pCi/m ³	5.1E-10
Ground Exposure Factor, rem/hr per pCi/m ²	9.7E-12
Water Immersion Factor, rem/hr per pCi/L	1.1E-09

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.30 Data Summary for NEPTUNIUM-237

ID: NP237

Common Synonyms: NEPTUNIUM-237

Physical Properties:

Molecular Weight	237.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	7.8E+08

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+01
Bioaccumulation in Shellfish	4.0E+02
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	4.0E-05
Inhalation Dose Factor, rem/pCi	5.0E-04
Air Immersion Factor, rem/hr per pCi/m ³	1.3E-11
Ground Exposure Factor, rem/hr per pCi/m ²	3.8E-13
Water Immersion Factor, rem/hr per pCi/L	3.1E-11

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.31 Data Summary for NICKEL-56

ID: N156

Common Synonyms: NICKEL-56

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

56.00
6.1E+00

Reference

Isotope
No value in data base
Eckerman

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

1.0E+02
1.0E+02
1.9E-02
1.0E-03
3.4E-03
.20
1.0E-03
1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

3.9E-09
4.1E-09
1.0E-09
2.0E-11
2.2E-09

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.32 Data Summary for NICKEL-63

ID: N163

Common Synonyms: NICKEL-63

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

63.00
3.5E+04

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

1.0E+02
1.0E+02
1.9E-02
1.0E-03
3.4E-03
.20
1.0E-03
1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

5.8E-10
6.3E-09
0.0E+00
0.0E+00
0.0E+00

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.33 Data Summary for NIOBIUM-93M

ID: NB93M

Common Synonyms: NIOBIUM-93M

Physical Properties:

Molecular Weight	93.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	5.0E+03

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.0E+04
Bioaccumulation in Shellfish	1.0E+02
Soil-to-Edible Plant	9.4E-03
Feed-to-Animal Meat, d/kg	5.0E-04
Feed-to-Cow Milk, d/L	1.2E-03
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	5.2E-10
Inhalation Dose Factor, rem/pCi	2.9E-08
Air Immersion Factor, rem/hr per pCi/m ³	8.2E-14
Ground Exposure Factor, rem/hr per pCi/m ²	1.2E-14
Water Immersion Factor, rem/hr per pCi/L	2.1E-13

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.34 Data Summary for NIOBIUM-95

ID: NB95

Common Synonyms: NIOBIUM-95

Physical Properties:

Molecular Weight	95.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	3.5E+01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.0E+04
Bioaccumulation in Shellfish	1.0E+02
Soil-to-Edible Plant	9.4E-03
Feed-to-Animal Meat, d/kg	5.0E-04
Feed-to-Cow Milk, d/L	1.2E-03
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.6E-09
Inhalation Dose Factor, rem/pCi	5.8E-09
Air Immersion Factor, rem/hr per pCi/m ³	4.6E-10
Ground Exposure Factor, rem/hr per pCi/m ²	9.0E-12
Water Immersion Factor, rem/hr per pCi/L	9.9E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.35 Data Summary for PHOSPHORUS-32

ID: P32

Common Synonyms: PHOSPHORUS-32

Physical Properties:

Molecular Weight	32.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.4E+01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.0E+05	Napier et al. (1980)
Bioaccumulation in Shellfish	2.0E+04	Napier et al. (1980)
Soil-to-Edible Plant	5.0E+01	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-02	Napier et al. (1980)
Feed-to-Cow Milk, d/L	1.2E-02	Napier et al. (1980)
Water Purification Factor	.40	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	8.8E-09	Eckerman
Inhalation Dose Factor, rem/pCi	1.5E-08	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	6.0E-12	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	8.1E-13	Eckerman
Water Immersion Factor, rem/hr per pCi/L	6.3E-12	Eckerman

3.36 Data Summary for PALLADIUM-107

ID: PD107

Common Synonyms: PALLADIUM-107

Physical Properties:

Molecular Weight	107.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	2.4E+09

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.0E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	3.0E+01	Napier et al. (1980)
Soil-to-Edible Plant	5.0E+00	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	1.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	5.0E-03	Napier et al. (1980)
Water Purification Factor	.50	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	1.5E-10	Eckerman
Inhalation Dose Factor, rem/pCi	1.3E-08	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	0.0E+00	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	0.0E+00	Eckerman
Water Immersion Factor, rem/hr per pCi/L	0.0E+00	Eckerman

3.37 Data Summary for PLUTONIUM-238

ID: PU238

Common Synonyms: PLUTONIUM-238

Physical Properties:

Molecular Weight	238.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	3.2E+04

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.5E+00	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	2.5E-04	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.5E-08	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	3.8E-06	DOE (1988)
Inhalation Dose Factor, rem/pCi	4.6E-04	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	5.4E-14	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	1.1E-14	Eckerman
Water Immersion Factor, rem/hr per pCi/L	1.4E-13	Eckerman

3.38 Data Summary for PLUTONIUM-239

ID: PU239

Common Synonyms: PLUTONIUM-239

Physical Properties:

Molecular Weight	239.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	8.8E+06

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.5E+00	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	2.5E-04	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.5E-08	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	4.3E-06	DOE (1988)
Inhalation Dose Factor, rem/pCi	5.2E-04	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	.8E-14	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	4.6E-15	Eckerman
Water Immersion Factor, rem/hr per pCi/L	1.1E-13	Eckerman

3.39 Data Summary for PLUTONIUM-240

ID: PU240

Common Synonyms: PLUTONIUM-240

Physical Properties:

Molecular Weight	240.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	2.4E+06

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.5E+00
Bioaccumulation in Shellfish	1.0E+02
Soil-to-Edible Plant	2.5E-04
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-08
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	4.3E-06
Inhalation Dose Factor, rem/pCi	5.2E-04
Air Immersion Factor, rem/hr per pCi/m ³	5.3E-14
Ground Exposure Factor, rem/hr per pCi/m ²	1.0E-14
Water Immersion Factor, rem/hr per pCi/L	1.3E-13

Reference

DOE (1988)
Eckerman
Eckerman
Eckerman
Eckerman

3.40 Data Summary for PLUTONIUM-241

ID: PU241

Common Synonyms: PLUTONIUM-241

Physical Properties:

Molecular Weight	241.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	5.3E+03

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.5E+00
Bioaccumulation in Shellfish	1.0E+02
Soil-to-Edible Plant	2.5E-04
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-08
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	8.6E-08
Inhalation Dose Factor, rem/pCi	1.0E-05
Air Immersion Factor, rem/hr per pCi/m ³	1.6E-14(a)
Ground Exposure Factor, rem/hr per pCi/m ²	3.7E-16(a)
Water Immersion Factor, rem/hr per pCi/L	3.5E-14(a)

Reference

DOE (1988)
Eckerman
Eckerman
Eckerman
Eckerman

(a) External dose factors include contributions from decay product ²³⁷U at 0.02% branching ratio.

3.41 Data Summary for POLONIUM-210

ID: PO210

Common Synonyms: POLONIUM-210

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

210.00
1.4E+02

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

5.0E+02
2.0E+04
9.0E-03
1.2E-02
1.2E-04
.80
1.0E-03
1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

1.9E-06
9.4E-06
5.2E-15
1.0E-16
1.1E-14

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.42 Data Summary for POTASSIUM-40

ID: K40

Common Synonyms: POTASSIUM-40

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

40.00
4.7E+11

Reference

Isotope
No value in data base
Eckerman

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

1.0E+03
8.3E+02
3.7E-01
1.2E-02
1.0E-02
.90(a)
1.0E-03
1

Reference

Streng et al. (1986)
Streng et al. (1986)
Streng et al. (1986)
Streng et al. (1986)
Streng et al. (1986)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

1.9E-08
1.2E-08
9.8E-11
2.1E-12
2.1E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

(a) Water purification factor set equal to value for sodium (Napier et al. 1980).

3.43 Data Summary for PROTACTINIUM-231

ID: PA231

Common Synonyms: PROTACTINIUM-231

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

231.00

1.2E+07

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

1.1E+01
1.1E+02
2.5E-03
5.0E-03
2.5E-06
.70
1.0E-03
1

Reference

Streng et al. (1986)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

1.1E-05
1.3E-03
1.7E-11
4.2E-13
3.9E-11

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.44 Data Summary for PROTACTINIUM-233

ID: PA233

Common Synonyms: PROTACTINIUM-233

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

233.00

2.7E+01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

1.1E+01
1.1E+02
2.5E-03
5.0E-03
2.5E-06
.70
1.0E-03
1

Reference

Streng et al. (1986)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

3.6E-09
9.5E-09
1.2E-10
2.7E-12
2.7E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.45 Data Summary for RADIUM-223

ID: RA223

Common Synonyms: RADIUM-223

Physical Properties:

Molecular Weight	223.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.1E+01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	5.0E+01
Bioaccumulation in Shellfish	2.5E+02
Soil-to-Edible Plant	1.4E-03
Feed-to-Animal Meat, d/kg	3.4E-02
Feed-to-Cow Milk, d/L	2.0E-04
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	6.6E-07
Inhalation Dose Factor, rem/pCi	7.8E-06
Air Immersion Factor, rem/hr per pCi/m ³	7.8E-11
Ground Exposure Factor, rem/hr per pCi/m ²	1.8E-12
Water Immersion Factor, rem/hr per pCi/L	1.8E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.46 Data Summary for RADIUM-225

ID: RA225

Common Synonyms: RADIUM-225

Physical Properties:

Molecular Weight	225.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.5E+01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	5.0E+01
Bioaccumulation in Shellfish	2.5E+02
Soil-to-Edible Plant	1.4E-03
Feed-to-Animal Meat, d/kg	3.4E-02
Feed-to-Cow Milk, d/L	2.0E-04
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	3.8E-07
Inhalation Dose Factor, rem/pCi	7.8E-06
Air Immersion Factor, rem/hr per pCi/m ³	4.3E-12
Ground Exposure Factor, rem/hr per pCi/m ²	1.8E-13
Water Immersion Factor, rem/hr per pCi/L	1.0E-11

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.47 Data Summary for RADIUM-226

ID: RA226

Common Synonyms: RADIUM-226

Physical Properties:

Molecular Weight	226.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	5.8E+05

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	5.0E+01
Bioaccumulation in Shellfish	2.5E+02
Soil-to-Edible Plant	1.4E-03
Feed-to-Animal Meat, d/kg	3.4E-02
Feed-to-Cow Milk, d/L	2.0E-04
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.1E-06
Inhalation Dose Factor, rem/pCi	7.9E-06
Air Immersion Factor, rem/hr per pCi/m ³	1.5E-09
Ground Exposure Factor, rem/hr per pCi/m ²	1.3E-11
Water Immersion Factor, rem/hr per pCi/L	3.3E-09

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.48 Data Summary for RADON-220+D (MOCK)

ID: RN220

Common Synonyms: RADON-220+D (MOCK)

Physical Properties:

Molecular Weight	220.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	4.4E-01 ^(a)

Reference

Isotope
No value in data base
Eckerman

Environmental Transfer Factors:Transfer Parameter^(b)

Bioaccumulation in Fish	1.0E+02
Bioaccumulation in Shellfish	1.0E+02
Soil-to-Edible Plant	6.8E-02
Feed-to-Animal Meat, d/kg	2.9E-04
Feed-to-Cow Milk, d/L	1.0E-05
Water Purification Factor	.90
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	6

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Gas as Particulate

Radiological Dosimetry Factors^(c):

Ingestion Dose Factor, rem/pCi	6.9E-11
Inhalation Dose Factor, rem/pCi	2.8E-10
Air Immersion Factor, rem/hr per pCi/m ³	3.9E-12
Ground Exposure Factor, rem/hr per pCi/m ²	6.5E-14
Water Immersion Factor, rem/hr per pCi/L	8.5E-12

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

(a) Radiological half-life is that for decay product ²¹²Pb.

(b) Transfer factors are based on data for lead to be representative of radon decay products.

(c) Dose factors for radon are described in Section 2.5.6.

3.49 Data Summary for RADON-222+D (MOCK)

ID: RN222

Common Synonyms: RADON-222+D (MOCK)

Physical Properties:

Molecular Weight	222.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	8.1E+03 ^(a)

Reference

Isotope
No value in data base
Eckerman

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+02
Bioaccumulation in Shellfish	1.0E+02
Soil-to-Edible Plant	6.8E-02
Feed-to-Animal Meat, d/kg	2.9E-04
Feed-to-Cow Milk, d/L	1.0E-05
Water Purification Factor	.90
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	6

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Gas as Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	3.4E-09
Inhalation Dose Factor, rem/pCi	2.1E-08
Air Immersion Factor, rem/hr per pCi/m ³	1.1E-09
Ground Exposure Factor, rem/hr per pCi/m ²	2.0E-11
Water Immersion Factor, rem/hr per pCi/L	2.4E-09

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

(a) Radiological half-life is that for decay product ²¹⁰Pb.

3.50 Data Summary for RUTHENIUM-103

ID: RU103

Common Synonyms: RUTHENIUM-103

Physical Properties:

Molecular Weight	103.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	3.9E+01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+01
Bioaccumulation in Shellfish	3.0E+02
Soil-to-Edible Plant	1.0E-02
Feed-to-Animal Meat, d/kg	1.0E-03
Feed-to-Cow Milk, d/L	5.0E-07
Water Purification Factor	.50
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	3.1E-09
Inhalation Dose Factor, rem/pCi	8.9E-09
Air Immersion Factor, rem/hr per pCi/m ³	2.8E-10
Ground Exposure Factor, rem/hr per pCi/m ²	5.8E-12
Water Immersion Factor, rem/hr per pCi/L	6.1E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.51 Data Summary for RUTHENIUM-106

ID: RU106

Common Synonyms: RUTHENIUM-106

Physical Properties:

Molecular Weight	106.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	3.7E+02

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+01
Bioaccumulation in Shellfish	3.0E+02
Soil-to-Edible Plant	1.0E-02
Feed-to-Animal Meat, d/kg	1.0E-03
Feed-to-Cow Milk, d/L	5.0E-07
Water Purification Factor	.50
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.7E-08
Inhalation Dose Factor, rem/pCi	4.4E-07
Air Immersion Factor, rem/hr per pCi/m3	1.4E-10
Ground Exposure Factor, rem/hr per pCi/m2	4.2E-12
Water Immersion Factor, rem/hr per pCi/L	2.8E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.52 Data Summary for SAMARIUM-151

ID: SM151

Common Synonyms: SAMARIUM-151

Physical Properties:

Molecular Weight	151.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	3.3E+04

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.5E+01
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.20
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	3.9E-10
Inhalation Dose Factor, rem/pCi	3.0E-08
Air Immersion Factor, rem/hr per pCi/m3	5.5E-16
Ground Exposure Factor, rem/hr per pCi/m2	6.3E-17
Water Immersion Factor, rem/hr per pCi/L	1.4E-15

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.53 Data Summary for SELENIUM-79

ID: SE79

Common Synonyms: SELENIUM-79

Physical Properties:

Molecular Weight	79.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	2.4E+07

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.7E+02
Bioaccumulation in Shellfish	1.7E+02
Soil-to-Edible Plant	1.3E+00
Feed-to-Animal Meat, d/kg	1.0E+00
Feed-to-Cow Milk, d/L	2.3E-02
Water Purification Factor	.80
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	8.7E-09
Inhalation Dose Factor, rem/pCi	9.8E-09
Air Immersion Factor, rem/hr per pCi/m ³	4.5E-14
Ground Exposure Factor, rem/hr per pCi/m ²	0.0E+00
Water Immersion Factor, rem/hr per pCi/L	4.7E-14

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.54 Data Summary for SODIUM-22

ID: NA22

Common Synonyms: SODIUM-22

Physical Properties:

Molecular Weight	22.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	9.5E+02

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+02
Bioaccumulation in Shellfish	2.0E+02
Soil-to-Edible Plant	5.0E-02
Feed-to-Animal Meat, d/kg	5.0E-02
Feed-to-Cow Milk, d/L	4.0E-02
Water Purification Factor	.90
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.2E-08
Inhalation Dose Factor, rem/pCi	7.7E-09
Air Immersion Factor, rem/hr per pCi/m ³	1.3E-09
Ground Exposure Factor, rem/hr per pCi/m ²	2.4E-11
Water Immersion Factor, rem/hr per pCi/L	2.8E-09

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.55 Data Summary for SULPHUR-35

ID: S35

Common Synonyms: SULPHUR-35

Physical Properties:

Molecular Weight	35.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	8.7E+01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.5E+02	Streng et al. (1986)
Bioaccumulation in Shellfish	1.0E+02	Streng et al. (1986)
Soil-to-Edible Plant	5.9E-01	Streng et al. (1986)
Feed-to-Animal Meat, d/kg	1.0E-01	Streng et al. (1986)
Feed-to-Cow Milk, d/L	1.8E-02	Streng et al. (1986)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	7.3E-10	Eckerman
Inhalation Dose Factor, rem/pCi	2.5E-09	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	4.1E-14	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	0.0E+00	Eckerman
Water Immersion Factor, rem/hr per pCi/L	4.3E-14	Eckerman

3.56 Data Summary for STRONTIUM-89

ID: SR89

Common Synonyms: STRONTIUM-89

Physical Properties:

Molecular Weight	89.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	5.1E+01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.0E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	2.0E-01	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	3.0E-04	Napier et al. (1980)
Feed-to-Cow Milk, d/L	1.5E-03	Napier et al. (1980)
Water Purification Factor	.20	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

		<u>Reference</u>
Ingestion Dose Factor, rem/pCi	9.2E-09	Eckerman
Inhalation Dose Factor, rem/pCi	4.1E-08	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	5.1E-12	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	6.8E-13	Eckerman
Water Immersion Factor, rem/hr per pCi/L	5.5E-12	Eckerman

3.57 Data Summary for STRONTIUM-90

ID: SR90

Common Synonyms: STRONTIUM-90

Physical Properties:

Molecular Weight	90.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.1E+04

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.0E+01
Bioaccumulation in Shellfish	1.0E+02
Soil-to-Edible Plant	2.0E-01
Feed-to-Animal Meat, d/kg	3.0E-04
Feed-to-Cow Milk, d/L	1.5E-03
Water Purification Factor	.20
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.4E-07
Inhalation Dose Factor, rem/pCi	1.3E-06
Air Immersion Factor, rem/hr per pCi/m ³	1.3E-12
Ground Exposure Factor, rem/hr per pCi/m ²	6.7E-14
Water Immersion Factor, rem/hr per pCi/L	1.3E-12

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.58 Data Summary for TECHNETIUM-99

ID: TC99

Common Synonyms: TECHNETIUM-99

Physical Properties:

Molecular Weight	99.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	7.8E+07

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.5E+01
Bioaccumulation in Shellfish	5.0E+00
Soil-to-Edible Plant	2.5E-01
Feed-to-Animal Meat, d/kg	4.0E-01
Feed-to-Cow Milk, d/L	1.0E-02
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.5E-09
Inhalation Dose Factor, rem/pCi	8.3E-09
Air Immersion Factor, rem/hr per pCi/m ³	2.6E-13
Ground Exposure Factor, rem/hr per pCi/m ²	7.2E-18
Water Immersion Factor, rem/hr per pCi/L	2.7E-13

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.59 Data Summary for THORIUM-227

ID: TH227

Common Synonyms: THORIUM-227

Physical Properties:

Molecular Weight	227.00
Water Solubility, mg/L	
Radiological Decay Half-Life, Days	1.9E+01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.0E+01
Bioaccumulation in Shellfish	5.0E+02
Soil-to-Edible Plant	4.2E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	3.8E-08
Inhalation Dose Factor, rem/pCi	1.6E-05
Air Immersion Factor, rem/hr per pCi/m ³	6.0E-11
Ground Exposure Factor, rem/hr per pCi/m ²	1.4E-12
Water Immersion Factor, rem/hr per pCi/L	1.3E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.60 Data Summary for THORIUM-228

ID: TH228

Common Synonyms: THORIUM-228

Physical Properties:

Molecular Weight	228.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	7.0E+02

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.0E+01
Bioaccumulation in Shellfish	5.0E+02
Soil-to-Edible Plant	4.2E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	4.0E-07
Inhalation Dose Factor, rem/pCi	3.4E-04
Air Immersion Factor, rem/hr per pCi/m ³	1.1E-12
Ground Exposure Factor, rem/hr per pCi/m ²	3.3E-14
Water Immersion Factor, rem/hr per pCi/L	2.6E-12

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.61 Data Summary for THORIUM-229

ID: TH229

Common Synonyms: THORIUM-229

Physical Properties:

Molecular Weight	229.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	2.7E+06

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.0E+01
Bioaccumulation in Shellfish	5.0E+02
Soil-to-Edible Plant	4.2E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	3.5E-06
Inhalation Dose Factor, rem/pCi	2.2E-03
Air Immersion Factor, rem/hr per pCi/m ³	5.0E-11
Ground Exposure Factor, rem/hr per pCi/m ²	1.2E-12
Water Immersion Factor, rem/hr per pCi/L	1.2E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.62 Data Summary for THORIUM-230

ID: TH230

Common Synonyms: THORIUM-230

Physical Properties:

Molecular Weight	230.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	2.8E+07

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.0E+01
Bioaccumulation in Shellfish	5.0E+02
Soil-to-Edible Plant	4.2E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	5.5E-07
Inhalation Dose Factor, rem/pCi	3.2E-04
Air Immersion Factor, rem/hr per pCi/m ³	2.3E-13
Ground Exposure Factor, rem/hr per pCi/m ²	1.1E-14
Water Immersion Factor, rem/hr per pCi/L	5.4E-13

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.63 Data Summary for THORIUM-232

ID: TH232

Common Synonyms: THORIUM-232

Physical Properties:

Molecular Weight	232.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	5.1E+12

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>	
Bioaccumulation in Fish	3.0E+01
Bioaccumulation in Shellfish	5.0E+02
Soil-to-Edible Plant	4.2E-03
Feed-to-Animal Meat, d/kg	5.0E-03
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.8E-06	Eckerman
Inhalation Dose Factor, rem/pCi	1.6E-03	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	1.1E-13	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	8.1E-15	Eckerman
Water Immersion Factor, rem/hr per pCi/L	2.7E-13	Eckerman

Reference

3.64 Data Summary for THORIUM-234

ID: TH234

Common Synonyms: THORIUM-234

Physical Properties:

Molecular Weight	234.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	2.4E+01

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.0E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	5.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	4.2E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.5E-06	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.4E-08	Eckerman
Inhalation Dose Factor, rem/pCi	3.5E-08	Eckerman
Air Immersion Factor, rem/hr per pCi/m ³	4.5E-12	Eckerman
Ground Exposure Factor, rem/hr per pCi/m ²	1.2E-13	Eckerman
Water Immersion Factor, rem/hr per pCi/L	1.1E-11	Eckerman

Reference

3.65 Data Summary for TIN-126

ID: SN126

Common Synonyms: TIN-126

Physical Properties:

Molecular Weight	126.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	3.7E+07

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.0E+03
Bioaccumulation in Shellfish	1.0E+03
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	8.0E-02
Feed-to-Cow Milk, d/L	1.3E-03
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	1.9E-08
Inhalation Dose Factor, rem/pCi	9.9E-08
Air Immersion Factor, rem/hr per pCi/m ³	2.8E-11
Ground Exposure Factor, rem/hr per pCi/m ²	7.1E-13
Water Immersion Factor, rem/hr per pCi/L	6.7E-11

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.66 Data Summary for TRITIUM

ID: H3

Common Synonyms: TRITIUM (as tritiated water, HTO)

Physical Properties:

Molecular Weight	20.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	4.5E+03

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+00
Bioaccumulation in Shellfish	1.0E+00
Soil-to-Edible Plant	0.0E+00
Feed-to-Animal Meat, d/kg	0.0E+00
Feed-to-Cow Milk, d/L	0.0E+00
Water Purification Factor	1.00
Deposition Velocity, m/sec	0.0E+00
Atmospheric Deposition Class	4

Reference

Napier et al. (1980)
Napier et al. (1980)
see footnote (a)
see footnote (a)
see footnote (a)
Default
Not needed for tritium
Depositing Gas

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	6.3E-11
Inhalation Dose Factor, rem/pCi	6.3E-11
Air Immersion Factor, rem/hr per pCi/m ³	0.0E+00
Ground Exposure Factor, rem/hr per pCi/m ²	0.0E+00
Water Immersion Factor, rem/hr per pCi/L	0.0E+00

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

(a) Special model used for tritium transfer in farm products.

3.67 Data Summary for ELEMENTAL TRITIUM

ID: H3-EL

Common Synonyms: ELEMENTAL TRITIUM, HT

Physical Properties:

Molecular Weight	4.00
Water Solubility, mg/L	3.8E-03
Vapor Pressure, mm Hg	7.6E+02
Henry's Law Constant, atm-m ³ /mole	1.1E+00
Octanol-Water Partition Coefficient	2.82+00
Carbon matter partition Coefficient, L/g	1.74+00
Radiological Decay Half-Life, days	4.5E+03

Reference

Isotope
Perry et al. (1963)
Default for gases
see footnote (a)
Hansch and Leo (1979)
Method K-2
Napier et al (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.3E+00
Bioaccumulation in Shellfish	1.7E-01
Soil-to-Edible Plant	5.3E+00
Feed-to-Animal Meat, k/kg	7.1E-08
Feed-to-Cow Milk, d/L	2.2E-08
Water Purification Factor	1.00
Deposition Velocity, m/sec	2.0E-08
Atmospheric Deposition Class	5

Reference

Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Default
Murphy (1988)
Depositing Gas

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	6.3E-11
Inhalation Dose Factor, rem/pCi	5.3E-15
Air Immersion Factor, rem/hr per pCi/m ³	0.0E+00
Ground Exposure Factor, rem/hr per pCi/m ²	0.0E+00
Water Immersion Factor, rem/hr per pCi/L	0.0E+00

Reference

Eckerman
DOE (1988b)
Eckerman
Eckerman
Eckerman

(a) Estimated from vapor pressure and water solubility.

3.68 Data Summary for URANIUM-233

ID: U233

Common Synonyms: URANIUM-233

Physical Properties:

Molecular Weight	233.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	5.8E+07

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.0E+00
Bioaccumulation in Shellfish	6.0E+01
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	3.4E-04
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.9E-07
Inhalation Dose Factor, rem/pCi	1.3E-04
Air Immersion Factor, rem/hr per pCi/m ³	1.4E-13
Ground Exposure Factor, rem/hr per pCi/m ²	6.0E-15
Water Immersion Factor, rem/hr per pCi/L	3.2E-13

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.69 Data Summary for URANIUM-234

ID: U234

Common Synonyms: URANIUM-234

Physical Properties:

Molecular Weight	234.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	8.9E+07

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.0E+00
Bioaccumulation in Shellfish	6.0E+01
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	3.4E-04
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.8E-07
Inhalation Dose Factor, rem/pCi	1.3E-04
Air Immersion Factor, rem/hr per pCi/m ³	9.1E-14
Ground Exposure Factor, rem/hr per pCi/m ²	9.9E-15
Water Immersion Factor, rem/hr per pCi/L	2.2E-13

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.70 Data Summary for URANIUM-235

ID: U235

Common Synonyms: URANIUM-235

Physical Properties:

Molecular Weight	235.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	2.6E+11

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.0E+00
Bioaccumulation in Shellfish	6.0E+01
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	3.4E-04
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.7E-07
Inhalation Dose Factor, rem/pCi	1.2E-04
Air Immersion Factor, rem/hr per pCi/m ³	8.9E-11
Ground Exposure Factor, rem/hr per pCi/m ²	2.0E-12
Water Immersion Factor, rem/hr per pCi/L	2.0E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.71 Data Summary for URANIUM-236

ID: U236

Common Synonyms: URANIUM-236

Physical Properties:

Molecular Weight	236.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	8.6E+09

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.0E+00
Bioaccumulation in Shellfish	6.0E+01
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	3.4E-04
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.7E-07
Inhalation Dose Factor, rem/pCi	1.3E-04
Air Immersion Factor, rem/hr per pCi/m ³	7.2E-14
Ground Exposure Factor, rem/hr per pCi/m ²	9.0E-15
Water Immersion Factor, rem/hr per pCi/L	1.8E-13

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.72 Data Summary for URANIUM-238

ID: U238

Common Synonyms: URANIUM-238

Physical Properties:

Molecular Weight	238.00
Water Solubility, mg/L	
Radiological Decay Half-life, days	1.6E+12

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.0E+00
Bioaccumulation in Shellfish	6.0E+01
Soil-to-Edible Plant	2.5E-03
Feed-to-Animal Meat, d/kg	3.4E-04
Feed-to-Cow Milk, d/L	2.5E-06
Water Purification Factor	.70
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi	2.6E-07
Inhalation Dose Factor, rem/pCi	1.2E-04
Air Immersion Factor, rem/hr per pCi/m ³	6.2E-14
Ground Exposure Factor, rem/hr per pCi/m ²	8.0E-15
Water Immersion Factor, rem/hr per pCi/L	1.5E-13

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.73 Data Summary for URANIUM-239

ID: U239

Common Synonyms: URANIUM-239

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

239.00

1.6E-02

Reference

Isotope
No value in data base
Eckerman

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

2.0E+00
6.0E+01
2.5E-03
3.4E-04
2.5E-06
.70
1.0E-03
1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Streng et al. (1986)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

7.7E-11
3.7E-11
3.0E-11
1.0E-12
6.6E-11

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.74 Data Summary for YTTRIUM-90

ID: Y90

Common Synonyms: YTTRIUM-90

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

90.00

2.7E+00

Reference

Isotope
No value in data base
Eckerman

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

2.5E+01
1.0E+03
2.5E-03
5.0E-03
5.0E-06
.20
1.0E-03
1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

1.1E-08
8.4E-09
8.4E-12
1.2E-12
9.0E-12

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.75 Data Summary for ZINC-65

ID: ZN65

Common Synonyms: ZINC-65

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

65.00
2.4E+02

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

2.0E+03
1.0E+05
4.0E-01
5.0E-02
6.0E-03
.40
1.0E-03
1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi
Air Immersion Factor, rem/hr per pCi/m³
Ground Exposure Factor, rem/hr per pCi/m²
Water Immersion Factor, rem/hr per pCi/L

1.4E-08
2.0E-08
3.5E-10
6.3E-12
7.6E-10

Reference

Eckerman
Eckerman
Eckerman
Eckerman
Eckerman

3.76 Data Summary for ZIRCONIUM-93

CAS: ZR93

Common Synonyms: Zirconium-93

Physical Properties:

Molecular Weight
Water Solubility, mg/L
Radiological Decay Half-life, days

93.00
5.59E+08

Reference

Isotope
No value in data base
Napier et al. (1980)

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

3.3E+00
6.7E+00
1.7E-04
5.0E-04
2.5E-06
.70
1.0E-03
1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Radiological Dosimetry Factors:

Ingestion Dose Factor, rem/pCi
Inhalation Dose Factor, rem/pCi

1.7E-09
3.2E-07

Reference

Eckerman
Eckerman

3.77 Data Summary for ACENAPHTHENE

CAS: 83329

Common Synonyms: Acenaphthene, 1,2-dihydro-acenaphthylene

Physical Properties:

		<u>Reference</u>
Molecular Weight	154.00	Empirical
Water Solubility, mg/L	3.4E+00	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.6E-03	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	9.2E-05	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+04	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	4.6E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	7.0E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.5E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.3E+02	Calculated from Kow
Soil-to-Edible Plant	4.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.5E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	8.6E-02	= ing
Ingestion Reference Dose, mg/kg/d	8.6E-02	EPA (1980a)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.78 Data Summary for ACENAPHTHYLENE

CAS: 208968

Common Synonyms: Acenaphthylene, -Cyclopenta(de)naphthalene

Physical Properties:

		<u>Reference</u>
Molecular Weight	152.00	Empirical
Water Solubility, mg/L	3.9E+00	Mabey et al. (1982)
Vapor Pressure, mm Hg	2.9E-02	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.5E-03	see footnote ^(a)
Octanol-Water Partition Coefficient	5.0E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	2.5E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.8E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.0E+02	Calculated from Kow
Bioaccumulation in Shellfish	7.7E+01	Calculated from Kow
Soil-to-Edible Plant	7.0E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.3E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	4.0E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.5E-05	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	see footnote ^(b)
Ingestion Cancer Potency Factor, kg-d/mg	1.2E+01	see footnote ^(b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

(b) Factor is set to value for benzo(a)pyrene.

3.79 Data Summary for ACETONE

CAS: 67641

Common Synonyms: Acetone, 2-propanone, dimethyl ketone

Physical Properties:

		<u>Reference</u>
Molecular Weight	58.00	Empirical
Water Solubility, mg/L	1.0E+06	Method S-4
Vapor Pressure, mm Hg	2.7E+02	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	2.1E-05	see footnote (a)
Octanol-Water Partition Coefficient	5.8E-01	Verschueren (1983)
Carbon matter partition Coefficient, L/g	2.2E+00	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.8E+00	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.9E-01	Calculated from K _{ow}
Bioaccumulation in Shellfish	4.6E-02	Calculated from K _{ow}
Soil-to-Edible Plant	1.3E+01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.5E-08	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.6E-09	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-05	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E+00	EPA (1984c)
Ingestion Reference Dose, mg/kg/d	1.0E-01	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.80 Data Summary for ACETONITRILE

CAS: 75058

Common Synonyms: Acetonitrile, methyl cyanide

Physical Properties:

		<u>Reference</u>
Molecular Weight	41.00	Empirical
Water Solubility, mg/L	1.0E+06	Method S-4
Vapor Pressure, mm Hg	7.4E+01	Dawson et al. (1980)
Henry's Law Constant, atm-m ³ /mole	4.0E-06	see footnote (a)
Octanol-Water Partition Coefficient	4.6E-01	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	2.2E+00	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	3.9E+02	Harris et al. (1981)
In Water, days	6.9E+07	Default
In Soil, days	1.8E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.3E-01	Calculated from Kow
Bioaccumulation in Shellfish	3.8E-02	Calculated from Kow
Soil-to-Edible Plant	1.5E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.2E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	3.7E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.5E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.6E-02	= ing
Ingestion Reference Dose, mg/kg/d	3.6E-02	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.81 Data Summary for ACETOPHENONE

CAS: 98862

Common Synonyms: Acetophenone, methyl phenyl ketone

Physical Properties:

		<u>Reference</u>
Molecular Weight	120.10	Empirical
Water Solubility, mg/L	5.5E+03	Verschueren (1983)
Vapor Pressure, mm Hg	1.0E+00	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	3.2E-05	see footnote (a)
Octanol-Water Partition Coefficient	4.8E+01	Holmes and Lough (1976)
Carbon matter partition Coefficient, L/g	2.3E+01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>	<u>Reference</u>	
Bioaccumulation in Fish	1.1E+01	Calculated from Kow
Bioaccumulation in Shellfish	1.7E+00	Calculated from Kow
Soil-to-Edible Plant	1.0E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.2E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	3.8E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.8E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.3E-01	= ing
Ingestion Reference Dose, mg/kg/d	4.3E-01	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.82 Data Summary for 2-ACETYLAMINOFLUORE

CAS: 53963

Common Synonyms: 2-Acetylaminofluorene, N-fluoren-2-yl acetamide, 2-FAA

Physical Properties:

		<u>Reference</u>
Molecular Weight	223.00	Empirical
Water Solubility, mg/L	6.5E+00	Jaber et al. (1984)
Vapor Pressure, mm Hg	2.2E-05	Method VP-2
Henry's Law Constant, atm-m ³ /mole	1.1E-06	see footnote (a)
Octanol-Water Partition Coefficient	1.9E+03	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	1.6E+03	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.7E+07	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.8E+02	Calculated from Kow
Bioaccumulation in Shellfish	3.5E+01	Calculated from Kow
Soil-to-Edible Plant	1.2E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.8E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	1.5E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.2E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.7E-02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.7E-02	Salée (1984)
Inhalation Reference Dose, mg/kg/d	1.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-01	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.83 Data Summary for ACROLEIN(PROPENAL)

CAS: 107028

Common Synonyms: Acrolein, 2-propenal, Acrylaldehyde

Physical Properties:

		<u>Reference</u>
Molecular Weight	56.10	Empirical
Water Solubility, mg/L	2.1E+05	Mabey et al. (1982)
Vapor Pressure, mm Hg	2.2E+02	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	5.7E-05	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+00	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	4.9E-01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.9E+00	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.4E+02	Barrows et al. (1980)
Bioaccumulation in Shellfish	7.3E-02	Calculated from Kow
Soil-to-Edible Plant	9.6E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.6E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	8.1E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.0E-06	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	8.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	8.0E-02	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.84 Data Summary for ACRYLONITRILE

CAS: 107131

Common Synonyms: Acrylonitrile, Propenenitrile, Vinyl cyanide

Physical Properties:

		<u>Reference</u>
Molecular Weight	53.00	Empirical
Water Solubility, mg/L	7.9E+04	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.0E+02	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	8.8E-05	see footnote (a)
Octanol-Water Partition Coefficient	1.8E+00	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	8.5E-01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	3.9E+00	Harris et al. (1981); EPA (1984c)
In Water, days	6.9E+07	Default
In Soil, days	1.3E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	4.8E+01	EPA (1980b)
Bioaccumulation in Shellfish	1.1E-01	Calculated from Kow
Soil-to-Edible Plant	6.9E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.5E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	1.4E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.8E-06	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.4E-01	EPA (1985b)
Ingestion Cancer Potency Factor, kg-d/mg	2.4E-01	= inh

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.85 Data Summary for ACRYLAMIDE

CAS: 79061

Common Synonyms: Acrylamide, 2-Propenamide

Physical Properties:

		<u>Reference</u>
Molecular Weight	71.09	RTECS - D
Water Solubility, mg/L	6.7E+05	GEMS - E
Vapor Pressure, mm Hg	1.3E+01	GEMS - E
Henry's Law Constant, atm-m ³ /mole	2.0E-06	GEMS - E
Octanol-Water Partition Coefficient	2.1E-01	GEMS - M
Carbon matter partition Coefficient, L/g	1.3E-01	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	9.3E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.8E-01	Calculated from Kow
Bioaccumulation in Shellfish	2.0E-02	Calculated from Kow
Soil-to-Edible Plant	2.4E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.3E-09	Calculated from Kow
Feed-to-Cow Milk, d/L	1.7E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.5E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.1E-04	TLV; see footnote (a)
Ingestion Reference Dose, mg/kg/d	6.7E-03	RTECS -T; see footnote (b)

(a) Inhalation: $TLV = 0.03 \text{ mg/m}^3$ (skin exposure)
 $0.03 \times 0.007 = 0.00021 \text{ mg/kg/d}$.

(b) Ingestion: Data from RTECS Oral LD50:

Rat	124 mg/kg
Mouse	107 mg/kg
Quail	186 mg/kg
Guinea Pig	252 mg/kg
Average	167

$$167 \times 4 \times 10^{-5} = 6.7 \times 10^{-3}.$$

3.86 Data Summary for ALDRIN

CAS: 309002

Common Synonyms: Aldrin, HHDN, Octalene, Aldrex

Physical Properties:

Molecular Weight	365.00	Empirical
Water Solubility, mg/L	1.8E-01	Mabey et al. (1982)
Vapor Pressure, mm Hg	6.0E-06	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.6E-05	see footnote (a)
Octanol-Water Partition Coefficient	2.0E+05	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	9.6E+04	Mabey et al. (1982)

Reference

Environmental Degradation/Removal Half-times:

Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.6E+08	VOL-S

Reference

Environmental Transfer Factors:

Transfer Parameter

Bioaccumulation in Fish	3.1E+03	Metcalf et al. (1973)
Bioaccumulation in Shellfish	1.6E+03	Calculated from Kow
Soil-to-Edible Plant	8.4E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	8.5E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	2.4E-02	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.9E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Reference

Chemical Toxicity Parameters:

Inhalation Cancer Potency Factor, kg-d/mg	1.1E+01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.1E+01	EPA (1985b)
Inhalation Reference Dose, mg/kg/d	3.0E-05	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-05	EPA (1986b)

Reference

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.87 Data Summary for ALK-ARYL SULFONATES

CAS: 42615292

Common Synonyms: Alkyl aryl sulfonate cleaner (as alkyl benzene sulfonate)

Physical Properties:

		<u>Reference</u>
Molecular Weight	326.50	Empirical
Water Solubility, mg/L	2.6E-02	GEMS - E
Vapor Pressure, mm Hg	2.1E-03	GEMS - E
Henry's Law Constant, atm-m ³ /mole	4.0E-02	GEMS - E
Octanol-Water Partition Coefficient	2.4E+06	GEMS - E
Carbon matter partition Coefficient, L/g	1.5E+06	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.5E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	4.2E+04	Calculated from Kow
Bioaccumulation in Shellfish	1.2E+04	Calculated from Kow
Soil-to-Edible Plant	2.0E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.0E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	1.9E-02	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.3E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.2E-02	= ing
Ingestion Reference Dose, mg/kg/d	7.2E-02	RTECS - T; see footnote (a)

(a) Ingestion RfD: RTECS Oral LD50

<u>Animal</u>	<u>LD50 mg/kd</u>
Hamster	1131
Mouse	2010
Rat	2320
Rabbit	1730
Average	1798

$$1798 \times 4 \times 10^{-5} = 0.072.$$

3.88 Data Summary for ALKOXY-ME-CHOLINE

CAS: ALKOXYCL

Common Synonyms: 3-Alkoxy(C12-15)-2-hydroxy-n-propyl trimethyl ammonium chloride

Physical Properties^(a):Reference

Molecular Weight	356.48	Empirical
Water Solubility, mg/L	2.4E+00	GEMS - E
Vapor Pressure, mm Hg	4.4E-07	GEMS - E
Henrys Law Constant, atm-m ³ /mole	7.9E-08	GEMS - E
Octanol-Water Partition Coefficient	5.7E+04	GEMS - E
Carbon matter partition Coefficient, L/g	3.5E+04	GEMS - E

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	2.4E+03	Calculated from Kow
Bioaccumulation in Shellfish	5.6E+02	Calculated from Kow
Soil-to-Edible Plant	1.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.4E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	4.5E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:Reference

Inhalation Reference Dose, mg/kg/d	5×10^{-2}	= ing
Ingestion Reference Dose, mg/kg/d	5×10^{-2}	RTECS - T: see footnote (b)

- (a) Physical properties based on GEMS estimates for 3-alkoxy (C₁₂)-2-hydroxy-n-propyl-dimethyl amine.
- (b) Data on compound not available. However, RTECS has data on a similar compound (2-hydroxypropyl) trimethylammonium chloride ethyl ether.

<u>Animal</u>	<u>LD50, mg/kg, oral</u>
Mouse	500
Rat	2000
Average	1250

$$1250 \times 4 \times 10^{-5} = 5 \times 10^{-2}.$$

3.89 Data Summary for ALLYL ALCOHOL

CAS: 107186

Common Synonyms: Allyl alcohol, Propenol, 3-Hydroxypropene

Physical Properties:

		<u>Reference</u>
Molecular Weight	58.00	Empirical
Water Solubility, mg/L	5.1E+05	Jaber et al. (1984)
Vapor Pressure, mm Hg	2.5E+01	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	3.7E-06	see footnote (a)
Octanol-Water Partition Coefficient	6.0E-01	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	3.2E+00	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.2E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	4.0E-01	Calculated from K _{ow}
Bioaccumulation in Shellfish	4.7E-02	Calculated from K _{ow}
Soil-to-Edible Plant	1.3E+01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.5E-08	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.8E-09	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.7E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-03	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.90 Data Summary for ALUMINUM

CAS: 7429905

Common Synonyms: Aluminum

Physical Properties:

Reference

Molecular Weight	26.98	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:

Media of Transport

Reference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

Transfer Parameter

Reference

Bioaccumulation in Fish	1.0E+01	Streng et al. (1986)
Bioaccumulation in Shellfish	6.3E+01	Streng et al. (1986)
Soil-to-Edible Plant	1.8E-04	Streng et al. (1986)
Feed-to-Animal Meat, d/kg	1.5E-03	Streng et al. (1986)
Feed-to-Cow Milk, d/L	5.0E-04	Streng et al. (1986)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

Reference

Inhalation Reference Dose, mg/kg/d	1.4E-03	TLV ^(a)
Ingestion Reference Dose, mg/kg/d	1.4E-03	= inh

(a) TLV value is based on value reported for soluble salts of aluminum.

3.91 Data Summary for 4-AMINOBIIPHENYL

CAS: 92671

Common Synonyms: 4-Aminobiphenyl, 4-Biphenylamine

Physical Properties:

		<u>Reference</u>
Molecular Weight	169.23	Empirical
Water Solubility, mg/L	8.4E+02	Jaber et al. (1984)
Vapor Pressure, mm Hg	6.0E-05	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	1.6E-08	see footnote (a)
Octanol-Water Partition Coefficient	6.0E+02	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	1.1E+02	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.8E+07	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	7.6E+01	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.4E+01	Calculated from K _{ow}
Soil-to-Edible Plant	2.4E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.5E-05	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.8E-06	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-05	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-05	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.92 Data Summary for AMMONIA

CAS: 7664417

Common Synonyms: Ammonia, Ammonium Hydroxide

Physical Properties:Reference

Molecular Weight	17.00	Empirical
Water Solubility, mg/L	1.0E+06	Weast (1979)

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:Reference

Inhalation Reference Dose, mg/kg/d	1.3E-01	TLV
Ingestion Reference Dose, mg/kg/d	1.3E-01	= inh

3.93 Data Summary for ANILINE

CAS: 62533

Common Synonyms: Aniline, Aminobenzene, Phenylamine

Physical Properties:

		<u>Reference</u>
Molecular Weight	93.10	Empirical
Water Solubility, mg/L	3.4E+04	Verschueren (1983)
Vapor Pressure, mm Hg	3.0E-01	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	1.1E-06	see footnote (a)
Octanol-Water Partition Coefficient	8.7E+00	Verschueren (1983)
Carbon matter partition Coefficient, L/g	1.4E+01	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.0E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.1E+00	Calculated from K _{ow}
Bioaccumulation in Shellfish	4.2E-01	Calculated from K _{ow}
Soil-to-Edible Plant	2.8E+00	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	2.2E-07	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	6.9E-08	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.4E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	3.0E-02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	3.0E-02	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.94 Data Summary for ANTHRACENE

CAS: 120127

Common Synonyms: Anthracene, Paranaphthalene

Physical Properties:

		<u>Reference</u>
Molecular Weight	178.00	Empirical
Water Solubility, mg/L	4.5E-02	EPA (1984a)
Vapor Pressure, mm Hg	2.0E-04	EPA (1984a)
Henry's Law Constant, atm-m ³ /mole	1.0E-03	see footnote (a)
Octanol-Water Partition Coefficient	2.8E+04	Radding et al. (1976)
Carbon matter partition Coefficient, L/g	1.4E+04	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.5E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.4E+03	Calculated from Kow
Bioaccumulation in Shellfish	3.2E+02	Calculated from Kow
Soil-to-Edible Plant	2.6E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.1E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	2.2E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.0E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	see footnote (b)
Ingestion Cancer Potency Factor, kg-d/mg	1.2E+01	see footnote (b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

(b) Cancer potency factors based on values for benzo(a)pyrene.

3.95 Data Summary for ANTIMONY

CAS: 7440360

Common Synonyms: Antimony, Stibium

Physical Properties:

Molecular Weight	122.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Reference

Environmental Degradation/Removal Half-times:

Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Reference

Environmental Transfer Factors:

Transfer Parameter

Bioaccumulation in Fish	1.0E+00	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+01	Napier et al. (1980)
Soil-to-Edible Plant	1.1E-02	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	3.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	7.5E-04	Napier et al. (1980)
Water Purification Factor	.80	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Reference

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	4.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	4.0E-04	EPA (1986b)

Reference

3.96 Data Summary for PCBs (GENERAL)

CAS: 1336363

Common Synonyms: Aroclor, PCB (General Classification), Thermal

Physical Properties:Reference

Molecular Weight	328.00	Empirical
Water Solubility, mg/L	3.1E-02	Mabey et al. (1982)
Vapor Pressure, mm Hg	7.7E-05	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.1E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.1E+06	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	5.3E+05	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.3E+07	VOL-S

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	2.3E+04	Calculated from K _{ow}
Bioaccumulation in Shellfish	6.3E+03	Calculated from K _{ow}
Soil-to-Edible Plant	3.1E-03	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	2.8E-02	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	8.7E-03	Calculated from K _{ow}
Water Purification Factor	.10	O'Brien and Gere (1981)
Deposition Velocity, m/sec	8.7E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:Reference

Inhalation Cancer Potency Factor, kg-d/mg	4.3E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.3E+00	EPA (1984ak)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.97 Data Summary for AROCLOR 1016 (PCB)

CAS: 12674112

Common Synonyms: Aroclor 1016, PCB 1016

Physical Properties:

		<u>Reference</u>
Molecular Weight	257.90	Empirical
Water Solubility, mg/L	4.2E-01	Mabey et al. (1982)
Vapor Pressure, mm Hg	4.0E-04	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	3.3E-04	see footnote (a)
Octanol-Water Partition Coefficient	3.8E+05	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.8E+05	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.7E+04	EPA (1980s)
Bioaccumulation in Shellfish	2.7E+03	Calculated from Kow
Soil-to-Edible Plant	5.8E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	9.5E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	3.0E-03	Calculated from Kow
Water Purification Factor	.10	O'Brien and Gere (1981)
Deposition Velocity, m/sec	8.8E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.3E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.3E+00	EPA (1984ak)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.98 Data Summary for AROCLOR 1221 (PCB) CAS: 1104282

Common Synonyms: Aroclor 1221, Chlorodiphenyl (21% Cl), PCB 1021

Physical Properties:

		<u>Reference</u>
Molecular Weight	200.70	Empirical
Water Solubility, mg/L	4.0E+01	Mabey et al. (1982)
Vapor Pressure, mm Hg	6.7E-03	Mabey et al. (1982)
Henrys Law Constant, atm-m ³ /mole	1.7E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.2E+04	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	5.8E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.6E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.4E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.6E+02	Calculated from Kow
Soil-to-Edible Plant	4.2E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	9.5E-05	Calculated from Kow
Water Purification Factor	.10	O'Brien and Gere (1981)
Deposition Velocity, m/sec	3.6E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.3E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.3E+00	EPA (1984ak)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.99 Data Summary for AROCLOR 1232 (PCB) CAS: 11141165

Common Synonyms: Arochor 1232, Chlorodiphenyl (32% Cl), PCB 1232

Physical Properties:

		<u>Reference</u>
Molecular Weight	232.20	Empirical
Water Solubility, mg/L	4.1E+02	Mabey et al. (1982)
Vapor Pressure, mm Hg	4.1E-03	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.1E-05	see footnote (a)
Octanol-Water Partition Coefficient	1.6E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	7.7E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.6E+02	Calculated from K _{ow}
Bioaccumulation in Shellfish	3.0E+01	Calculated from K _{ow}
Soil-to-Edible Plant	1.4E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	4.0E-05	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	1.3E-05	Calculated from K _{ow}
Water Purification Factor	.10	O'Brien and Gere (1981)
Deposition Velocity, m/sec	5.1E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.3E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.3E+00	EPA (1984ak)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.100 Data Summary for AROCLOR 1242 (PCB)

CAS: 53469219

Common Synonyms: Aroclor 1242, PCB 1242

Physical Properties:

		<u>Reference</u>
Molecular Weight	266.50	Empirical
Water Solubility, mg/L	2.3E-01	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.3E-03	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.0E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.3E+04	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	6.3E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	7.7E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.8E+02	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.7E+02	Calculated from K _{ow}
Soil-to-Edible Plant	4.1E-02	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	3.2E-04	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	1.0E-04	Calculated from K _{ow}
Water Purification Factor	.10	O'Brien and Gere (1981)
Deposition Velocity, m/sec	7.3E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.3E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.3E+00	EPA (1984ak)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.101 Data Summary for AROCLOR 1248 (PBC) CAS: 12672296

Common Synonyms: Aroclor 1248, Chlorodiphenyl (48% Cl), PCB 1248

Physical Properties:

		<u>Reference</u>
Molecular Weight	299.50	Empirical
Water Solubility, mg/L	5.4E-02	Mabey et al. (1982)
Vapor Pressure, mm Hg	4.9E-04	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	3.6E-03	see footnote (a)
Octanol-Water Partition Coefficient	5.8E+05	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	2.8E+05	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.0E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.4E+04	Calculated from K _{ow}
Bioaccumulation in Shellfish	3.7E+03	Calculated from K _{ow}
Soil-to-Edible Plant	4.5E-03	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.4E-02	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.6E-03	Calculated from K _{ow}
Water Purification Factor	.10	O'Brien and Gere (1981)
Deposition Velocity, m/sec	5.3E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.3E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.3E+00	EPA (1984ak)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.102 Data Summary for AROCLOR 1254 (PCB)

CAS: 11091691

Common Synonyms: Aroclor 1254, PCB 1254

Physical Properties:

		<u>Reference</u>
Molecular Weight	328.40	Empirical
Water Solubility, mg/L	4.3E-02	Mabey et al. (1982)
Vapor Pressure, mm Hg	2.2E-05	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.9E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.1E+06	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	5.3E+05	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.4E+07	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.3E+04	Calculated from Kow
Bioaccumulation in Shellfish	6.3E+03	Calculated from Kow
Soil-to-Edible Plant	3.1E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.2E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	1.1E-02	Travis and Arms (1988)
Water Purification Factor	.10	O'Brien and Gere (1981)
Deposition Velocity, m/sec	9.7E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.3E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.3E+00	EPA (1984ak)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.103 Data Summary for AROCLOR 1260 (PCB)

CAS: 11096825

Common Synonyms: Aroclor 1260, PCB 1260

Physical Properties:

		<u>Reference</u>
Molecular Weight	375.70	Empirical
Water Solubility, mg/L	1.4E-02	Mabey et al. (1982)
Vapor Pressure, mm Hg	6.3E-06	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.7E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.4E+07	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	6.7E+06	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.5E+08	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.6E+05	Calculated from Kow
Bioaccumulation in Shellfish	5.1E+04	Calculated from Kow
Soil-to-Edible Plant	7.1E-04	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.5E-01	Calculated from Kow
Feed-to-Cow Milk, d/L	1.1E-01	Calculated from Kow
Water Purification Factor	.10	O'Brien and Gere (1981)
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.3E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.3E+00	EPA (1984ak)

(a) From ICF (1987b) as calculated from solubility and vapor pressure.

3.104 Data Summary for ARSENIC

CAS: 7440382

Common Synonyms: Arsenic

Physical Properties:

		<u>Reference</u>
Molecular Weight	75.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	0.0E+00	EPA (1981)

Environmental Degradation/Removal Half-times:

Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.0E+00	Spehar et al. (1980)
Bioaccumulation in Shellfish	4.0E+01	Streng et al. (1986)
Soil-to-Edible Plant	1.0E-02	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	1.5E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	3.0E-03	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	5.0E+01	EPA (1984d)
Ingestion Cancer Potency Factor, kg-d/mg	1.5E+00	IRIS

3.105 Data Summary for ASBESTOS (CROC)

CAS: 12001284

Common Synonyms: Asbestos, Crocidolite, Blue asbestos

Physical Properties:

		<u>Reference</u>
Molecular Weight	Varies	Not defined
Water Solubility, mg/L		No value in data base
Vapor Pressure, mm HG	0.0E+00	EPA (1980u)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.0E+00	Default
Bioaccumulation in Shellfish	1.0E+00	Default
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	.01	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.7E-05	TLV; see footnote (a)
Ingestion Reference Dose, mg/kg/d	4.7E-05	= inh

(a) Assumes 3×10^{10} fibers per gram.

3.106 Data Summary for ASPHALT

CAS: 8052424

Common Synonyms: Asphalt, Road tar, Mineral pitch, Petroleum pitch

Physical Properties:Reference

Molecular Weight	276.00	see footnote (a)
Water Solubility, mg/L	5.3E-04	see footnote (a)
Vapor Pressure, mm Hg	1.0E-10	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	6.9E-08	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+06	see footnote (a)
Carbon matter partition Coefficient, L/g	1.6E+06	see footnote (a)

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	5.1E+04	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.5E+04	Calculated from K _{ow}
Soil-to-Edible Plant	1.7E-03	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	7.9E-02	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	2.5E-02	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:Reference

Inhalation Reference Dose, mg/kg/d	3.5E-02	TLV, see footnote (b)
Ingestion Reference Dose, mg/kg/d	3.5E-02	= inh

(a) Physical properties are based on data for ideno(1,2,3-cd) pyrene.

(b) TLV for asphalt (petroleum) fumes.

3.107 Data Summary for BARIUM

CAS: 7440393

Common Synonyms: Barium

Physical Properties:Reference

Molecular Weight	137.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	4.0E+00	Napier et al. (1980)
Bioaccumulation in Shellfish	2.0E-01	Guthrie et al. (1979)
Soil-to-Edible Plant	5.0E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-04	Napier et al. (1980)
Feed-to-Cow Milk, d/L	4.0E-04	Napier et al. (1980)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:Reference

Inhalation Reference Dose, mg/kg/d	1.4E-04	EPA (1984e)
Ingestion Reference Dose, mg/kg/d	5.1E-02	EPA (1984e)

3.108 Data Summary for BENZENE

CAS: 71432

Common Synonyms: Benzene, Benzol, Benzolene, Mineral naphtha

Physical Properties:Reference

Molecular Weight	78.00	Empirical
Water Solubility, mg/L	1.8E+03	EPA (1984f)
Vapor Pressure, mm Hg	9.5E+01	EPA (1984f)
Henry's Law Constant, atm-m ³ /mole	5.6E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.3E+02	EPA (1984f)
Carbon matter partition Coefficient, L/g	8.3E+01	Lyman et al. (1982)

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.3E+01	VOL-S

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	2.4E+01	Calculated from K _{ow}
Bioaccumulation in Shellfish	3.9E+00	Calculated from K _{ow}
Soil-to-Edible Plant	5.8E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	3.3E-06	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	1.0E-06	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.2E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:Reference

Inhalation Cancer Potency Factor, kg-d/mg	2.9E-02	EPA (1984f)
Ingestion Cancer Potency Factor, kg-d/mg	2.9E-02	= inh

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.109 Data Summary for BENZIDINE

CAS: 92875

Common Synonyms: Benzidine, 4,4'-diaminobiphenyl

Physical Properties:

		<u>Reference</u>
Molecular Weight	184.24	Empirical
Water Solubility, mg/L	4.0E+02	Mabey et al. (1982)
Vapor Pressure, mm Hg	5.0E-04	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	3.0E-07	see footnote (a)
Octanol-Water Partition Coefficient	2.0E+01	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.1E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.1E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.1E+02	Lu et al. (1977)
Bioaccumulation in Shellfish	8.3E-01	Calculated from Kow
Soil-to-Edible Plant	1.7E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.0E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	1.6E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.2E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.3E+02	EPA (1985b)
Ingestion Reference Dose, mg/kg/d	1.3E-03	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.110 Data Summary for BENZO(A)ANTHRACENE CAS: 56553

Common Synonyms: Benz(a)anthracene, 1,2-benzanthracene

Physical Properties:

		<u>Reference</u>
Molecular Weight	228.00	Empirical
Water Solubility, mg/L	5.7E-03	Mabey et al. (1982)
Vapor Pressure, mm Hg	2.2E-08	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.2E-06	see footnote (a)
Octanol-Water Partition Coefficient	4.0E+05	Radding et al. (1976)
Carbon matter partition Coefficient, L/g	1.4E+06	Lyman et al. (1982)

Environmental Degradation/Removal Half-times:

Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.2E+04	EPA (1980t)
Bioaccumulation in Shellfish	2.8E+03	Calculated from Kow
Soil-to-Edible Plant	5.6E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	3.2E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	EPA (1984al)
Ingestion Cancer Potency Factor, kg-d/mg	1.2E+01	EPA (1984al)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.111 Data Summary for BENZO(A)PYRENE

CAS: 50328

Common Synonyms: Benzo(a)pyrene, 3,4-benzopyrene, B(a)p

Physical Properties:

		<u>Reference</u>
Molecular Weight	252.00	Empirical
Water Solubility, mg/L	3.8E-03	EPA (1984g)
Vapor Pressure, mm Hg	5.6E-09	EPA (1984g)
Henrys Law Constant, atm-m ³ /mole	1.5E-06	see footnote (a)
Octanol-Water Partition Coefficient	1.2E+06	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	5.5E+06	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.4E+04	Calculated from Kow
Bioaccumulation in Shellfish	6.6E+03	Calculated from Kow
Soil-to-Edible Plant	3.0E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.9E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	9.1E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	EPA (1984al)
Ingestion Cancer Potency Factor, kg-d/mg	1.2E+01	EPA (1984al)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.112 Data Summary for BENZO(B)FLUORANTHENE CAS: 205992

Common Synonyms: Benzo(b)fluoranthene, Benz(e)acephenanthrylene

Physical Properties:

		<u>Reference</u>
Molecular Weight	252.00	Empirical
Water Solubility, mg/L	1.4E-02	Mabey et al. (1982)
Vapor Pressure, mm Hg	5.0E-07	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.2E-05	see footnote (a)
Octanol-Water Partition Coefficient	1.2E+06	PCALC
Carbon matter partition Coefficient, L/g	5.5E+05	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.4E+04	Calculated from K _{ow}
Bioaccumulation in Shellfish	6.6E+03	Calculated from K _{ow}
Soil-to-Edible Plant	3.0E-03	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	2.9E-02	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	9.1E-03	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	see footnote (b)
Ingestion Cancer Potency Factor, kg-d/mg	1.2E+01	see footnote (b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

(b) Cancer potency factors based on values for benzo(a)pyrene.

3.113 Data Summary for BENZO(K)FLUORANTHENE CAS: 207089

Common Synonyms: Benzo(k)flouranthene, 11,12-benzo(k)flouranthene

Physical Properties:

		<u>Reference</u>
Molecular Weight	252.00	Empirical
Water Solubility, mg/L	4.3E-03	Mabey et al. (1982)
Vapor Pressure, mm Hg	5.1E-07	Mabey et al. (1982)
Henrys Law Constant, atm-m ³ /mole	3.9E-05	see footnote (a)
Octonal-Water Partition Coefficient	1.2E+06	PCALC
Carbon matter partition Coefficient, L/g	5.5E+05	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.4E+04	Calculated from Kow
Bioaccumulation in Shellfish	6.6E+03	Calculated from Kow
Soil-to-Edible Plant	3.0E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.9E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	9.1E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	see footnote (b)
Ingestion Cancer Potency Factor, kg-d/mg	1.2E+01	see footnote (b)

- (a) From ICF (1987a) as calculated from solubility and vapor pressure.
 (b) Cancer potency factors based on values for benzo(a)pyrene.

3.114 Data Summary for BENZOIC ACID

CAS: 65850

Common Synonyms: Benzoic acid

Physical Properties:

		<u>Reference</u>
Molecular Weight	122.13	RTECS - D
Water Solubility, mg/L	3.4E+03	GEMS - M
Vapor Pressure, mm Hg	2.5E-03	GEMS - E
Henry's Law Constant, atm-m ³ /mole	1.3E-07	GEMS - E
Octanol-Water Partition Coefficient	7.4E+01	GEMS - M
Carbon matter partition Coefficient, L/g	4.6E+01	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.6E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.6E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.4E+00	Calculated from Kow
Soil-to-Edible Plant	8.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.9E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	5.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.1E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	4.0E+00	IRIS

3.115 Data Summary for P-BENZOQUINONE

CAS: 106514

Common Synonyms: P-benzoquinone, 2,5-cyclohexadiene-1,4-diene

Physical Properties:

		<u>Reference</u>
Molecular Weight	108.09	Empirical
Water Solubility, mg/L	1.5E+04	CHEMEST
Vapor Pressure, mm Hg	9.0E-02	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	1.5E-06	see footnote (a)
Octanol-Water Partition Coefficient	1.6E+00	Lien and Hansch
Carbon matter partition Coefficient, L/g	9.8E-01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.3E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	8.3E-01	Calculated from Kow
Bioaccumulation in Shellfish	1.0E-01	Calculated from Kow
Soil-to-Edible Plant	7.4E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.0E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	1.3E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	7.8E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.3E-03	= ing
Ingestion Reference Dose, mg/kg/d	4.3E-03	Salee (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.116 Data Summary for BERYLLIUM

CAS: 7440417

Common Synonyms: Beryllium, Glucinium

Physical Properties:

		<u>Reference</u>
Molecular Weight	9.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	0.0E+00	EPA (1981)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.9E+01	EPA (1980e)
Bioaccumulation in Shellfish	1.0E+01	Napier et al. (1980)
Soil-to-Edible Plant	4.7E-04	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	8.0E-04	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.0E-06	Napier et al. (1980)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.9E+00	IRIS
Ingestion Reference Dose, mg/kg/d	5.0E-03	IRIS

3.117 Data Summary for BIS(2-CHLOROETHYL) CAS: 111444

Common Synonyms: Bis(2-chloroethyl ether), Chloroethyl ether, DCEE

Physical Properties:

		<u>Reference</u>
Molecular Weight	143.02	Empirical
Water Solubility, mg/L	1.0E+04	Mabey et al. (1982)
Vapor Pressure, mm Hg	7.1E-01	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.3E-05	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+01	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.4E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.4E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.1E+01	Lyman et al. (1982)
Bioaccumulation in Shellfish	1.2E+00	Calculated from Kow
Soil-to-Edible Plant	1.3E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	2.5E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.2E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.1E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.1E+00	EPA (1985b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.118 Data Summary for BIS(2-CHLOROISOPRO) CAS: 108601

Common Synonyms: Bis(2-chloroisopropyl)ether, Dichlorodiisapropyl ether

Physical Properties:

		<u>Reference</u>
Molecular Weight	171.00	Empirical
Water Solubility, mg/L	1.7E+03	Mabey et al. (1982)
Vapor Pressure, mm Hg	8.5E-01	Mabey et al. (1982)
Henrys Law Constant, atm-m ³ /mole	1.1E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.3E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	6.1E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.3E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.3E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.8E+00	Calculated from Kow
Soil-to-Edible Plant	5.9E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.2E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.0E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.1E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-03	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.119 Data Summary for BIS(2ET-HEXYL)PHTHLT CAS: 117817

Common Synonyms: Bis(2-ethylhexyl phthalate), DEHP, DOP

Physical Properties:

		<u>Reference</u>
Molecular Weight	391.00	Empirical
Water Solubility, mg/L	4.0E-01	McDuffie et al. (1984)
Vapor Pressure, mm Hg	2.0E-07	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	4.4E-07	see footnote (a)
Octanol-Water Partition Coefficient	4.1E+09	McDuffie et al. (1984)
Carbon matter partition Coefficient, L/g	8.7E+04	Russell and McDuffie (1986)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.6E+02	EPA (1980r)
Bioaccumulation in Shellfish	1.6E+07	Calculated from Kow
Soil-to-Edible Plant	2.7E-05	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E+02	Calculated from Kow
Feed-to-Cow Milk, d/L	3.3E+01	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.8E-04	= ing
Ingestion Cancer Potency Factor, kg-d/mg	6.8E-04	EPA (1985b)
Inhalation Reference Dose, mg/kg/d	2.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-02	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.120 Data Summary for BORATE (AS NA SALT)

CAS: 1303964

Common Synonyms: Borate ion

Physical Properties:Reference

Molecular Weight	42.08	Empirical
Water Solubility, mg/L		No value in data base

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	2.2E-01	Streng et al. (1986)
Bioaccumulation in Shellfish	5.0E+01	Streng et al. (1986)
Soil-to-Edible Plant	1.2E-01	Streng et al. (1986)
Feed-to-Animal Meat, d/kg	8.0E-04	Streng et al. (1986)
Feed-to-Cow Milk, d/L	2.7E-03	Streng et al. (1986)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:Reference

Inhalation Reference Dose, mg/kg/d	3.5E-02	TLV ^(a)
Ingestion Reference Dose, mg/kg/d	3.5E-02	= inh

(a) TLV value is based on value reported for sodium tetraborate, decahydrate.

3.121 Data Summary for BORON

CAS: 744428

Common Synonyms: Boron (elemental)

Physical Properties:

Molecular Weight	10.8	Empirical
Water Solubility, mg/L		No value in data base

ReferenceEnvironmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.2E-01	Streng et al. (1986)
Bioaccumulation in Shellfish	5.0E+01	Streng et al. (1986)
Soil-to-Edible Plant	1.2E-01	Streng et al. (1986)
Feed-to-Animal Meat, d/kg	8.0E-04	Streng et al. (1986)
Feed-to-Cow Milk, d/L	2.7E-03	Streng et al. (1986)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.0E-03	TLV ^(a)
Ingestion Reference Dose, mg/kg/d	7.0E-03	= inh

(a) TLV value is based on value reported for boron oxide.

3.122 Data Summary for BROMODICHLOROMETHAN CAS: 75274

Common Synonyms: Bromodichloromethane, Dichlorobromomethane

Physical Properties:

		<u>Reference</u>
Molecular Weight	163.80	Empirical
Water Solubility, mg/L	5.0E+01	EPA (1980u)
Vapor Pressure, mm Hg	5.9E+01	Method VP-1
Henry's Law Constant, atm-m ³ /mole	3.2E-01	see footnote (a)
Octanol-Water Partition Coefficient	1.7E+02	PCALC
Carbon matter partition Coefficient, L/g	1.1E+02	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.8E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.0E+01	Calculated from K _{ow}
Bioaccumulation in Shellfish	4.9E+00	Calculated from K _{ow}
Soil-to-Edible Plant	4.9E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	4.4E-06	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	1.4E-06	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.7E-08	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	6.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	6.0E-04	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.123 Data Summary for BROMOMETHANE

CAS: 74839

Common Synonyms: Bromomethane, Methyl bromide, MB, MBX, MEBR

Physical Properties:

		<u>Reference</u>
Molecular Weight	94.94	Empirical
Water Solubility, mg/L	9.0E+02	Verschueren (1983)
Vapor Pressure, mm Hg	1.5E+03	Perry and Chilton (1973)
Henry's Law Constant, atm-m ³ /mole	1.2E-01	see footnote (a)
Octanol-Water Partition Coefficient	1.6E+01	GEMS - M
Carbon matter partition Coefficient, L/g	9.6E+00	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	7.3E+02	Singh et al. (1979); Davis et al. (1976)
In Water, days	6.9E+07	Default
In Soil, days	7.8E-01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	4.7E+00	Calculated from Kow
Bioaccumulation in Shellfish	6.7E-01	Calculated from Kow
Soil-to-Edible Plant	2.0E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.9E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	1.2E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.2E-08	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	4.0E-04	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.124 Data Summary for n-BUTANE

CAS: 106978

Common Synonyms: n-Butane

Physical Properties:

		<u>Reference</u>
Molecular Weight	58.14	RTECS - D
Water Solubility, mg/L	4.8E+01	GEMS - E
Vapor Pressure, mm Hg	1.9E+03	Weast (1979)
Henry's Law Constant, atm-m ³ /mole	4.5E-01	GEMS - E
Octanol-Water Partition Coefficient	7.8E+02	GEMS - M
Carbon matter partition Coefficient, L/g	4.8E+02	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.6E-01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	9.3E+01	Calculated from Kow
Bioaccumulation in Shellfish	1.7E+01	Calculated from Kow
Soil-to-Edible Plant	2.1E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.9E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	6.2E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.5E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.3E+01	TLV
Ingestion Reference Dose, mg/kg/d	1.3E+01	= inh

3.125 Data Summary for 1-BUTANOL

CAS: 71363

Common Synonyms: 1-Butanol, n-butyl alcohol

Physical Properties:

		<u>Reference</u>
Molecular Weight	74.12	Empirical
Water Solubility, mg/L	7.9E+04	GEMS - M
Vapor Pressure, mm Hg	2.4E+01	GEMS - E
Henrys Law Constant, atm-m ³ /mole	4.8E-06	Lyman et al. (1982)
Octanol-Water Partition Coefficient	5.6E+00	Hansch et al. (1979)
Carbon matter partition Coefficient, L/g	4.7E+00	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.2E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.2E+00	Calculated from Kow
Bioaccumulation in Shellfish	2.9E-01	Calculated from Kow
Soil-to-Edible Plant	3.6E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.4E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	4.5E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.2E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.1E+00	TLV
Ingestion Reference Dose, mg/kg/d	1.1E+00	= inh

3.126 Data Summary for 2-SEC-BUTYL-4,6-DIN CAS: 88857

Common Synonyms: 2-sec-butyl-4,6-dinitrophenol, Dinoseb, DNBP, Spurge

Physical Properties:

		<u>Reference</u>
Molecular Weight	240.22	Empirical
Water Solubility, mg/L	1.7E+00	Method S-1
Vapor Pressure, mm Hg	1.2E-10	Method VP-2
Henry's Law Constant, atm-m ³ /mole	2.4E-11	see footnote (a)
Octanol-Water Partition Coefficient	4.6E+03	PCALC
Carbon matter partition Coefficient, L/g	3.0E+03	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.6E+02	Calculated from Kow
Bioaccumulation in Shellfish	7.1E+01	Calculated from Kow
Soil-to-Edible Plant	7.4E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.1E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	3.6E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.3E-03	= ing
Ingestion Reference Dose, mg/kg/d	1.3E-03	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.127 Data Summary for CADMIUM

CAS: 7440439

Common Synonyms: Cadmium

Physical Properties:

		<u>Reference</u>
Molecular Weight	112.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	0.0E+00	EPA (1981)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.0E+02	Napier et al. (1980)
Bioaccumulation in Shellfish	2.0E+03	Napier et al. (1980)
Soil-to-Edible Plant	3.0E-01	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	1.6E-02	Napier et al. (1980)
Feed-to-Cow Milk, d/L	5.2E-05	Napier et al. (1980)
Water Purification Factor	.60	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	IRIS
Ingestion Reference Dose, mg/kg/d	5.1E-04	see footnote (a)

(a) Based on water quality criteria of 0.018 mg/L x 2 L/d x 1/70 kg (EPA 1984a).

3.128 Data Summary for CALCIUM HYPOCHLORITE CAS: 7778543

Common Synonyms: Calcium Hypochlorite

Physical Properties:

		<u>Reference</u>
Molecular Weight	197.03	Weast (1979)
Water Solubility, mg/L		No value in data base

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors^(a):

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.4E-02	= ing
Ingestion Reference Dose, mg/kg/d	3.4E-02	RTECS - T; see footnote (b)

(a) Calcium hypochlorite is not considered to transfer through the food chain in a manner likely to cause health impacts. The transfer factors are set to zero to prevent modeling of the food pathways.

(b) RTECS Oral LD50

Rat: $850 \text{ mg/kg} \times 4 \times 10^{-5} = 0.034 \text{ mg/kg/d}$.

3.129 Data Summary for CALCIUM OXIDE

CAS: 1305788

Common Synonyms: Calcium oxide, Burnt lime, Quicklime

Physical Properties:

Molecular Weight	56.08	Empirical
Water Solubility, mg/L		No value in data base

ReferenceEnvironmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

ReferenceEnvironmental Transfer Factors^(a):Transfer Parameter

Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	.00	Pathway not used
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

ReferenceChemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	1.4E-02	TLV
Ingestion Reference Dose, mg/kg/d	1.4E-02	= inh

Reference

- (a) Calcium oxide is not considered to transfer through the food chain in a manner likely to cause health impacts. The transfer factors are set to zero to prevent modeling of the food pathways.

3.130 Data Summary for CARBON DISULFIDE CAS: 75150

Common Synonyms: Carbon disulfide, Carbon bisulfide

Physical Properties:

		<u>Reference</u>
Molecular Weight	76.14	Empirical
Water Solubility, mg/L	2.9E+03	EPA (1981)
Vapor Pressure, mm Hg	3.6E+02	EPA (1981)
Henry's Law Constant, atm-m ³ /mole	1.2E-02	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+02	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	5.4E+01	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	1.5E+02	Peyton et al. (1976); Kurylo (1978a)
In Water, days	6.9E+07	Default
In Soil, days	3.4E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.1E+00	Calculated from Kow
Soil-to-Edible Plant	6.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.3E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-01	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.131 Data Summary for CARBON TETRACHLORIDE CAS: 56235

Common Synonyms: Carbon tetrachloride, Freon 10, Tetrachloromethane

Physical Properties:

		<u>Reference</u>
Molecular Weight	154.00	Empirical
Water Solubility, mg/L	7.6E+02	EPA (1984i)
Vapor Pressure, mm Hg	9.0E+01	EPA (1984i)
Henry's Law Constant, atm-m ³ /mole	2.4E-02	see footnote (a)
Octanol-Water Partition Coefficient	4.4E+02	EPA (1984i)
Carbon matter partition Coefficient, L/g	1.1E+02	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.7E+01	EPA (1980f)
Bioaccumulation in Shellfish	1.0E+01	Calculated from Kow
Soil-to-Edible Plant	2.9E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.1E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	3.5E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.1E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.3E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.3E-01	EPA (1984i)
Ingestion Reference Dose, mg/kg/d	7.0E-04	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.132 Data Summary for CEMENT DUST

CAS: CEMENT D

Common Synonyms: Cement dust

Physical Properties:Reference

Molecular Weight

Not used in MEPAS model

Water Solubility, mg/L

No value in data base

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days

6.9E+07

Default

In Water, days

6.9E+07

Default

In Soil, days

6.9E+07

Default

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish

0.0E+00

Pathway not used

Bioaccumulation in Shellfish

0.0E+00

Pathway not used

Soil-to-Edible Plant

0.0E+00

Pathway not used

Feed-to-Animal Meat, d/kg

0.0E+00

Pathway not used

Feed-to-Cow Milk, d/L

0.0E+00

Pathway not used

Water Purification Factor

1.00

Default

Deposition Velocity, m/sec

1.0E-03

Default

Atmospheric Deposition Class

1

Particulate

Chemical Toxicity Parameters:Reference

Inhalation Reference Dose, mg/kg/d

7.0E-02

TLV

Ingestion Reference Dose, mg/kg/d

7.0E-02

= inh

3.133 Data Summary for CHLORATE (AS NA SLT) CAS: 7775099

Common Synonyms: Chlorate ion

Physical Properties:

Molecular Weight	83.45	Empirical
Water Solubility, mg/L		No value in data base

Reference

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	4.8E-02	= ing
Ingestion Reference Dose, mg/kg/d	4.8E-02	RTECS-T; see footnote (a)

Reference

(a) Ingestion RfD: RTECS Oral LD50 for rat = 1200 mg/kg
 $RfD = 1200 \times 4 \times 10^{-5} = 4.8 \times 10^{-2}$.

3.134 Data Summary for CHLORDANE

CAS: 57749

Common Synonyms: Chlordane, BELT, Ortho-klor, Velsicol 1068

Physical Properties:

		<u>Reference</u>
Molecular Weight	409.80	Empirical
Water Solubility, mg/L	6.0E-03	NRCC (1974)
Vapor Pressure, mm Hg	2.5E-05	Bidleman et al. (1986)
Henry's Law Constant, atm-m ³ /mole	1.9E-03	see footnote (a)
Octanol-Water Partition Coefficient	6.0E+04	Lyman et al. (1982)
Carbon matter partition Coefficient, L/g	9.5E+03	Lyman et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.7E+07	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.2E+02	EPA (1980g)
Bioaccumulation in Shellfish	5.9E+02	Calculated from Kow
Soil-to-Edible Plant	1.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.4E-03	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	3.7E-04	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.2E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.6E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.6E+00	EPA (1984j)
Ingestion Reference Dose, mg/kg/d	5.0E-05	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.135 Data Summary for CHLORINE

CAS: 7782505

Common Synonyms: Chlorine gas

Physical Properties:Reference

Molecular Weight	71.00	Weast (1979)
Water Solubility, mg/L		No value in data base

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	1.0E+00	Estimate
In Water, days	1.0E+00	Estimate
In Soil, days	2.2E-01	VOL-S

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-02	Default
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:Reference

Inhalation Reference Dose, mg/kg/d	1.1E-02	TLV
Ingestion Reference Dose, mg/kg/d	1.1E-02	= inh

3.136 Data Summary for P-CHLOROANILINE

CAS: 106478

Common Synonyms: P-chloroaniline, 1-amino-4-chlorobenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	127.57	Empirical
Water Solubility, mg/L	2.6E+03	CHEMEST
Vapor Pressure, mm Hg	1.5E-02	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	9.7E-07	see footnote (a)
Octanol-Water Partition Coefficient	6.8E+01	Tichy and Bocek
Carbon matter partition Coefficient, L/g	4.2E+01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	7.5E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.4E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.3E+00	Calculated from Kow
Soil-to-Edible Plant	8.5E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.7E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	5.4E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.8E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.5E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.5E-01	Salee (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.137 Data Summary for CHLOROBENZENE

CAS: 108907

Common Synonyms: Chlorobenzene, Phenyl chloride

Physical Properties:

		<u>Reference</u>
Molecular Weight	112.56	Empirical
Water Solubility, mg/L	4.7E+02	EPA (1984c)
Vapor Pressure, mm Hg	1.2E+01	EPA (1984k)
Henry's Law Constant, atm-m ³ /mole	3.7E-03	see footnote (a)
Octanol-Water Partition Coefficient	6.9E+02	EPA (1984k)
Carbon matter partition Coefficient, L/g	3.3E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	9.5E+02	EPA (1984k); Graedel (1978)
In Water, days	6.9E+07	Default
In Soil, days	9.8E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.5E+02	Lu and Metcalf (1975)
Bioaccumulation in Shellfish	1.5E+01	Calculated from Kow
Soil-to-Edible Plant	2.2E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.7E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	5.5E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.2E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.7E-03	EPA (1984k)
Ingestion Reference Dose, mg/kg/d	2.7E-02	EPA (1984k)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.138 Data Summary for CHLOROBENZILATE

CAS: 510156

Common Synonyms: Chlorobenzilate, 4,4'-dichlorobenzilic acid ethyl ester

Physical Properties:

		<u>Reference</u>
Molecular Weight	325.00	Empirical
Water Solubility, mg/L	2.2E+01	Jaber et al. (1984)
Vapor Pressure, mm Hg	1.2E-06	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	2.3E-08	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+04	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	8.0E+02	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.6E+03	Calculated from Kow
Bioaccumulation in Shellfish	3.5E+02	Calculated from Kow
Soil-to-Edible Plant	2.4E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	8.1E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	2.6E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.3E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.3E-01	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.139 Data Summary for 2-CHLOR-1,3-BUTADIEN CAS: 126998

Common Synonyms: 2-chloro-1,3-butadiene, Chloroprene, Neoprene

Physical Properties:

		<u>Reference</u>
Molecular Weight	88.54	Empirical
Water Solubility, mg/L	4.3E+03	Method S-1
Vapor Pressure, mm Hg	2.8E+02	Verschueren (1983)
Henrys Law Constant, atm-m ³ /mole	8.2E-03	see footnote (a)
Octanol-Water Partition Coefficient	6.0E+01	PCALC
Carbon matter partition Coefficient, L/g	3.7E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.4E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.3E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.1E+00	Calculated from Kow
Soil-to-Edible Plant	9.1E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.5E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	4.8E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.1E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-03	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.140 Data Summary for CHLORODIBROMOMETHANE CAS: 124481

Common Synonyms: Chlorodibromomethane, Dibromochloromethane

Physical Properties:

		<u>Reference</u>
Molecular Weight	208.29	Empirical
Water Solubility, mg/L	4.5E+03	Method S-1
Vapor Pressure, mm Hg	1.5E+01	Callahan et al. (1979)
Henry's Law Constant, atm-m ³ /mole	1.0E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.2E+02	Callahan et al. (1979)
Carbon matter partition Coefficient, L/g	7.6E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.3E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.7E+00	Calculated from Kow
Soil-to-Edible Plant	6.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.1E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	9.8E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.0E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-04	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.141 Data Summary for CHLOROETHANE

CAS: 75003

Common Synonyms: Chloroethane, Ethyl chloride

Physical Properties:

		<u>Reference</u>
Molecular Weight	64.52	Empirical
Water Solubility, mg/L	5.7E+03	Verschueren (1983)
Vapor Pressure, mm Hg	1.2E+03	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	1.5E-02	see footnote (a)
Octanol-Water Partition Coefficient	2.7E+01	Jow and Hansch
Carbon matter partition Coefficient, L/g	1.7E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.2E+00	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.1E+00	Calculated from K _{ow}
Soil-to-Edible Plant	1.4E+00	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	6.8E-07	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	2.1E-07	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.0E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.8E+01	TLV
Ingestion Reference Dose, mg/kg/d	1.8E+01	= ing

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.142 Data Summary for CHLOROFORM

CAS: 67663

Common Synonyms: Chloroform, Trichloromethane, Freon 20

Physical Properties:

		<u>Reference</u>
Molecular Weight	119.00	Empirical
Water Solubility, mg/L	8.2E+03	EPA (1984l)
Vapor Pressure, mm Hg	1.5E+02	EPA (1984l)
Henry's Law Constant, atm-m ³ /mole	2.9E-03	see footnote (a)
Octanol-Water Partition Coefficient	9.3E+01	EPA (1984l)
Carbon matter partition Coefficient, L/g	3.1E+01	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	7.5E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.8E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.9E+00	Calculated from Kow
Soil-to-Edible Plant	7.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.3E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	7.4E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.5E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	8.1E-02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	8.1E-02	EPA (1984l)
Inhalation Reference Dose, mg/kg/d	1.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-02	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.143 Data Summary for P-CHLORO-M-CRESOL CAS: 59507

Common Synonyms: P-chloro-m-cresol, 4-chloro-m-cresol

Physical Properties:

		<u>Reference</u>
Molecular Weight	142.59	Empirical
Water Solubility, mg/L	3.9E+03	CHEMEST
Vapor Pressure, mm Hg	8.0E-03	Method VP-2
Henrys Law Constant, atm-m ³ /mole	4.3E-07	see footnote (a)
Octanol-Water Partition Coefficient	1.3E+03	Cutter (1970)
Carbon matter partition Coefficient, L/g	7.8E+02	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.4E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.3E+02	Calculated from K _{ow}
Bioaccumulation in Shellfish	2.5E+01	Calculated from K _{ow}
Soil-to-Edible Plant	1.6E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	3.2E-05	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	1.0E-05	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.5E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.7E-02	= ing
Ingestion Reference Dose, mg/kg/d	2.7E-02	EPA (1984o)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.144 Data Summary for CHLOROMETHANE(METHY) CAS: 74873

Common Synonyms: Chloromethane, Methyl chloride

Physical Properties:

		<u>Reference</u>
Molecular Weight	50.49	Empirical
Water Solubility, mg/L	6.5E+03	Mabey et al. (1982)
Vapor Pressure, mm Hg	4.3E+01	Jaber et al. (1984)
Henrys Law Constant, atm-m ³ /mole	4.4E-02	see footnote (a)
Octanol-Water Partition Coefficient	8.9E+00	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	3.5E+01	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.1E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.1E+00	Calculated from Kow
Bioaccumulation in Shellfish	4.3E-01	Calculated from Kow
Soil-to-Edible Plant	2.7E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.2E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	7.1E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.2E-08	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.8E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.8E-01	Salee (1984)
Ingestion Reference Dose, mg/kg/d	5.4E-01	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.145 Data Summary for 2-CHLORONAPHTHALENE

CAS: 91578

Common Synonyms: 2-Chloronaphthalene

Physical Properties:

		<u>Reference</u>
Molecular Weight	162.20	Empirical
Water Solubility, mg/L	6.7E+00	Mabey et al. (1982)
Vapor Pressure, mm Hg	6.7E-02	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	5.4E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+04	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	4.8E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.6E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.5E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.3E+02	Calculated from Kow
Soil-to-Edible Plant	4.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.5E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-02	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.146 Data Summary for 2-CHLOROPHENOL

CAS: 95578

Common Synonyms: 2-Chlorophenol, Phenol

Physical Properties:

		<u>Reference</u>
Molecular Weight	128.56	Empirical
Water Solubility, mg/L	2.9E+04	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.8E+00	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.0E-05	see footnote (a)
Octanol-Water Partition Coefficient	1.5E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	7.3E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.4E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.4E+00	EPA (1980j)
Bioaccumulation in Shellfish	4.4E+00	Calculated from Kow
Soil-to-Edible Plant	5.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.8E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.2E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.4E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.147 Data Summary for 4-CHLORO PH PH ETHER

CAS: 7005723

Common Synonyms: 4-Chlorophenyl phenyl ether

Physical Properties:

		<u>Reference</u>
Molecular Weight	204.66	Empirical
Water Solubility, mg/L	3.0E+00	CHEMEST
Vapor Pressure, mm Hg	2.7E-03	EPA (1980u)
Henry's Law Constant, atm-m ³ /mole	2.7E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.2E+04	Evanston (1977)
Carbon matter partition Coefficient, L/g	7.4E+03	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.9E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.4E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.6E+02	Calculated from Kow
Soil-to-Edible Plant	4.2E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	9.5E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.7E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.9E-02	TLV; see footnote (b)
Ingestion Reference Dose, mg/kg/d	4.9E-02	= inh

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

(b) RfD based on TLV for phenyl ether.

3.148 Data Summary for 3-CHLOROPROPENE(ALLY CAS: 107051

Common Synonyms: 3-Chloropropene, Chlorallylene

Physical Properties:

		<u>Reference</u>
Molecular Weight	76.53	Empirical
Water Solubility, mg/L	1.0E+02	Verschueren (1983)
Vapor Pressure, mm Hg	3.4E+02	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	3.4E-01	see footnote (a)
Octanol-Water Partition Coefficient	6.6E+00	PCALC
Carbon matter partition Coefficient, L/g	4.0E+00	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.6E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.5E+00	Calculated from Kow
Bioaccumulation in Shellfish	3.4E-01	Calculated from Kow
Soil-to-Edible Plant	3.3E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.7E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	5.3E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-08	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.6E-03	= ing
Ingestion Reference Dose, mg/kg/d	1.6E-03	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.149 Data Summary for CHROMIUM III

CAS: CR-III

Common Synonyms: Chromium III

Physical Properties:

		<u>Reference</u>
Molecular Weight	52.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	0.0E+00	EPA (1981)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.0E+01	Napier et al. (1980); see footnote (a)
Bioaccumulation in Shellfish	2.0E+03	Napier et al. (1980); see footnote (a)
Soil-to-Edible Plant	2.5E-04	Napier et al. (1980); see footnote (a)
Feed-to-Animal Meat, d/kg	2.4E-03	Napier et al. (1980); see footnote (a)
Feed-to-Cow Milk, d/L	1.1E-03	Napier et al. (1980); see footnote (a)
Water Purification Factor	.90	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-03	EPA (1984ba)
Ingestion Reference Dose, mg/kg/d	1.0E+00	EPA (1986b)

(a) Value for chromium (valence unknown).

3.150 Data Summary for CHROMIUM VI

CAS: 7440473

Common Synonyms: Chromium VI, Chrome

Physical Properties:

		<u>Reference</u>
Molecular Weight	52.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	0.0E+00	EPA (1981)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.0E+01	Napier et al. (1980); see footnote (a)
Bioaccumulation in Shellfish	2.0E+03	Napier et al. (1980); see footnote (a)
Soil-to-Edible Plant	2.5E-04	Napier et al. (1980); see footnote (a)
Feed-to-Animal Meat, d/kg	2.4E-03	Streng et al. (1986); see footnote (a)
Feed-to-Cow Milk, d/L	1.1E-03	Napier et al. (1980); see footnote (a)
Water Purification Factor	.90	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.1E+01	EPA (1984m)
Ingestion Reference Dose, mg/kg/d	5.0E-03	EPA (1984m)

(a) Value for chromium.

3.151 Data Summary for CHRYSENE

CAS: 218019

Common Synonyms: Chrysene, Benz(a)phenanthrene

Physical Properties:

		<u>Reference</u>
Molecular Weight	228.30	Empirical
Water Solubility, mg/L	2.0E-03	EPA (1980u)
Vapor Pressure, mm Hg	6.3E-09	ICF (1987)
Henrys Law Constant, atm-m ³ /mole	9.5E-07	see footnote (a)
Octanol-Water Partition Coefficient	4.1E+05	Radding et al. (1976)
Carbon matter partition Coefficient, L/g	2.0E+05	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.1E+04	Calculated from Kow
Bioaccumulation in Shellfish	2.8E+03	Calculated from Kow
Soil-to-Edible Plant	5.5E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	3.2E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	EPA (1984a)
Ingestion Cancer Potency Factor, kg-d/mg	1.2E+01	EPA (1985b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.152 Data Summary for COAL DUST

CAS: COAL DST

Common Synonyms: Coal dust

Physical Properties:

		<u>Reference</u>
Molecular Weight	276.00	see footnote (a)
Water Solubility, mg/L	5.3E-04	see footnote (a)
Vapor Pressure, mm Hg	1.0E-10	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	6.9E-08	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+06	see footnote (a)
Carbon matter partition Coefficient, L/g	1.6E+06	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.1E+04	Calculated from Kow
Bioaccumulation in Shellfish	1.5E+04	Calculated from Kow
Soil-to-Edible Plant	1.7E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	2.5E-02	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.4E-02	TLV
Ingestion Reference Dose, mg/kg/d	1.4E-02	= inh

(a) Physical properties are based on data for indeno (1,2,3-cd) pyrene.

3.153 Data Summary for COAL TAR

CAS: 8007452

Common Synonyms: Coal Tar

Physical Properties:Reference

Molecular Weight	276.00	see footnote (a)
Water Solubility, mg/L	5.3E-04	see footnote (a)
Vapor Pressure, mm Hg	1.0E-10	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	6.9E-08	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+06	see footnote (a)
Carbon matter partition Coefficient, L/g	1.6E+06	see footnote (a)

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	5.1E+04	Calculated from Kow
Bioaccumulation in Shellfish	1.5E+04	Calculated from Kow
Soil-to-Edible Plant	1.7E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	2.5E-02	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:Reference

Inhalation Cancer Potency Factor, kg-d/mg	1.0E-04	see footnote (b)
Ingestion Cancer Potency Factor, kg-d/mg	1.0E-04	see footnote (b)

(a) Physical properties are based on data for indenol(1,2,3-cd) pyrene.

(b) Coal Tar (RTECS 8007452)

Tumorigenic TD10 12g/kg 30 weeks

OSHA TNA = 0.2 mg/m³ and NIOSH TWA = 0.1/mg/m³ gives average of 0.15 mg/m³0.15 mg/m³ x .07 = 1.05E-2Carcinogens: Let cp x Rfd = 10⁻⁶cp = 10⁻⁶ = 9.5E-5 = 1E-4.

1.05E-2

3.154 Data Summary for COBALT

CAS: 7440484

Common Synonyms: Cobalt, metal dust, oxide, chloride, carbonyl

Physical Properties:Reference

Molecular Weight	58.93	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	5.0E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	2.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	9.4E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	1.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	5.0E-04	Napier et al. (1980)
Water Purification Factor	.20	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:Reference

Inhalation Reference Dose, mg/kg/d	3.5E-04	TLV; see footnote (a)
Ingestion Reference Dose, mg/kg/d	8.1E-03	RTEC-T; see footnote (b)

(a) $TLV = 0.05 \times 0.007 = 3.5E-04$.(b) RTECS Cobalt oxide oral rat LD50 202 mg/kg
 $202 \text{ mg/kg} \times 4 \times 10^{-5} = 8.1E-3$.

3.155 Data Summary for COPPER

CAS: 7440508

Common Synonyms: Copper, C.I. pigmentmetal 2

Physical Properties:

		<u>Reference</u>
Molecular Weight	63.55	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	0.0E+00	Lyman et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.0E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	4.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	1.3E-01	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	1.0E-02	Napier et al. (1980)
Feed-to-Cow Milk, d/L	7.0E-03	Napier et al. (1980)
Water Purification Factor	.60	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-02	EPA 1984(n)
Ingestion Reference Dose, mg/kg/d	3.7E-02	EPA 1984(n)

3.156 Data Summary for CRUDE OIL

CAS: 8002059

Common Synonyms: Crude Oil, Petroleum, Coal Oil, Coal Liquid

Physical Properties:

		<u>Reference</u>
Molecular Weight	142.20	see footnote (a)
Water Solubility, mg/L	3.2E+01	see footnote (a)
Vapor Pressure, mm Hg	4.5E-02	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	2.9E-04	see footnote (a)
Octanol-Water Partition Coefficient	7.2E+03	see footnote (a)
Carbon matter partition Coefficient, L/g	4.5E+03	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.1E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.0E+02	Calculated from Kow
Soil-to-Edible Plant	5.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.8E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.8E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.9E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.6E-01	see footnote (b)
Ingestion Reference Dose, mg/kg/d	3.6E-01	see footnote (b)

(a) Physical properties are set to those for 2-methyl naphthalene.

(b) Chemical toxicity parameters are based on diesel fuel.

3.157 Data Summary for CYANIDE ION

CAS: 57125

Common Synonyms: Cyanide ion, CN-

Physical Properties:

		<u>Reference</u>
Molecular Weight	26.00	Empirical
Water Solubility, mg/L	1.0E+06	Method S-4
Vapor Pressure, mm Hg	6.2E+02	EPA (1981)
Henry's Law Constant, atm-m ³ /mole	1.9E+03	see footnote (a)
Octanol-Water Partition Coefficient	5.6E-01	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	0.0E+00	Default

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.8E-01	Calculated from K _{ow}
Bioaccumulation in Shellfish	4.4E-02	Calculated from K _{ow}
Soil-to-Edible Plant	1.4E+01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.4E-08	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.4E-09	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-02	EPA (1984p)

(a) From ICF (1987a) as calculated from solubility and vapor pressure for hydrogen cyanide.

3.158 Data Summary for CYCLOHEXANE

CAS: 110827

Common Synonyms: Cyclohexane, Hexahydrobenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	84.18	RTECS - D
Water Solubility, mg/L	4.9E+01	GEMS - M
Vapor Pressure, mm Hg	1.0E+02	GEMS - E
Henry's Law Constant, atm-m ³ /mole	2.5E-01	GEMS - E
Octanol-Water Partition Coefficient	2.8E+03	GEMS - M
Carbon matter partition Coefficient, L/g	1.7E+03	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.4E+02	Calculated from Kow
Bioaccumulation in Shellfish	4.7E+01	Calculated from Kow
Soil-to-Edible Plant	1.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.9E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	2.2E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.2E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.4E+00	TLV
Ingestion Reference Dose, mg/kg/d	7.4E+00	= inh

3.159 Data Summary for CYCLOHEXANONE

CAS: 108941

Common Synonyms: Cyclohexanone, Hexanon, Nadone, Sextone

Physical Properties:

		<u>Reference</u>
Molecular Weight	98.16	RTECS - D
Water Solubility, mg/L	5.0E+04	GEMS - M
Vapor Pressure, mm Hg	4.5E+00	GEMS - E
Henrys Law Constant, atm-m ³ /mole	1.3E-05	GEMS - E
Octanol-Water Partition Coefficient	6.5E+00	GEMS - M
Carbon matter partition Coefficient, L/g	4.0E+00	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.6E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.4E+00	Calculated from Kow
Bioaccumulation in Shellfish	3.3E-01	Calculated from Kow
Soil-to-Edible Plant	3.3E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.6E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	5.1E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.1E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	5.0E+00	IRIS

3.160 Data Summary for DDD

CAS: 72548

Common Synonyms: DDD, Rhothane

Physical Properties:

		<u>Reference</u>
Molecular Weight	320.00	Empirical
Water Solubility, mg/L	1.0E-01	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.9E-06	Mabey et al. (1982)
Henrys Law Constant, atm-m ³ /mole	8.0E-06	see footnote (a)
Octanol-Water Partition Coefficient	1.6E+06	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	7.7E+05	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.7E+03	EPA (1980k)
Bioaccumulation in Shellfish	8.5E+03	Calculated from Kow
Soil-to-Edible Plant	2.5E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.3E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	3.0E-03	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.5E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	2.5E-01	EPA (1985b)
Inhalation Reference Dose, mg/kg/d	5.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-02	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.161 Data Summary for DDE

CAS: 72559

Common Synonyms: DDE, Dichloroethylene

Physical Properties:

		<u>Reference</u>
Molecular Weight	318.00	Empirical
Water Solubility, mg/L	4.0E-02	Mabey et al. (1982)
Vapor Pressure, mm Hg	6.5E-06	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	6.8E-05	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+07	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	4.4E+06	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.5E+08	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	8.5E+03	EPA (1980k)
Bioaccumulation in Shellfish	3.9E+04	Calculated from Kow
Soil-to-Edible Plant	8.7E-04	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.9E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	9.5E-03	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	3.4E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	3.4E-01	EPA (1985b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.162 Data Summary for DDT

CAS: 50293

Common Synonyms: DDT, Kopsol, Dicophane

Physical Properties:

		<u>Reference</u>
Molecular Weight	354.49	Empirical
Water Solubility, mg/L	5.0E-03	EPA (1984q)
Vapor Pressure, mm Hg	5.5E-06	EPA (1984q)
Henry's Law Constant, atm-m ³ /mole	5.1E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.6E+06	Verschueren (1983)
Carbon matter partition Coefficient, L/g	2.4E+05	Lyman et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.5E+03	EPA (1984q)

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.0E+04	Calculated from Kow
Bioaccumulation in Shellfish	8.4E+03	Calculated from Kow
Soil-to-Edible Plant	2.6E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.8E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	1.1E-02	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.5E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	3.4E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	3.4E-01	EPA (1984q)
Inhalation Reference Dose, mg/kg/d	5.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-04	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.163 Data Summary for DIAZINON

CAS: 333415

Common Synonyms: Diazinon

Physical Properties:

Molecular Weight	304.38	RTECS - D
Water Solubility, mg/L	7.8E+01	GEMS - E
Vapor Pressure, mm Hg	2.2E+01	GEMS - M
Henry's Law Constant, atm-m ³ /mole	1.3E-01	see footnote (a)
Octanol-Water Partition Coefficient	6.5E+03	GEMS - M
Carbon matter partition Coefficient, L/g	4.0E+03	GEMS - E

ReferenceEnvironmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.4E+01	VOL-S

ReferenceEnvironmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	4.6E+02	Calculated from Kow
Bioaccumulation in Shellfish	9.4E+01	Calculated from Kow
Soil-to-Edible Plant	6.1E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.6E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.1E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.0E-06	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

ReferenceChemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	7.0E-04	TLV; see footnote (b)
Ingestion Reference Dose, mg/kg/d	7.0E-04	= inh

Reference

- (a) Calculated from solubility and vapor pressure.
 (b) ACGIH TLV = $0.1 \text{ mg/m}^3 = 0.0007 \text{ mg/kg/d}$.

3.164 Data Summary for DIBENZOL(A,H)ANTRAC

CAS: 53703

Common Synonyms: Dibenzol(a,h)anthracene, 1,2,5,6-DBA

Physical Properties:

		<u>Reference</u>
Molecular Weight	278.00	Empirical
Water Solubility, mg/L	1.4E-02	Callahan et al. (1979)
Vapor Pressure, mm Hg	1.0E-10	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.6E-09	see footnote (a)
Octanol-Water Partition Coefficient	4.1E+05	Radding et al. (1976)
Carbon matter partition Coefficient, L/g	3.3E+06	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.1E+05	
Bioaccumulation in Shellfish	2.8E+03	Calculated from Kow
Soil-to-Edible Plant	5.5E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	3.2E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	EPA (1984a)
Ingestion Cancer Potency Factor, kg-d/mg	1.2E+01	EPA (1984a)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.165 Data Summary for 1,2-DIBROMO-3-CHLOR

CAS: 96128

Common Synonyms: 1,2-dibrom-3-chlor-propane Fumazone

Physical Properties:

		<u>Reference</u>
Molecular Weight	236.00	Empirical
Water Solubility, mg/L	1.0E+03	Jaber et al. (1984)
Vapor Pressure, mm Hg	1.0E+00	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	3.1E-04	see footnote (a)
Octanol-Water Partition Coefficient	2.0E+02	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	9.8E+01	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.0E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.2E+01	Calculated from Kow
Bioaccumulation in Shellfish	5.4E+00	Calculated from Kow
Soil-to-Edible Plant	4.6E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.9E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.5E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.3E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.5E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	6.5E-01	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.166 Data Summary for DIBROMOMETHANE

CAS: 74953

Common Synonyms: Dibromomethane, Methylene bromide

Physical Properties:

		<u>Reference</u>
Molecular Weight	173.86	Empirical
Water Solubility, mg/L	3.6E+04	Method S-1
Vapor Pressure, mm Hg	3.4E+02	Verschueren (1983)
Henrys Law Constant, atm-m ³ /mole	2.4E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.7E+01	PCALC
Carbon matter partition Coefficient, L/g	1.0E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.2E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.0E+00	Calculated from K _{ow}
Bioaccumulation in Shellfish	7.1E-01	Calculated from K _{ow}
Soil-to-Edible Plant	1.9E+00	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	4.2E-07	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	1.3E-07	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.1E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.1E-03	= ing
Ingestion Reference Dose, mg/kg/d	7.1E-03	Salee (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.167 Data Summary for 1,2 DICHLOROBENZENE

CAS: 95501

Common Synonyms: 1,2 Dichlorobenzene, Dowtherm E

Physical Properties:

		<u>Reference</u>
Molecular Weight	147.01	Empirical
Water Solubility, mg/L	1.0E+02	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.0E+00	Mabey et al. (1982)
Henrys Law Constant, atm-m ³ /mole	1.9E-03	see footnote (a)
Octanol-Water Partition Coefficient	4.0E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.7E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+03	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	8.9E+01	EPA (1980l)
Bioaccumulation in Shellfish	6.4E+01	Calculated from Kow
Soil-to-Edible Plant	8.0E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	3.2E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.1E-05	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	9.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	9.0E-02	EPA (1985c)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.168 Data Summary for 1,4-DICHLOROBENZENE

CAS: 106467

Common Synonyms: 1,4-Dichlorobenzene, Paracide, PDB

Physical Properties:

		<u>Reference</u>
Molecular Weight	147.01	Empirical
Water Solubility, mg/L	7.9E+01	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.2E+00	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.9E-03	see footnote (a)
Octanol-Water Partition Coefficient	4.0E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.7E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	9.3E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.0E+01	EPA (1980l)
Bioaccumulation in Shellfish	6.3E+01	Calculated from Kow
Soil-to-Edible Plant	8.0E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	3.2E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.3E-05	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-01	EPA (1985c)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.169 Data Summary for 3,3-DICHLOROBENZIDIN

CAS: 91941

Common Synonyms: 3,3'-Dichlorobenzidine, 4,4-Diamine

Physical Properties:

		<u>Reference</u>
Molecular Weight	253.13	Empirical
Water Solubility, mg/L	4.0E+00	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.0E-05	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	8.3E-07	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.6E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.0E+08	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.7E+02	Calculated from Kow
Bioaccumulation in Shellfish	5.3E+01	Calculated from Kow
Soil-to-Edible Plant	9.2E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	2.5E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.6E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.7E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.7E+00	EPA (1985b)
Inhalation Reference Dose, mg/kg/d	9.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	9.0E-02	Salee (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.170 Data Summary for TRANS-1,4-DICHLORO-B

CAS: 110576

Common Synonyms: Trans-1,4-dichlorobutene-2, 2-Butylene dichloride

Physical Properties:

		<u>Reference</u>
Molecular Weight	125.00	Empirical
Water Solubility, mg/L	6.9E+03	Method S-1
Vapor Pressure, mm Hg	2.0E+01	Kennedy et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.0E-04	see footnote (a)
Octanol-Water Partition Coefficient	5.0E-01	PCALC
Carbon matter partition Coefficient, L/g	3.3E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.7E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.5E-01	Calculated from Kow
Bioaccumulation in Shellfish	4.1E-02	Calculated from Kow
Soil-to-Edible Plant	1.4E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.3E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	4.0E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.1E-06	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	9.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	9.0E-02	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.171 Data Summary for DICHLORODIFLUOROMETH

CAS: 75718

Common Synonyms: Dichlorodifluoromethane, Halon

Physical Properties:

		<u>Reference</u>
Molecular Weight	120.92	Empirical
Water Solubility, mg/L	2.8E+02	Mabey et al. (1982)
Vapor Pressure, mm Hg	4.3E+03	EPA (1980u)
Henry's Law Constant, atm-m ³ /mole	1.0E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.5E+02	Callahan et al. (1979)
Carbon matter partition Coefficient, L/g	5.8E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.6E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.6E+01	Calculated from Kow
Bioaccumulation in Shellfish	4.2E+00	Calculated from Kow
Soil-to-Edible Plant	5.5E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.6E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.2E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.5E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-01	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.172 Data Summary for 1,1-DICHLOROETHANE

CAS: 75343

Common Synonyms: 1,1-Dichloroethane, Chlorure

Physical Properties:

		<u>Reference</u>
Molecular Weight	98.96	Empirical
Water Solubility, mg/L	5.5E+03	EPA (1984r)
Vapor Pressure, mm Hg	1.8E+02	EPA (1984r)
Henry's Law Constant, atm-m ³ /mole	4.3E-03	see footnote (a)
Octanol-Water Partition Coefficient	6.2E+01	EPA (1984r)
Carbon matter partition Coefficient, L/g	3.0E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.5E+00	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.4E+01	Calculated from K _{ow}
Bioaccumulation in Shellfish	2.1E+00	Calculated from K _{ow}
Soil-to-Edible Plant	8.9E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.5E-06	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.9E-07	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.4E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Ingestion Cancer Potency Factor, kg-d/mg	1.7E+00	EPA (1985b)
Inhalation Reference Dose, mg/kg/d	1.4E-01	EPA (1984r)
Ingestion Reference Dose, mg/kg/d	1.2E-01	EPA (1984r)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.173 Data Summary for 1,2-DICHLOROETHANE

CAS: 107062

Common Synonyms: 1,2-Dichloroethane, Ethylene dichloride

Physical Properties:

		<u>Reference</u>
Molecular Weight	98.96	Empirical
Water Solubility, mg/L	8.5E+03	EPA (1984s)
Vapor Pressure, mm Hg	6.4E+01	EPA (1984s)
Henry's Law Constant, atm-m ³ /mole	9.8E-04	see footnote (a)
Octanol-Water Partition Coefficient	3.0E+01	EPA (1984s)
Carbon matter partition Coefficient, L/g	1.4E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	1.3E+02	EPA (1984s)
In Water, days	6.9E+07	Default
In Soil, days	1.8E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.0E+00	EPA (1980h)
Bioaccumulation in Shellfish	1.2E+00	Calculated from Kow
Soil-to-Edible Plant	1.4E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.6E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	2.4E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.6E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	9.1E-02	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	9.1E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.174 Data Summary for 1,1 DICHLOROETHYLENE

CAS: 75354

Common Synonyms: 1,1 dichloroethylene; Vinylidene chloride

Physical Properties:

		<u>Reference</u>
Molecular Weight	96.94	Empirical
Water Solubility, mg/L	2.3E+03	EPA (1984t)
Vapor Pressure, mm Hg	6.0E+02	EPA (1984t)
Henry's Law Constant, atm-m ³ /mole	3.4E-02	see footnote (a)
Octanol-Water Partition Coefficient	6.9E+01	EPA (1984t)
Carbon matter partition Coefficient, L/g	6.5E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.0E+00	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.5E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.3E+00	Calculated from Kow
Soil-to-Edible Plant	8.4E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.7E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	5.5E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.9E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.2E+00	EPA (1984t)
Ingestion Cancer Potency Factor, kg-d/mg	5.8E-01	EPA (1984t)
Inhalation Reference Dose, mg/kg/d	9.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	9.0E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.175 Data Summary for 1,2 DICHLOROETHYLENE

CAS: 156605

Common Synonyms: Trans-1,2-Dichloroethylene, Trans-acetylene dichloride

Physical Properties:

		<u>Reference</u>
Molecular Weight	96.94	Empirical
Water Solubility, mg/L	6.3E+03	EPA (1984u)
Vapor Pressure, mm Hg	3.2E+02	EPA (1984u)
Henry's Law Constant, atm-m ³ /mole	6.6E-03	see footnote (a)
Octanol-Water Partition Coefficient	3.0E+00	EPA (1984u)
Carbon matter partition Coefficient, L/g	5.9E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.4E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.4E+00	Calculated from Kow
Bioaccumulation in Shellfish	1.8E-01	Calculated from Kow
Soil-to-Edible Plant	5.1E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.6E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	2.4E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.6E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.0E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.0E+00	Salee (1984)
Inhalation Reference Dose, mg/kg/d	1.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.176 Data Summary for 2,4-DICHLOROPHENOL

CAS: 120832

Common Synonyms: 2,4-Dichlorophenol, DCP, NCI-C55345

Physical Properties:

		<u>Reference</u>
Molecular Weight	163.00	Empirical
Water Solubility, mg/L	4.6E+03	Mabey et al. (1982)
Vapor Pressure, mm Hg	5.9E-02	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.8E-06	see footnote (a)
Octanol-Water Partition Coefficient	7.9E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	3.8E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.8E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.4E+01	EPA (1980m)
Bioaccumulation in Shellfish	1.7E+01	Calculated from Kow
Soil-to-Edible Plant	2.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.0E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	6.3E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.7E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.177 Data Summary for 2,6-DICHLOROPHENOL

CAS: 87560

Common Synonyms: 2,6-Dichlorophenol, NCI-C55345

Physical Properties:

		<u>Reference</u>
Molecular Weight	163.00	Empirical
Water Solubility, mg/L	3.2E+02	Method S-1
Vapor Pressure, mm Hg	9.0E-02	Method VP-2
Henry's Law Constant, atm-m ³ /mole	6.6E-05	see footnote (a)
Octanol-Water Partition Coefficient	4.4E+00	GEMS - M
Carbon matter partition Coefficient, L/g	2.7E+02	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.4E+01	EPA (1980m)
Bioaccumulation in Shellfish	2.4E-01	Calculated from Kow
Soil-to-Edible Plant	4.1E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.1E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	3.5E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.5E-06	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-01	Salee (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.178 Data Summary for 1,2-DICHLOROPROPANE

CAS: 78875

Common Synonyms: 1,2-Dichloropropane, Propylene dichloride

Physical Properties:

		<u>Reference</u>
Molecular Weight	112.99	Empirical
Water Solubility, mg/L	2.7E+03	Mabey et al. (1982)
Vapor Pressure, mm Hg	4.2E+01	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.3E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	5.1E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.7E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.1E+00	Calculated from Kow
Soil-to-Edible Plant	6.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.8E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.3E-02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	6.3E-02	ICF (1987)
Inhalation Reference Dose, mg/kg/d	1.4E-02	= ing
Ingestion Reference Dose, mg/kg/d	1.4E-02	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.179 Data Summary for CIS-1,3-DICHLOROPROP

CAS: 10061015

Common Synonyms: Cis-1,3-Dichloropropylene, 1-propene,1,3-dichloro-(2)-(9Cl)

Physical Properties:

		<u>Reference</u>
Molecular Weight	110.97	Empirical
Water Solubility, mg/L	8.5E+03	GEMS - M
Vapor Pressure, mm Hg	3.1E+01	GEMS - M
Henry's Law Constant, atm-m ³ /mole	1.3E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	2.5E+01	GEMS - M

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.7E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.1E+00	Calculated from Kow
Soil-to-Edible Plant	6.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.8E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-04	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.180 Data Summary for TRANS-1,3-DICHLOROPR

CAS: 10061026

Common Synonyms: Trans-1,3-Dichloropropene, (E)-1,3-dichloropropene

Physical Properties:

		<u>Reference</u>
Molecular Weight	110.97	Empirical
Water Solubility, mg/L	8.5E+03	GEMS - E
Vapor Pressure, mm Hg	3.1E+01	GEMS - E
Henry's Law Constant, atm-m ³ /mole	1.3E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	2.5E+01	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.7E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.1E+00	Calculated from Kow
Soil-to-Edible Plant	6.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.8E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-04	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.181 Data Summary for 1,3-DICHLOROBENZENE

CAS: 541731

Common Synonyms: 1,3-Dichlorobenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	147.01	Empirical
Water Solubility, mg/L	1.2E+02	Mabey et al. (1982)
Vapor Pressure, mm Hg	2.3E+00	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	3.6E-03	see footnote (a)
Octanol-Water Partition Coefficient	4.0E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.7E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.8E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	6.6E+01	EPA (1980I)
Bioaccumulation in Shellfish	6.3E+01	Calculated from Kow
Soil-to-Edible Plant	8.0E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	3.2E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.0E-05	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	9.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	9.0E-02	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.182 Data Summary for DICOFO/LDTMC/CARBAX

CAS: 115322

Common Synonyms: Dicofol, DTMC, Carbax, Kelthane

Physical Properties:

		<u>Reference</u>
Molecular Weight	370.49	Empirical
Water Solubility, mg/L	1.7E-02	GEMS - E
Vapor Pressure, mm Hg	9.3E-11	GEMS - E
Henrys Law Constant, atm-m ³ /mole	3.0E-09	GEMS - E
Octanol-Water Partition Coefficient	1.1E+06	GEMS - E
Carbon matter partition Coefficient, L/g	7.0E+05	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	9.9E+03	Calculated from Kow
Bioaccumulation in Shellfish	2.6E+03	Calculated from Kow
Soil-to-Edible Plant	5.9E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	9.1E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	2.9E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.1E-01	= ing
Ingestion Reference Dose, mg/kg/d	4.1E-01	IRIS

3.183 Data Summary for DIELDRIN

CAS: 60571

Common Synonyms: Dieldrin, Octalox, Heod, Quintox

Physical Properties:

		<u>Reference</u>
Molecular Weight	380.95	Empirical
Water Solubility, mg/L	1.9E-01	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.8E-07	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	4.6E-07	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.7E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	4.9E+03	EPA (1980c)
Bioaccumulation in Shellfish	4.0E+02	EPA (1980c)
Soil-to-Edible Plant	9.2E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-03	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	1.1E-02	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.8E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.6E+01	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	1.6E+01	IRIS
Ingestion Reference Dose, mg/kg/d	1.5E-05	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.184 Data Summary for DIESEL FUEL

CAS: DIESEL F

Common Synonyms: Diesel fuel, Fuel Oil, Diesel Oil

Physical Properties:

		<u>Reference</u>
Molecular Weight	142.20	see footnote (a)
Water Solubility, mg/L	3.2E+01	see footnote (a)
Vapor Pressure, mm Hg	4.5E-02	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	2.9E-04	see footnote (a)
Octanol-Water Partition Coefficient	7.2E+03	see footnote (a)
Carbon matter partition Coefficient, L/g	4.5E+03	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.1E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.0E+02	Calculated from Kow
Soil-to-Edible Plant	5.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.8E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.8E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.9E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.6E-01	= ing
Ingestion Reference Dose, mg/kg/d	3.6E-01	RTECS - T; see footnote (b)

(a) Physical properties are set to those for 2-methyl naphthalene.

(b) RTECS Oral LD50

Rat 9 g/kg

$$9 \times 10^3 \frac{\text{mg}}{\text{kg}} \times 4 \times 10^{-5} = 0.36.$$

3.185 Data Summary for DIETHYL PHTHALATE

CAS: 84662

Common Synonyms: Diethyl phthalate, Neantine, Solvanol

Physical Properties:

Molecular Weight	222.20
Water Solubility, mg/L	6.8E+02
Vapor Pressure, mm Hg	3.5E-03
Henrys Law Constant, atm-m ³ /mole	2.0E-08
Octanol-Water Partition Coefficient	2.9E+02
Carbon matter partition Coefficient, L/g	6.9E+01

Reference

Empirical
McDuffie et al. (1984)
Mabey et al. (1982)
see footnote (a)
McDuffie et al. (1984)
Russell and McDuffie (1986)

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07
In Water, days	6.9E+07
In Soil, days	2.9E+05

Reference

Default
Default
VOL-S

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	4.4E+01
Bioaccumulation in Shellfish	7.4E+00
Soil-to-Edible Plant	3.7E-01
Feed-to-Animal Meat, d/kg	7.2E-06
Feed-to-Cow Milk, d/L	2.3E-06
Water Purification Factor	1.00
Deposition Velocity, m/sec	9.9E-04
Atmospheric Deposition Class	6

Reference

Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Default
Method DVM
Gas as Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	8.0E-01
Ingestion Reference Dose, mg/kg/d	8.0E-01

Reference

= ing
IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.186 Data Summary for P-DIMETHLAMINOAZOBEN

CAS: 60117

Common Synonyms: P-Dimethylaminoazobenzene, Dimethyl yellow

Physical Properties:

		<u>Reference</u>
Molecular Weight	225.00	Empirical
Water Solubility, mg/L	1.4E+01	Jaber et al. (1984)
Vapor Pressure, mm Hg	3.3E-07	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	7.2E-09	see footnote (a)
Octanol-Water Partition Coefficient	5.3E+03	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	1.0E+03	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	4.0E+02	Calculated from Kow
Bioaccumulation in Shellfish	8.0E+01	Calculated from Kow
Soil-to-Edible Plant	6.9E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.3E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	4.2E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	3.3E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	3.3E-01	EPA (1985b)
Inhalation Reference Dose, mg/kg/d	1.3E+01	= ing
Ingestion Reference Dose, mg/kg/d	1.3E+01	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.187 Data Summary for 3,3'-DIMETHOXYBENZID

CAS: 119904

Common Synonyms: 3,3'-Dimethoxybenzidine, Diacel navy DC

Physical Properties:

		<u>Reference</u>
Molecular Weight	244.00	Empirical
Water Solubility, mg/L	2.1E+03	Method S-1
Vapor Pressure, mm Hg	2.1E-07	Method VP-2
Henry's Law Constant, atm-m ³ /mole	3.5E-11	see footnote (a)
Octanol-Water Partition Coefficient	1.9E+01	PCALC
Carbon matter partition Coefficient, L/g	1.2E+01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	5.5E+00	Calculated from Kow
Bioaccumulation in Shellfish	8.0E-01	Calculated from Kow
Soil-to-Edible Plant	1.8E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.8E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	1.5E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	3.7E-04	= ing
Ingestion Cancer Potency Factor, kg-d/mg	3.7E-04	Salée (1984)

3.188 Data Summary for DIMETHYLAMINE (DMA)

CAS: 124403

Common Synonyms: Dimethylamine, DMA

Physical Properties:

		<u>Reference</u>
Molecular Weight	45.08	Empirical
Water Solubility, mg/L	3.2E+05	GEMS - E
Vapor Pressure, mm Hg	3.2E+03	GEMS - E
Henry's Law Constant, atm-m ³ /mole	1.5E-04	see footnote (a)
Octanol-Water Partition Coefficient	4.2E-01	GEMS - M
Carbon matter partition Coefficient, L/g	2.6E-01	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.2E-01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.2E-01	Calculated from Kow
Bioaccumulation in Shellfish	2.4E-02	Calculated from Kow
Soil-to-Edible Plant	2.1E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.8E-09	Calculated from Kow
Feed-to-Cow Milk, d/L	2.1E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.7E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.3E-01	TLV
Ingestion Reference Dose, mg/kg/d	1.3E-01	= inh

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.189 Data Summary for 3,3'-DIMETHYLBENZIDE

CAS: 119937

Common Synonyms: 3,3'-Dimethylbenzidine, o-Tolidine

Physical Properties:

		<u>Reference</u>
Molecular Weight	212.00	Empirical
Water Solubility, mg/L	1.9E+02	Method S-1
Vapor Pressure, mm Hg	1.5E-07	Method VP-2
Henry's Law Constant, atm-m ³ /mole	2.4E-10	see footnote (a)
Octanol-Water Partition Coefficient	1.2E+02	GEMS - M
Carbon matter partition Coefficient, L/g	1.4E+02	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.2E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.6E+00	Calculated from Kow
Soil-to-Edible Plant	6.1E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.0E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	9.5E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.5E-02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	6.5E-02	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.190 Data Summary for DIMETHYL ETHER

CAS: 115106

Common Synonyms: Dimethyl ether, methyl ether, wood ether

Physical Properties:

		<u>Reference</u>
Molecular Weight	46.08	RTECS - D
Water Solubility, mg/L	1.0E+05	GEMS - E
Vapor Pressure, mm Hg	4.0E+03	GEMS - E
Henry's Law Constant, atm-m ³ /mole	4.9E-04	GEMS - E
Octanol-Water Partition Coefficient	1.3E+00	GEMS - M
Carbon matter partition Coefficient, L/g	7.8E-01	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.3E-01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	7.0E-01	Calculated from Kow
Bioaccumulation in Shellfish	8.6E-02	Calculated from Kow
Soil-to-Edible Plant	8.5E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.2E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	1.0E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.1E-01	RTECS - T; see footnote (a)
Ingestion Reference Dose, mg/kg/d	3.1E-01	= inh

(a) RTECS Inhalation LC50

Rat = 308 g/m³, anesthetic
 Equivalent for human: 308,000 mg/m³ x 0.142 = 43,700 mg/m³
 Safety factor = 1000 for acute animal tests
 Conversion from TLV to RfD = 0.007

RfD $\frac{43,700}{1000} \times .007 = 3.1E-1$ mg/kg/d.

3.191 Data Summary for 2,4-DIMETHYLPHENOL

CAS: 105679

Common Synonyms: 2,4-Dimethylphenol, 1-hydroxy-2,4-dimethylbenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	122.16	Empirical
Water Solubility, mg/L	5.9E+02	Mabey et al. (1982)
Vapor Pressure, mm Hg	2.6E-02	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.8E-05	see footnote (a)
Octanol-Water Partition Coefficient	6.5E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	9.6E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.4E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.5E+02	Lyman et al. (1982)
Bioaccumulation in Shellfish	1.4E+01	Calculated from Kow
Soil-to-Edible Plant	2.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.6E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	5.1E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.4E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	6.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	6.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.192 Data Summary for DIMETHYLPHTHALATE

CAS: 131113

Common Synonyms: Dimethyl phthalate, Solvarone

Physical Properties:

		<u>Reference</u>
Molecular Weight	194.18	Empirical
Water Solubility, mg/L	2.1E+03	McDuffie et al. (1984)
Vapor Pressure, mm Hg	4.2E-03	Mabey et al. (1982)
Henrys Law Constant, atm-m ³ /mole	1.1E-06	see footnote (a)
Octanol-Water Partition Coefficient	3.6E+01	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.7E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+05	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	5.7E+01	EPA (1980r)
Bioaccumulation in Shellfish	1.4E+00	Calculated from Kow
Soil-to-Edible Plant	1.2E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	9.1E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	2.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.6E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E+01	= ing
Ingestion Reference Dose, mg/kg/d	1.0E+01	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.193 Data Summary for DI-N-BUTYL PHTHALATE

CAS: 84742

Common Synonyms: Di-n-butyl Phthalate, Elaol, DBP

Physical Properties:

		<u>Reference</u>
Molecular Weight	278.00	Empirical
Water Solubility, mg/L	1.3E+01	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.0E-05	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.8E-07	see footnote (a)
Octanol-Water Partition Coefficient	4.0E+05	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.7E+05	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	9.9E+07	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.1E+04	Calculated from Kow
Bioaccumulation in Shellfish	2.8E+03	Calculated from Kow
Soil-to-Edible Plant	5.6E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	3.2E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-01	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.194 Data Summary for M-DINITROBENZENE

CAS: 99650

Common Synonyms: m-Dinitrobenzene, Dinitrobenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	168.11	Empirical
Water Solubility, mg/L	4.7E+02	Verschueren (1983)
Vapor Pressure, mm Hg	1.1E-04	CHEMEST
Henry's Law Constant, atm-m ³ /mole	5.8E-08	see footnote (a)
Octanol-Water Partition Coefficient	4.2E+01	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	1.9E+01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	9.5E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.0E+01	Calculated from Kow
Bioaccumulation in Shellfish	1.5E+00	Calculated from Kow
Soil-to-Edible Plant	1.1E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	3.3E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.5E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.195 Data Summary for 4,6-DINITRO-O-CRESOL

CAS: 534521

Common Synonyms: 4,6-Dinitro-O-cresolo, Krenite, Lipan

Physical Properties:

		<u>Reference</u>
Molecular Weight	198.03	Empirical
Water Solubility, mg/L	2.9E+02	Mabey et al. (1982)
Vapor Pressure, mm Hg	5.0E-02	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	4.5E-05	see footnote (a)
Octanol-Water Partition Coefficient	5.0E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	2.4E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.1E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.6E+01	Calculated from Kow
Bioaccumulation in Shellfish	1.2E+01	Calculated from Kow
Soil-to-Edible Plant	2.7E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.3E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	4.0E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.1E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-03	EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.196 Data Summary for 2,4-DINITROPHENOL

CAS: 51285

Common Synonyms: 2,4-Dinitrophenol, Nitro kleenup, Solfo black B

Physical Properties:

		<u>Reference</u>
Molecular Weight	184.11	Empirical
Water Solubility, mg/L	5.6E+03	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.5E-05	Mabey et al. (1982)
Henrys Law Constant, atm-m ³ /mole	6.5E-10	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+01	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.7E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	7.1E+07	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	8.1E+00	Calculated from Kow
Bioaccumulation in Shellfish	1.2E+00	Calculated from Kow
Soil-to-Edible Plant	1.3E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	2.5E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.197 Data Summary for 2,4-DINITROTOLUENE

CAS: 121142

Common Synonyms: 2,4-Dinitrotoluene, DNT

Physical Properties:

		<u>Reference</u>
Molecular Weight	182.14	Empirical
Water Solubility, mg/L	2.4E+02	Mabey et al. (1982)
Vapor Pressure, mm Hg	5.1E-03	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	5.1E-06	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	4.5E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.1E+05	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.1E+00	Calculated from Kow
Soil-to-Edible Plant	6.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.7E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	3.1E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	3.1E-01	EPA (1985b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.198 Data Summary for DMF DI-ME FORMAMIDE

CAS: 68122

Common Synonyms: N,N-dimethyl formamide, DMF, NSC5356

Physical Properties:

		<u>Reference</u>
Molecular Weight	73.10	Empirical
Water Solubility, mg/L	6.9E+05	Method S-2
Vapor Pressure, mm Hg	2.7E+00	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	3.8E-07	see footnote (a)
Octanol-Water Partition Coefficient	1.0E-01	GEMS - M
Carbon matter partition Coefficient, L/g	6.0E-02	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.6E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.0E-01	Calculated from Kow
Bioaccumulation in Shellfish	1.1E-02	Calculated from Kow
Soil-to-Edible Plant	3.7E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-09	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-10	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.8E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.7E-02	RTECS-T; see footnote (b)
Ingestion Reference Dose, mg/kg/d	1.7E-02	= inh

(a) Calculated from vapor pressure and water solubility.

(b) Inhalation RfD based on RTECS-reported toxic low concentration of 60 mg/m³, with a safety factor of 10³ (10 for acute data, 10 for observed versus not observed effects, and 10 for unknown quality of data).

$$\text{RfD} = 60(\text{mg}/\text{m}^3) \times 20(\text{m}^3/\text{d}) \times 1/70(1/\text{kg})/10^3 = 0.017 \text{ mg}/\text{kg}/\text{d}.$$

3.199 Data Summary for 2,4-D

CAS: 94757

Common Synonyms: 2,4-D, Amidox, Estone, Fernesta

Physical Properties:

		<u>Reference</u>
Molecular Weight	221.00	Empirical
Water Solubility, mg/L	6.2E+02	Dawson et al. (1980)
Vapor Pressure, mm Hg	4.0E-01	Dawson et al. (1980)
Henry's Law Constant, atm-m ³ /mole	1.9E-04	see footnote (a)
Octanol-Water Partition Coefficient	6.5E+02	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	2.0E+01	Lyman et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.6E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	8.0E+01	Calculated from Kow
Bioaccumulation in Shellfish	1.4E+01	Calculated from Kow
Soil-to-Edible Plant	2.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.8E-06	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	7.6E-06	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.6E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.200 Data Summary for DIOCTYL ADIPATE

CAS: 103231

Common Synonyms: Dioctyl adipate, BEHA, DQA

Physical Properties (a):

		<u>Reference</u>
Molecular Weight	370.64	RTECS - D
Water Solubility, mg/L	3.2E-03	GEMS - E
Vapor Pressure, mm Hg	1.9E-01	GEMS - E
Octanol-Water Partition Coefficient	6.2E7	GEMS - E
Carbon matter partition coefficient	3.8E7	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.0E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	4.9E+05	Calculated from Kow
Bioaccumulation in Shellfish	1.7E+05	Calculated from Kow
Soil-to-Edible Plant	3.0E-04	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.6E+00	Calculated from Kow
Feed-to-Cow Milk, d/L	4.9E-01	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.6E-01	= ing
Ingestion Reference Dose, mg/kg/d	3.6E-01	RTECS -T; see footnote (b)

(a) The GEMS estimated value for Henry's Law constant (44.1) is clearly unrealistic. Therefore, no value is entered, and the deposition value is set to the default of 0.001 m/sec.

(b) RTECS Toxicity Data
Oral, Rat, LD50: $9111 \text{ mg/kg} \times 4 \times 10^{-5} = .36$.

3.201 Data Summary for DI-N-OCTYLPHthalate

CAS: 117840

Common Synonyms: Di-n-octylphthalate

Physical Properties:

		<u>Reference</u>
Molecular Weight	391.00	Empirical
Water Solubility, mg/L	3.4E-01	McDuffie et al. (1984)
Vapor Pressure, mm Hg	1.4E-04	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	5.5E-06	see footnote (a)
Octanol-Water Partition Coefficient	7.4E+09	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	3.6E+09	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.7E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.9E+07	Calculated from Kow
Bioaccumulation in Shellfish	8.7E+06	Calculated from Kow
Soil-to-Edible Plant	1.9E-05	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.9E+02	Calculated from Kow
Feed-to-Cow Milk, d/L	5.9E+01	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.3E+02	= ing
Ingestion Reference Dose, mg/kg/d	1.3E+02	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.202 Data Summary for DI-N-PROPYLNITROSAMI

CAS: 621647

Common Synonyms: Di-n-propylnitrosamine, DPN, NDPA

Physical Properties:

		<u>Reference</u>
Molecular Weight	130.20	Empirical
Water Solubility, mg/L	9.9E+03	Mabey et al. (1982)
Vapor Pressure, mm Hg	4.0E-01	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	6.9E-06	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+01	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.5E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.8E+03	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	8.1E+00	Calculated from Kow
Bioaccumulation in Shellfish	1.2E+00	Calculated from Kow
Soil-to-Edible Plant	1.3E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	2.5E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.7E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	7.0E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	7.0E+00	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.203 Data Summary for 1,4-DIOXANE

CAS: 123911

Common Synonyms: 1,4-Dioxane, Glycol ethylene ether

Physical Properties:

Molecular Weight	88.00
Water Solubility, mg/L	4.3E+05
Vapor Pressure, mm Hg	4.0E+01
Henrys Law Constant, atm-m ³ /mole	1.1E-05
Octanol-Water Partition Coefficient	1.0E+00
Carbon matter partition Coefficient, L/g	3.5E+00

Reference

Empirical
 Jaber et al. (1984)
 Jaber et al. (1984)
 see footnote (a)
 Jaber et al. (1984)
 Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	4.0E+03
In Water, days	6.9E+07
In Soil, days	3.0E+01

Reference

Brown et al. (1975)
 Default
 VOL-S

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	6.0E-01
Bioaccumulation in Shellfish	7.3E-02
Soil-to-Edible Plant	9.6E+00
Feed-to-Animal Meat, d/kg	2.6E-08
Feed-to-Cow Milk, d/L	8.1E-09
Water Purification Factor	1.00
Deposition Velocity, m/sec	1.7E-05
Atmospheric Deposition Class	4

Reference

Calculated from Kow
 Calculated from Kow
 Calculated from Kow
 Calculated from Kow
 Calculated from Kow
 Default
 Method DVM
 Depositing Gas

Chemical Toxicity Parameters:

Inhalation Cancer Potency Factor, kg-d/mg	1.1E-02
Ingestion Cancer Potency Factor, kg-d/mg	1.1E-02

Reference

= ing
 IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.204 Data Summary for N-PHENYL BENZENAMINE

CAS: 122394

Common Synonyms: N-phenyl benzenamine, Diphenylamine, N,N'-diphenylamine

Physical Properties:

		<u>Reference</u>
Molecular Weight	169.23	Empirical
Water Solubility, mg/L	4.0E+01	GEMS - M
Vapor Pressure, mm Hg	6.0E-05	GEMS - M
Henry's Law Constant, atm-m ³ /mole	3.7E-07	GEMS - E
Octanol-Water Partition Coefficient	3.2E+03	GEMS - M
Carbon matter partition Coefficient, L/g	2.0E+03	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.8E+07	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.7E+02	Calculated from Kow
Bioaccumulation in Shellfish	5.3E+01	Calculated from Kow
Soil-to-Edible Plant	9.2E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	2.5E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.8E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.5E-02	= ing
Ingestion Reference Dose, mg/kg/d	2.5E-02	IRIS

3.205 Data Summary for 1,2-DIPHENYLHYDRAZINE

CAS: 122667

Common Synonyms: 1,2-Diphenylhydrazine, Hydrazine

Physical Properties:

		<u>Reference</u>
Molecular Weight	184.24	Empirical
Water Solubility, mg/L	1.8E+03	Mabey et al. (1982)
Vapor Pressure, mm Hg	2.6E-05	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	3.4E-09	see footnote (a)
Octanol-Water Partition Coefficient	7.9E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	4.2E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.1E+07	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	9.4E+01	Calculated from Kow
Bioaccumulation in Shellfish	1.7E+01	Calculated from Kow
Soil-to-Edible Plant	2.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.0E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	6.3E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	8.0E-01	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	8.0E-01	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.206 Data Summary for DISULFOTON

CAS: 298044

Common Synonyms: Disulfoton, Disystax, Frumin al

Physical Properties:

		<u>Reference</u>
Molecular Weight	274.00	Empirical
Water Solubility, mg/L	2.5E+01	EPA (1980u)
Vapor Pressure, mm Hg	1.8E-04	Spencer and Martin (1973)
Henry's Law Constant, atm-m ³ /mole	2.6E-06	see footnote (a)
Octanol-Water Partition Coefficient	1.1E+04	GEMS - M
Carbon matter partition Coefficient, L/g	2.1E+03	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.5E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	6.7E+02	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.4E+02	Calculated from K _{ow}
Soil-to-Edible Plant	4.6E-02	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	2.6E-04	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	8.3E-05	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.6E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.0E-05	= ing
Ingestion Reference Dose, mg/kg/d	4.0E-05	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.207 Data Summary for DIURON

CAS: 330541

Common Synonyms: Diuron, Dichlorfenidim, Vonduron

Physical Properties:

Molecular Weight	233.10
Water Solubility, mg/L	4.2E+01
Vapor Pressure, mm Hg	2.0E-03
Henry's Law Constant, atm-m ³ /mole	8.7E-03
Octanol-Water Partition Coefficient	6.3E+02
Carbon matter partition Coefficient, L/g	5.9E+02

Reference

Empirical
 GEMS - M; EPA (1980u)
 GEMS - E; EPA (1980u)
 GEMS - E
 ICF (1987b)
 GEMS - M

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07
In Water, days	6.9E+07
In Soil, days	1.4E+03

Reference

Default
 Default
 VOL-S

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	7.9E+01
Bioaccumulation in Shellfish	1.4E+01
Soil-to-Edible Plant	2.3E-01
Feed-to-Animal Meat, d/kg	1.6E-05
Feed-to-Cow Milk, d/L	5.0E-06
Water Purification Factor	1.00
Deposition Velocity, m/sec	1.0E-03
Atmospheric Deposition Class	6

Reference

Calculated from Kow
 Calculated from Kow
 Calculated from Kow
 Calculated from Kow
 Calculated from Kow
 Default
 Method DVM
 Gas as Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	2.0E-03
Ingestion Reference Dose, mg/kg/d	2.0E-03

Reference

= ing
 IRIS

3.208 Data Summary for EDTA

CAS: 60004

Common Synonyms: EDTA, Dequestrol, Tricon BW

Physical Properties:

		<u>Reference</u>
Molecular Weight	292.25	Empirical
Water Solubility, mg/L	6.1E+04	GEMS - E
Vapor Pressure, mm Hg	1.4E-08	GEMS - E
Henry's Law Constant, atm-m ³ /mole	3.0E-07	Default
Octanol-Water Partition Coefficient	1.2E+00	GEMS - E
Carbon matter partition Coefficient, L/g	7.3E-01	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	6.6E-01	Calculated from Kow
Bioaccumulation in Shellfish	8.1E-02	Calculated from Kow
Soil-to-Edible Plant	8.8E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.9E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	9.3E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.3E-03	= ing
Ingestion Reference Dose, mg/kg/d	1.3E-03	RTECS-T; see footnote (a)

(a) RTECS Toxicity Data, intraperitoneal LD50:

Mouse	250 mg/kg
Rat	397 mg/kg
Average	324 mg/kg
RfD = $324 \times 4 \times 10^{-5} = 1.3 \times 10^{-2}$ mg/kg/d.	

3.209 Data Summary for ENDOSULFAN I (ALPHA)

CAS: 115297A

Common Synonyms: Endosulfan, Thiomul, Malix

Physical Properties:

		<u>Reference</u>
Molecular Weight	406.90	Empirical
Water Solubility, mg/L	6.0E-01	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.0E-05	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.0E-05	see footnote (a)
Octanol-Water Partition Coefficient	3.6E+03	EPA (1980u)
Carbon matter partition Coefficient, L/g	9.6E-03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	9.3E+07	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.9E+02	Calculated from Kow
Bioaccumulation in Shellfish	5.8E+01	Calculated from Kow
Soil-to-Edible Plant	8.6E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.2E-04	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	2.8E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	7.1E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-05	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-05	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.210 Data Summary for ENDOSULFAN II (BETA)

CAS: 115297B

Common Synonyms: Endosulfan, Thiomul, Malix

Physical Properties:

		<u>Reference</u>
Molecular Weight	406.90	Empirical
Water Solubility, mg/L	6.0E-01	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.0E-05	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	1.9E-05	see footnote (a)
Octanol-Water Partition Coefficient	4.2E+03	EPA (1980u)
Carbon matter partition Coefficient, L/g	9.6E-03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	9.3E+07	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.3E+02	Calculated from Kow
Bioaccumulation in Shellfish	6.6E+01	Calculated from Kow
Soil-to-Edible Plant	7.8E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.2E-04	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	3.3E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.1E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-05	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-05	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.211 Data Summary for ENDRIN

CAS: 72208

Common Synonyms: Endrin, Hexadrin

Physical Properties:

		<u>Reference</u>
Molecular Weight	380.90	Empirical
Water Solubility, mg/L	2.0E-01	Jarvinen and Tyo (1978)
Vapor Pressure, mm Hg	2.7E-07	EPA (1979)
Henry's Law Constant, atm-m ³ /mole	1.0E-06	see footnote (a)
Octanol-Water Partition Coefficient	4.0E+05	EPA (1980u)
Carbon matter partition Coefficient, L/g	1.1E+04	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.5E+03	Lyman et al. (1982)
Bioaccumulation in Shellfish	2.8E+03	Calculated from Kow
Soil-to-Edible Plant	5.6E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.2E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	1.7E-03	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.212 Data Summary for ETHANE

CAS: 74840

Common Synonyms: Ethane

Physical Properties:

		<u>Reference</u>
Molecular Weight	30.08	RTECS -D
Water Solubility, mg/L	6.0E+01	GEMS - M
Vapor Pressure, mm Hg	4.6E+04	Weast (1979)
Henrys Law Constant, atm-m ³ /mole	7.5E-01	GEMS - E
Octanol-Water Partition Coefficient	6.5E+01	GEMS - M
Carbon matter partition Coefficient, L/g	4.0E+01	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.1E-02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.4E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.2E+00	Calculated from Kow
Soil-to-Edible Plant	8.7E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.6E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	5.1E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.8E-08	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.4E+04	TLV Asphyxiant

3.213 Data Summary for ETHANOL

CAS: 64175

Common Synonyms: Ethanol, Cologne spirits, Tecsol

Physical Properties:

		<u>Reference</u>
Molecular Weight	46.07	Empirical
Water Solubility, mg/L	2.8E+05	GEMS - E
Vapor Pressure, mm Hg	5.9E+01	GEMS - E
Henry's Law Constant, atm-m ³ /mole	1.2E-05	see footnote (a)
Octanol-Water Partition Coefficient	4.9E-01	GEMS - M
Carbon matter partition Coefficient, L/g	3.0E-01	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	1.0E+00	Estimate
In Water, days	6.9E+07	Default
In Soil, days	2.3E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.4E-01	Calculated from Kow
Bioaccumulation in Shellfish	4.0E-02	Calculated from Kow
Soil-to-Edible Plant	1.5E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.2E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	3.9E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.5E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.3E+01	TLV
Ingestion Reference Dose, mg/kg/d	1.3E+01	= inh

(a) From ICF (1987b) as calculated from vapor pressure and water solubility.

3.214 Data Summary for ETHYL ACETATE

CAS: 141786

Common Synonyms: Ethyl acetate, Acetoxyethane

Physical Properties:

		<u>Reference</u>
Molecular Weight	88.12	RTECS - D
Water Solubility, mg/L	7.8E+04	GEMS - M
Vapor Pressure, mm Hg	1.1E+02	GEMS - E
Henry's Law Constant, atm-m ³ /mole	1.8E-04	GEMS - E
Octanol-Water Partition Coefficient	5.4E+00	GEMS - M
Carbon matter partition Coefficient, L/g	3.3E+00	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.1E+00	Calculated from Kow
Bioaccumulation in Shellfish	2.8E-01	Calculated from Kow
Soil-to-Edible Plant	3.7E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.3E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	4.3E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.7E-06	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	9.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	9.0E-01	IRIS

3.215 Data Summary for ETHYLBENZENE

CAS: 100414

Common Synonyms: Ethyl benzene, Phenylethane

Physical Properties:

		<u>Reference</u>
Molecular Weight	106.17	Empirical
Water Solubility, mg/L	1.5E+02	EPA (1984v)
Vapor Pressure, mm Hg	7.0E+00	EPA (1984v)
Henry's Law Constant, atm-m ³ /mole	6.4E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.4E+03	EPA (1984v)
Carbon matter partition Coefficient, L/g	1.1E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.7E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.5E+02	Calculated from K _{ow}
Bioaccumulation in Shellfish	2.7E+01	Calculated from K _{ow}
Soil-to-Edible Plant	1.5E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	3.5E-05	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	1.1E-05	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.9E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-01	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.216 Data Summary for ETHYL ETHER

CAS: 60297

Common Synonyms: Ethyl ether, Diethyl ether, ethoxyethane

Physical Properties:

Molecular Weight	74.14	Empirical
Water Solubility, mg/L	6.5E+04	GEMS - M
Vapor Pressure, mm Hg	4.4E+02	Sax and Lewis (1989)
Henry's Law Constant, atm-m ³ /mole	9.0E-04	GEMS - E
Octanol-Water Partition Coefficient	7.8E+00	GEMS - M
Carbon matter partition Coefficient, L/g	4.8E+00	GEMS - E

ReferenceEnvironmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.8E+00	VOL-S

ReferenceEnvironmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.8E+00	Calculated from Kow
Bioaccumulation in Shellfish	3.8E-01	Calculated from Kow
Soil-to-Edible Plant	3.0E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.9E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	6.2E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.2E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

ReferenceChemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	8.4E+00	TLV
Ingestion Reference Dose, mg/kg/d	8.4E+00	= inh

Reference

3.217 Data Summary for ETHYLENE GLYCOL

CAS: 107211

Common Synonyms: Ethylene glycol, 1,2-ethandiol

Physical Properties:

		<u>Reference</u>
Molecular Weight	62.07	Empirical
Water Solubility, mg/L	5.8E+05	GEMS - E
Vapor Pressure, mm Hg	6.5E-02	GEMS - E
Henry's Law Constant, atm-m ³ /mole	1.0E-08	GEMS - E
Octanol-Water Partition Coefficient	1.2E-02	Hansch et al. (1979)
Carbon matter partition Coefficient, L/g	2.7E-02	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.0E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.0E-02	Calculated from Kow
Bioaccumulation in Shellfish	1.9E-03	Calculated from Kow
Soil-to-Edible Plant	1.3E+02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.9E-10	Calculated from Kow
Feed-to-Cow Milk, d/L	9.3E-11	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.7E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	2.0E+00	IRIS

3.218 Data Summary for ETHYL METHACRYLATE

CAS: 97632

Common Synonyms: Ethyl methacrylate, Ethyl ester

Physical Properties:

		<u>Reference</u>
Molecular Weight	114.15	Empirical
Water Solubility, mg/L	3.7E+03	Method S-1
Vapor Pressure, mm Hg	1.2E+01	Method VP-1
Henry's Law Constant, atm-m ³ /mole	5.5E-04	see footnote (a)
Octanol-Water Partition Coefficient	8.7E+01	GEMS - M
Carbon matter partition Coefficient, L/g	5.4E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	9.3E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.8E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.8E+00	Calculated from Kow
Soil-to-Edible Plant	7.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.2E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	6.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.9E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-01	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.219 Data Summary for FLUORANTHENE

CAS: 206440

Common Synonyms: Flouranthene, IDRYL

Physical Properties:

Molecular Weight	202.26
Water Solubility, mg/L	2.6E-01
Vapor Pressure, mm Hg	1.0E-05
Henrys Law Constant, atm-m ³ /mole	1.0E-05
Octanol-Water Partition Coefficient	7.9E+04
Carbon matter partition Coefficient, L/g	3.8E+04

Reference

Empirical
Callahan et al. (1979)
EPA (1984al)
see footnote (a)
Radding et al. (1976)
Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07
In Water, days	6.9E+07
In Soil, days	1.0E+08

Reference

Default
Default
VOL-S

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.1E+03
Bioaccumulation in Shellfish	7.4E+02
Soil-to-Edible Plant	1.4E-02
Feed-to-Animal Meat, d/kg	2.0E-03
Feed-to-Cow Milk, d/L	6.3E-04
Water Purification Factor	1.00
Deposition Velocity, m/sec	9.8E-04
Atmospheric Deposition Class	6

Reference

Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Default
Method DVM
Gas as Particulate

Chemical Toxicity Parameters:

Inhalation Cancer Potency Factor, kg-d/mg	3.5E-01
Inhalation Reference Dose, mg/kg/d	6.1E-04
Ingestion Reference Dose, mg/kg/d	6.1E-04

Reference

EPA (1985b)
= ing
EPA (1984az)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.220 Data Summary for FLUORENE

CAS: 86737

Common Synonyms: Fluorene

Physical Properties:

		<u>Reference</u>
Molecular Weight	166.00	Empirical
Water Solubility, mg/L	2.0E+00	Callahan et al. (1979)
Vapor Pressure, mm Hg	7.1E-04	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	6.4E-05	see footnote (a)
Octanol-Water Partition Coefficient	1.6E+04	Radding et al. (1976)
Carbon matter partition Coefficient, L/g	7.3E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.5E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.1E+02	EPA (1980t)
Bioaccumulation in Shellfish	2.0E+02	Calculated from Kow
Soil-to-Edible Plant	3.6E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	1.3E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.3E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	6.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	6.0E-02	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.221 Data Summary for FLUORIDE

CAS: 7782414

Common Synonyms: Fluoride, Fluoro

Physical Properties:

		<u>Reference</u>
Molecular Weight	38.00	Empirical

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.0E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	2.0E-02	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	2.0E-02	Napier et al. (1980)
Feed-to-Cow Milk, d/L	7.0E-03	Napier et al. (1980)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	6.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	6.0E-02	IRIS

3.222 Data Summary for FREON 113

CAS: 76131

Common Synonyms: Freon 113, Ucon 113

Physical Properties:

		<u>Reference</u>
Molecular Weight	187.38	Empirical
Water Solubility, mg/L	1.8E+02	GEMS - E
Vapor Pressure, mm Hg	1.2E+02	GEMS - E
Henrys Law Constant, atm-m ³ /mole	1.8E-01	GEMS - E
Octanol-Water Partition Coefficient	2.0E+03	GEMS - E
Carbon matter partition Coefficient, L/g	1.2E+03	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	8.7E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.9E+02	Calculated from Kow
Bioaccumulation in Shellfish	3.6E+01	Calculated from Kow
Soil-to-Edible Plant	2.1E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.0E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	1.6E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.3E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E+01	= ing
Ingestion Reference Dose, mg/kg/d	3.0E+01	IRIS

3.223 Data Summary for FORMALDEHYDE

CAS: 50000

Common Synonyms: Formaldehyde, Methanal, Formic aldehyde, Formalin

Physical Properties:

		<u>Reference</u>
Molecular Weight	30.03	Empirical
Water Solubility, mg/L	3.7E+04	GEMS - E
Vapor Pressure, mm Hg	3.5E+03	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	3.7E-03	Method K-1
Octanol-Water Partition Coefficient	2.2E+00	GEMS - M
Carbon matter partition Coefficient, L/g	1.4E+00	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.1E-01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.1E+00	Calculated from Kow
Bioaccumulation in Shellfish	1.4E-01	Calculated from Kow
Soil-to-Edible Plant	6.1E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.6E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	1.8E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.4E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.1E-02	TLV
Ingestion Reference Dose, mg/kg/d	2.1E-02	= inh

(a) Calculated from Weast (1979, p. D-196).

3.224 Data Summary for FUEL OIL #2

CAS: FUEL OIL

Common Synonyms: Fuel oil

Physical Properties:

Molecular Weight	142.20	see footnote (a)
Water Solubility, mg/L	3.2E+01	see footnote (a)
Vapor Pressure, mm Hg	4.5E-02	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	2.9E-04	see footnote (a)
Octanol-Water Partition Coefficient	7.2E+03	see footnote (a)
Carbon matter partition Coefficient, L/g	4.5E+03	see footnote (a)

ReferenceEnvironmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+04	VOL-S

ReferenceEnvironmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	5.1E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.0E+02	Calculated from Kow
Soil-to-Edible Plant	5.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.8E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.8E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.9E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

ReferenceChemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	3.6E-01	= ing
Ingestion Reference Dose, mg/kg/d	3.6E-01	RTECS - T; see footnote (b)

Reference

- (a) Physical properties are set to those for 2-methyl naphthalene.
 (b) RfD based on RTECS Oral LD50 for rats for diesel fuel.

3.225 Data Summary for FURAN

CAS: 110009

Common Synonyms: Furan, furfuran, oxacyclopentadiene

Physical Properties:

		<u>Reference</u>
Molecular Weight	68.08	Empirical
Water Solubility, mg/L	1.0E+04	GEMS - M
Vapor Pressure, mm Hg	6.1E+02	GEMS - E
Henrys Law Constant, atm-m ³ /mole	6.1E-03	GEMS - E
Octanol-Water Partition Coefficient	2.2E+01	GEMS - M
Carbon matter partition Coefficient, L/g	1.4E+01	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.1E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.1E+00	Calculated from Kow
Bioaccumulation in Shellfish	9.0E-01	Calculated from Kow
Soil-to-Edible Plant	1.6E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.5E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	1.7E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.5E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-03	IRIS

3.226 Data Summary for GASOLINE

CAS: 8006619

Common Synonyms: Gasoline, Petrol (represented as benzene)

Physical Properties:

		<u>Reference</u>
Molecular Weight	78.00	see footnote (a)
Water Solubility, mg/L	1.8E+03	see footnote (a)
Vapor Pressure, mm Hg	9.5E+01	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	5.6E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.3E+02	see footnote (a)
Carbon matter partition Coefficient, L/g	8.3E+01	see footnote (a)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.3E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.4E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.9E+00	Calculated from Kow
Soil-to-Edible Plant	5.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.3E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.0E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.2E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	3.0E-04	= ing
Ingestion Cancer Potency Factor, kg-d/mg	3.0E-04	see footnote (b)

(a) Physical properties same as benzene.

(b) Toxicity gasoline set to 0.01 x benzene toxicity, based on composition.

3.227 Data Summary for GLYPHOSATE

CAS: 1071836

Common Synonyms: Glyphosate, N-(Phosphonomethyl) Glycine, MON0573

Physical Properties:

		<u>Reference</u>
Molecular Weight	169.09	RTECS - D
Water Solubility, mg/L	1.0E+05	see footnote (a)
Vapor Pressure, mm Hg	1.0E+00	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	1.5E-06	see footnote (a)
Octanol-Water Partition Coefficient	1.0E-03	see footnote (a)
Carbon matter partition Coefficient, L/g	5.3E-04	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.1E-03	Calculated from K _{ow}
Bioaccumulation in Shellfish	2.5E-04	Calculated from K _{ow}
Soil-to-Edible Plant	5.2E+02	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	2.5E-11	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	7.9E-12	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.8E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-01	IRIS

- (a) Physical properties based on similar compounds in which the phosphono- group is replaced by -NHCN, -OCH₃, and -OH. Properties estimated using GEMS.

3.228 Data Summary for BETA - HCCH

CAS: 319857

Common Synonyms: Beta-hexachlorocyclohexane, Beta-HCH, Beta-BHC, Beta-Lindane

Physical Properties:

		<u>Reference</u>
Molecular Weight	290.93	Empirical
Water Solubility, mg/L	2.4E-01	Mabey et al. (1982)
Vapor Pressure, mm Hg	2.8E-07	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	4.5E-07	see footnote (a)
Octanol-Water Partition Coefficient	7.9E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	3.8E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	5.4E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.1E+02	Calculated from Kow
Soil-to-Edible Plant	5.4E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	6.3E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.9E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.229 Data Summary for DELTA-HCCH

CAS: 319868

Common Synonyms: Delta-hexachlorocyclohexane, Delta-HCH, Delta-BHC, Delta-lindane

Physical Properties:

		<u>Reference</u>
Molecular Weight	290.83	Empirical
Water Solubility, mg/L	3.1E+01	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.7E-05	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.1E-07	see footnote (a)
Octanol-Water Partition Coefficient	1.3E+04	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	6.6E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.8E+07	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.7E+02	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.6E+02	Calculated from K _{ow}
Soil-to-Edible Plant	4.1E-02	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.7E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	2.5E-03	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-03	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.230 Data Summary for GAMMA-HCCH (LINDANE)

CAS: 58899

Common Synonyms: Gamma-hexachlorocyclohexane, Lindane, Gamma-BHC, Gamma-HCH, BHC

Physical Properties:

		<u>Reference</u>
Molecular Weight	290.83	Empirical
Water Solubility, mg/L	7.8E+00	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.6E-04	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	7.8E-06	see footnote (a)
Octanol-Water Partition Coefficient	7.9E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.1E+03	Lyman et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.1E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.8E+02	Lyman et al. (1982)
Bioaccumulation in Shellfish	1.1E+02	Calculated from Kow
Soil-to-Edible Plant	5.4E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.7E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	2.5E-03	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.7E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.231 Data Summary for HEPTACHLOR

CAS: 76448

Common Synonyms: Heptachlor, Rhodiachlor, Drinox

Physical Properties:

		<u>Reference</u>
Molecular Weight	373.50	Empirical
Water Solubility, mg/L	5.6E-02	OHM - TADS
Vapor Pressure, mm Hg	3.0E-04	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.9E-03	see footnote (a)
Octanol-Water Partition Coefficient	2.5E+04	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	6.0E+03	Lyman et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.1E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.3E+03	Calculated from Kow
Bioaccumulation in Shellfish	2.9E+02	Calculated from Kow
Soil-to-Edible Plant	2.8E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.5E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	3.2E-03	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.9E-05	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.5E+00	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	4.5E+00	IRIS
Ingestion Reference Dose, mg/kg/d	5.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.232 Data Summary for HEPTACHLOR EPOXIDE

CAS: 1024573

Common Synonyms: Heptachlor epoxide

Physical Properties:

		<u>Reference</u>
Molecular Weight	389.20	Empirical
Water Solubility, mg/L	3.5E-01	Mabey et al. (1982)
Vapor Pressure, mm Hg	3.0E-04	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	4.4E-04	see footnote (a)
Octanol-Water Partition Coefficient	5.1E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	2.2E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.1E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	6.7E+01	Calculated from Kow
Bioaccumulation in Shellfish	1.2E+01	Calculated from Kow
Soil-to-Edible Plant	2.6E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	3.6E-02	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.1E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	9.1E+00	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	9.1E+00	IRIS
Ingestion Reference Dose, mg/kg/d	1.3E-05	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.233 Data Summary for HEPTANES

CAS: 142825

Common Synonyms: Heptanes, Dipropylmethane

Physical Properties:

		<u>Reference</u>
Molecular Weight	100.23	RTECS - D
Water Solubility, mg/L	5.6E+00	GEMS - E
Vapor Pressure, mm Hg	5.2E+01	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	1.6E+00	GEMS - E
Octanol-Water Partition Coefficient	2.5E+04	GEMS - E
Carbon matter partition Coefficient, L/g	1.5E+04	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.3E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.3E+03	Calculated from K _{ow}
Bioaccumulation in Shellfish	2.8E+02	Calculated from K _{ow}
Soil-to-Edible Plant	2.8E-02	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	6.3E-04	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	2.0E-04	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.0E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.1E+01	see footnote (b)
Ingestion Reference Dose, mg/kg/d	1.1E+01	= inh

(a) Calculated from Weast (1979, p. D-214).

(b) TLV n-heptane.

3.234 Data Summary for HEXACHLOROBENZENE

CAS: 118741

Common Synonyms: Hexachlorobenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	284.79	Empirical
Water Solubility, mg/L	6.0E-03	EPA (1984x)
Vapor Pressure, mm Hg	1.1E-05	EPA (1984x)
Henry's Law Constant, atm-m ³ /mole	6.8E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.7E+05	EPA (1984x)
Carbon matter partition Coefficient, L/g	3.9E+03	Lyman et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	9.1E+07	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	5.6E+03	Calculated from Kow
Bioaccumulation in Shellfish	1.4E+03	Calculated from Kow
Soil-to-Edible Plant	9.2E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.5E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	8.5E-03	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.3E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.7E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.7E+00	EPA (1984x)
Inhalation Reference Dose, mg/kg/d	8.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	8.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.235 Data Summary for HEXACHLOROBUTADIENE

CAS: 87683

Common Synonyms: Hexachlorobutadiene, HCBD, Dolen-pur

Physical Properties:

		<u>Reference</u>
Molecular Weight	260.76	Empirical
Water Solubility, mg/L	1.5E-01	EPA (1984y)
Vapor Pressure, mm Hg	2.0E+00	EPA (1984y)
Henrys Law Constant, atm-m ³ /mole	4.6E-04	see footnote (a)
Octanol-Water Partition Coefficient	6.0E+04	EPA (1984y)
Carbon matter partition Coefficient, L/g	2.9E+04	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.0E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.5E+03	Calculated from Kow
Bioaccumulation in Shellfish	5.9E+02	Calculated from Kow
Soil-to-Edible Plant	1.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.5E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	4.8E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.9E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	7.8E-02	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	7.8E-02	IRIS
Ingestion Reference Dose, mg/kg/d	2.0E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.236 Data Summary for ALPHA-HEXACHLOROCYCL

CAS: 319846

Common Synonyms: Alpha-hexachlorocyclohexane, Alpha-lindane

Physical Properties:

		<u>Reference</u>
Molecular Weight	290.83	Empirical
Water Solubility, mg/L	1.6E+00	Mabey et al. (1982)
Vapor Pressure, mm Hg	2.5E-05	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	5.9E-06	see footnote (a)
Octanol-Water Partition Coefficient	7.9E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	3.8E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.9E+07	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	5.0E+02	EPA (1980o)
Bioaccumulation in Shellfish	1.1E+02	Calculated from Kow
Soil-to-Edible Plant	5.4E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.7E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	2.5E-03	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.0E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.3E+00	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	6.3E+00	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.237 Data Summary for HEXACHLOROCYCLOPENTA

CAS: 77474

Common Synonyms: Hexachlorocyclopentadiene, C-56

Physical Properties:

		<u>Reference</u>
Molecular Weight	272.80	Empirical
Water Solubility, mg/L	1.3E+00	OHM - TADS; Mabey et al. (1982)
Vapor Pressure, mm Hg	8.0E-02	EPA (1984z)
Henry's Law Constant, atm-m ³ /mole	2.7E-02	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+04	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	3.6E+03	Lyman et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.9E+01	Lyman et al. (1982)
Bioaccumulation in Shellfish	1.3E+02	Calculated from Kow
Soil-to-Edible Plant	4.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.5E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	7.0E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.238 Data Summary for HEXACHLORODIBENZO-P-

CAS: 34465468

Common Synonyms: Hexachlorodibenzo-p-dioxin

Physical Properties:

		<u>Reference</u>
Molecular Weight	390.87	Empirical
Water Solubility, mg/L	2.0E-04	see footnote (a)
Vapor Pressure, mm Hg	1.7E-06	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	3.6E-03	see footnote (b)
Octanol-Water Partition Coefficient	5.3E+06	see footnote (a)
Carbon matter partition Coefficient, L/g	3.3E+06	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.5E+04	Calculated from Kow
Bioaccumulation in Shellfish	2.3E+04	Calculated from Kow
Soil-to-Edible Plant	1.3E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.3E-01	Calculated from Kow
Feed-to-Cow Milk, d/L	4.2E-02	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.1E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.2E+03	= ing
Ingestion Cancer Potency Factor, kg-d/mg	6.2E+03	EPA (1985b)
Inhalation Reference Dose, mg/kg/d	7.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	7.0E-03	EPA (1986b)

(a) Parameter value based on value for 2,3,7,8-TCDD.

(b) From ICF (1987a) as calculated from solubility and vapor pressure.

3.239 Data Summary for HEXACHLORODIBENZOFUR

CAS: 55684941

Common Synonyms: Hexachlorodibenzofurans

Physical Properties:

		<u>Reference</u>
Molecular Weight	344.87	Empirical
Water Solubility, mg/L	2.0E-04	see footnote (a)
Vapor Pressure, mm Hg	1.7E-06	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	3.6E-03	see footnote (b)
Octanol-Water Partition Coefficient	5.0E+06	see footnote (a)
Carbon matter partition Coefficient, L/g	3.3E+06	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.3E+04	Calculated from K _{ow}
Bioaccumulation in Shellfish	2.2E+04	Calculated from K _{ow}
Soil-to-Edible Plant	1.3E-03	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.3E-01	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.0E-02	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.0E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-04	EPA (1986b)

(a) Parameter values based on values for 2,3,7,8-TCDD.

(b) From ICF (1987a) as calculated from solubility and vapor pressure.

3.240 Data Summary for HEXACHLOROETHANE

CAS: 67721

Common Synonyms: Hexachloroethane, Phenohep

Physical Properties:

Molecular Weight	236.74	Empirical
Water Solubility, mg/L	5.0E+01	Mabey et al. (1982)
Vapor Pressure, mm Hg	4.0E-01	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.5E-03	see footnote (a)
Octanol-Water Partition Coefficient	4.0E+04	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	2.0E+04	Mabey et al. (1982)

ReferenceEnvironmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+03	VOL-S

ReferenceEnvironmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.8E+03	Calculated from Kow
Bioaccumulation in Shellfish	4.2E+02	Calculated from Kow
Soil-to-Edible Plant	2.1E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	3.2E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.4E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

ReferenceChemical Toxicity Parameters:

Inhalation Cancer Potency Factor, kg-d/mg	1.4E-02	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	1.4E-02	IRIS
Ingestion Reference Dose, mg/kg/d	1.0E-03	IRIS

Reference

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.241 Data Summary for HEXACHLOROPHENE

CAS: 70304

Common Synonyms: Hexachlorophene

Physical Properties:

		<u>Reference</u>
Molecular Weight	406.91	Empirical
Water Solubility, mg/L	4.0E-04	Dawson et al. (1980)
Vapor Pressure, mm Hg	5.6E-13	Method VP-2
Henry's Law Constant, atm-m ³ /mole	8.3E-10	see footnote (a)
Octanol-Water Partition Coefficient	3.5E+07	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	2.1E+07	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.2E+05	Calculated from Kow
Bioaccumulation in Shellfish	1.1E+05	Calculated from Kow
Soil-to-Edible Plant	4.2E-04	Calculated from Kow
Feed-to-Animal Meat, d/kg	8.7E-01	Calculated from Kow
Feed-to-Cow Milk, d/L	2.8E-01	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.242 Data Summary for HEXANES

CAS: 110543

Common Synonyms: Hexanes

Physical Properties:

Molecular Weight	86.20	RTECS - D
Water Solubility, mg/L	1.9E+01	GEMS - E
Vapor Pressure, mm Hg	1.8E+02	GEMS - E .
Henrys Law Constant, atm-m ³ /mole	1.6E+00	GEMS - E
Octanol-Water Partition Coefficient	6.8E+03	Hansch et al. (1979)
Carbon matter partition Coefficient, L/g	4.6E+03	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.7E+00	VOL-S

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	4.8E+02	Reference
Bioaccumulation in Shellfish	9.9E+01	Calculated from Kow
Soil-to-Edible Plant	5.9E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.7E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.4E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.1E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	1.3E+00	Reference
Ingestion Reference Dose, mg/kg/d	1.3E+00	see footnote (a)
		= inh

(a) Calculated from TLV n-hexane.

3.243 Data Summary for 2-HEXANONE ME-BU-KET

CAS: 591786

Common Synonyms: Hexanone-2, n-butylmethyl ketone

Physical Properties:

		<u>Reference</u>
Molecular Weight	100.16	Empirical
Water Solubility, mg/L	1.4E+04	Method S-1
Vapor Pressure, mm Hg	1.0E+00	CHEMEST
Henry's Law Constant, atm-m ³ /mole	1.1E-05	see footnote (a)
Octanol-Water Partition Coefficient	2.4E+01	GEMS - M
Carbon matter partition Coefficient, L/g	1.5E+01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	4.9E+04	Datta and Rao (1979); Darnall et al. (1976)
In Water, days	6.9E+07	VOL-S
In Soil, days	1.2E+03	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	6.6E+00	Calculated from Kow
Bioaccumulation in Shellfish	9.6E-01	Calculated from Kow
Soil-to-Edible Plant	1.5E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.0E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	1.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.2E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.4E-01	TLV
Ingestion Reference Dose, mg/kg/d	1.4E-01	= inh

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.244 Data Summary for HMX (H-N02 TETZOCINE

CAS: 2691410

Common Synonyms: 1,3,5,7-Tetrazocine, Octahydro-1,3,5,7-tetranitro, Octagen

Physical Properties:

		<u>Reference</u>
Molecular Weight	296.20	Empirical
Water Solubility, mg/L	2.6E+00	see footnote (a)
Vapor Pressure, mm Hg	8.4E-04	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	3.5E-06	see footnote (a)
Octanol-Water Partition Coefficient	3.9E+00	see footnote (a)
Carbon matter partition Coefficient, L/g	2.4E+00	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.7E+00	Calculated from Kow
Bioaccumulation in Shellfish	2.2E-01	Calculated from Kow
Soil-to-Edible Plant	4.4E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	9.8E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	3.1E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.8E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-02	IRIS

(a) Physical properties based on values for PETN.

3.245 Data Summary for HYDRAULIC FLUID

CAS: HYDR FLU

Common Synonyms: Hydraulic fluid

Physical Properties:

		<u>Reference</u>
Molecular Weight	178.00	see footnote (a)
Water Solubility, mg/L	4.5E-02	see footnote (a)
Vapor Pressure, mm Hg	2.0E-04	see footnote (a)
Henrys Law Constant, atm-m ³ /mole	1.0E-03	see footnote (a)
Octanol-Water Partition Coefficient	2.8E+04	see footnote (a)
Carbon matter partition Coefficient, L/g	1.4E+04	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.5E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.4E+03	Calculated from Kow
Bioaccumulation in Shellfish	3.2E+02	Calculated from Kow
Soil-to-Edible Plant	2.6E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.1E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	2.2E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.0E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	9.0E-01	see footnote (b)
Ingestion Reference Dose, mg/kg/d	9.0E-01	see footnote (b)

(a) Physical properties are set to those of anthracene.

(b) Chemical toxicity parameters based on mineral oil.

3.246 Data Summary for HYDRAZINE

CAS: 302012

Common Synonyms: Hydrazine, Diamine

Physical Properties:

		<u>Reference</u>
Molecular Weight	32.05	Empirical
Water Solubility, mg/L	3.0E+05	GEMS - E
Vapor Pressure, mm Hg	1.4E+01	GEMS - M
Henry's Law Constant, atm-m ³ /mole	2.0E-06	GEMS - E
Octanol-Water Partition Coefficient	8.5E-03	GEMS - M
Carbon matter partition Coefficient, L/g	5.3E-03	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	2.0E+00	Estimate
In Water, days	6.9E+07	Default
In Soil, days	8.8E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.6E-02	Calculated from Kow
Bioaccumulation in Shellfish	1.4E-03	Calculated from Kow
Soil-to-Edible Plant	1.5E+02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.1E-10	Calculated from Kow
Feed-to-Cow Milk, d/L	6.8E-11	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.0E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.7E+01	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	3.0E+00	IRIS

3.247 Data Summary for HYDROGEN FLUORIDE

CAS: 7669393

Common Synonyms: Hydrogen fluoride, Hydrofluoric acid

Physical Properties:Molecular Weight
Water Solubility, mg/L

20.01

ReferenceEmpirical
No value in data baseEnvironmental Degradation/Removal Half-times:Media of TransportIn Air, days
In Water, days
In Soil, days6.9E+07
6.9E+07
6.9E+07ReferenceDefault
Default
DefaultEnvironmental Transfer Factors:Transfer ParameterBioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class1.0E+01
1.0E+02
2.0E-02
2.0E-02
7.0E-03
1.00
1.0E-03
4ReferenceNapier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Default
Depositing GasChemical Toxicity Parameters:Inhalation Reference Dose, mg/kg/d
Ingestion Reference Dose, mg/kg/d6.0E-02
6.0E-02Referencesee footnote (a)
see footnote (a)

(a) Chemical toxicity values based on soluble fluoride values.

3.248 Data Summary for HYDROXYQUINOLINE

CAS: 148243

Common Synonyms: Hydroxyquinoline, 8-quinolinol

Physical Properties:

		<u>Reference</u>
Molecular Weight	145.17	Empirical
Water Solubility, mg/L	3.9E-02	GEMS - M
Vapor Pressure, mm Hg	7.5E-04	GEMS - E
Henry's Law Constant, atm-m ³ /mole	4.0E-07	GEMS - E
Octanol-Water Partition Coefficient	8.7E+01	GEMS - M
Carbon matter partition Coefficient, L/g	5.4E+01	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.5E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.8E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.8E+00	Calculated from Kow
Soil-to-Edible Plant	7.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.2E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	6.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.2E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.2E-01	= ing
Ingestion Reference Dose, mg/kg/d	4.2E-01	RTECS - T; see footnote (a)

(a) RTECS Oral LD₅₀ (mg/kg)

Animal	<u>LD50</u>
Mouse	20,000
Rat	1,200
Average	10,600

$$RfD = 4 \times 10^{-5} \times 10,600 = 0.42 \text{ mg/kg/d.}$$

3.249 Data Summary for INDENO(1,2,3-cd)PYRE

CAS: 193395

Common Synonyms: Indeno (1,2,3-CD)pyrene, IP

Physical Properties:

		<u>Reference</u>
Molecular Weight	276.00	Empirical
Water Solubility, mg/L	5.3E-04	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.0E-10	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	6.9E-08	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+06	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.6E+06	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.1E+04	Calculated from Kow
Bioaccumulation in Shellfish	1.5E+04	Calculated from Kow
Soil-to-Edible Plant	1.7E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	2.5E-02	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	see footnote (b)
Ingestion Cancer Potency Factor, kg-d/mg	1.2E+01	EPA (1984a)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

(b) Cancer potency factor based on value for benzo(a)pyrene.

3.250 Data Summary for IRON

CAS: 15438310

Common Synonyms: Iron, Ferrous

Physical Properties:

Molecular Weight	56.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.0E+02	Napier et al. (1980)
Bioaccumulation in Shellfish	3.2E+03	Napier et al. (1980)
Soil-to-Edible Plant	4.0E-04	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	2.0E-02	Napier et al. (1980)
Feed-to-Cow Milk, d/L	6.0E-04	Napier et al. (1980)
Water Purification Factor	.20	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	8.6E-03	EPA (1984aa)
Ingestion Reference Dose, mg/kg/d	1.3E+00	see footnote (a)

- (a) Oral RfD based on recommended daily allowance of 18 mg for iron, increased by a factor of 5. $RfD = 18 \text{ mg/d} / 70 \text{ kg} \times 5 = 1.3 \text{ mg/kg/d}$.

3.251 Data Summary for ISOBUTANE

CAS: 75285

Common Synonyms: Isobutane, 2-Methyl propane, LPG

Physical Properties:

		<u>Reference</u>
Molecular Weight	58.14	RTECS - D
Water Solubility, mg/L	2.2E+02	GEMS - E
Vapor Pressure, mm Hg	3.3E+03	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	3.2E-01	GEMS - E
Octanol-Water Partition Coefficient	5.8E+02	GEMS - M
Carbon matter partition Coefficient, L/g	3.6E+02	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.9E-01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	7.4E+01	Calculated from Kow
Bioaccumulation in Shellfish	1.3E+01	Calculated from Kow
Soil-to-Edible Plant	2.5E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.4E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	4.6E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.6E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.3E+01	see footnote (b)
Ingestion Reference Dose, mg/kg/d	1.3E+01	= inh

(a) Estimated from Weast (1979, p. D-214).

(b) TLV n-butane.

3.252 Data Summary for ISOBUTYL ALCOHOL

CAS: 78831

Common Synonyms: Isobutyl alcohol, Isobutanol

Physical Properties:

		<u>Reference</u>
Molecular Weight	74.12	Empirical
Water Solubility, mg/L	8.9E+04	CHEMEST
Vapor Pressure, mm Hg	1.0E+01	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	1.0E-05	see footnote (a)
Octanol-Water Partition Coefficient	5.8E+00	Dillingham et al. (1973)
Carbon matter partition Coefficient, L/g	3.5E+00	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.2E+00	Calculated from Kow
Bioaccumulation in Shellfish	3.0E-01	Calculated from Kow
Soil-to-Edible Plant	3.5E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.4E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	4.6E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.4E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-01	EPA (1986b)

(a) From ICF (1987b) as calculated from solubility and vapor pressure.

3.253 Data Summary for ISOPENTANE

CAS: 78784

Common Synonyms: Isopentane, 2-Methyl Butane

Physical Properties:

		<u>Reference</u>
Molecular Weight	72.17	RTECS - D
Water Solubility, mg/L	4.8E+01	GEMS - M
Vapor Pressure, mm Hg	6.9E+02	GEMS - E
Henrys Law Constant, atm-m ³ /mole	2.0E+00	GEMS - E
Octanol-Water Partition Coefficient	1.8E+03	GEMS - M
Carbon matter partition Coefficient, L/g	7.9E+02	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.8E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.7E+02	Calculated from Kow
Bioaccumulation in Shellfish	3.2E+01	Calculated from Kow
Soil-to-Edible Plant	1.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.4E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	1.4E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.1E-08	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.3E+02	see footnote (a)
Ingestion Reference Dose, mg/kg/d	1.3E+02	= inh

(a) TLV n-pentane.

3.254 Data Summary for ISOPHORONE

CAS: 78591

Common Synonyms: Isophorone, Isoforon

Physical Properties:

		<u>Reference</u>
Molecular Weight	138.20	Empirical
Water Solubility, mg/L	1.2E+04	Mabey et al. (1982)
Vapor Pressure, mm Hg	3.8E-01	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	5.8E-06	see footnote (a)
Octanol-Water Partition Coefficient	1.8E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	8.7E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.9E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.1E+01	Calculated from Kow
Bioaccumulation in Shellfish	7.0E+00	EPA (1980p)
Soil-to-Edible Plant	4.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.6E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.4E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.3E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.5E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.5E-01	IRIS; see footnote (b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

(b) The IRIS RfD value was withdrawn June 1, 1989.

3.255 Data Summary for ISOPROPYL ALCOHOL

CAS: 67630

Common Synonyms: Isopropyl alcohol, 2-Propanol, Isopropanol

Physical Properties:

		<u>Reference</u>
Molecular Weight	60.11	RTECS - D
Water Solubility, mg/L	1.5E+05	GEMS - E
Vapor Pressure, mm Hg	4.8E+01	GEMS - E
Henrys Law Constant, atm-m ³ /mole	2.8E-05	GEMS - E
Octanol-Water Partition Coefficient	1.1E+00	GEMS - M
Carbon matter partition Coefficient, L/g	6.9E-01	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.7E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.4E-01	Calculated from Kow
Bioaccumulation in Shellfish	7.8E-02	Calculated from Kow
Soil-to-Edible Plant	9.1E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.8E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	8.9E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.6E-06	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	6.9E+00	TLV
Ingestion Reference Dose, mg/kg/d	6.9E+00	= inh

3.256 Data Summary for ISOSAFROLE

CAS: 120581

Common Synonyms: Isosafrole, 1,3-benzodioxole, 5-(l-propenyl)

Physical Properties:

		<u>Reference</u>
Molecular Weight	162.19	Empirical
Water Solubility, mg/L	1.1E+03	Jaber et al. (1984)
Vapor Pressure, mm Hg	1.6E-08	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	3.3E-12	see footnote (a)
Octanol-Water Partition Coefficient	4.6E+02	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	9.3E+01	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.2E+01	Calculated from Kow
Bioaccumulation in Shellfish	1.1E+01	Calculated from Kow
Soil-to-Edible Plant	2.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.1E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	3.6E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.1E-03	= ing
Ingestion Cancer Potency Factor, kg-d/mg	2.1E-03	Salée (1984)
Ingestion Reference Dose, mg/kg/d	3.0E-01	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.257 Data Summary for JP4

CAS: JP-4

Common Synonyms: JP-4 Jet Fuel, Aviation Fuel

Physical Properties:

		<u>Reference</u>
Molecular Weight	142.20	see footnote (a)
Water Solubility, mg/L	3.2E+01	see footnote (a)
Vapor Pressure, mm Hg	4.5E-02	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	2.9E-04	see footnote (a)
Octanol-Water Partition Coefficient	7.2E+03	see footnote (a)
Carbon matter partition Coefficient, L/g	4.5E+03	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.1E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.0E+02	Calculated from Kow
Soil-to-Edible Plant	4.0E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.8E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.8E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.9E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.0E-01	TLV; see footnote (b)
Ingestion Reference Dose, mg/kg/d	7.0E-01	= inh

- (a) Physical properties are set to those for 2-methyl naphthalene.
 (b) Chemical toxicity parameters are based on kerosene.

3.258 Data Summary for KEPONE

CAS: 143500

Common Synonyms: Kepone, Merex, CIBA 8514

Physical Properties:

		<u>Reference</u>
Molecular Weight	491.00	Empirical
Water Solubility, mg/L	9.9E-03	Jaber et al. (1984)
Vapor Pressure, mm Hg	3.0E-07	ICF (1987)
Henry's Law Constant, atm-m ³ /mole	4.9E-11	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+02	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	5.5E+04	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.1E+00	Calculated from Kow
Soil-to-Edible Plant	6.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	9.0E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	9.0E+00	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.259 Data Summary for KEROSENE

CAS: 8008206

Common Synonyms: Kerosene, Coal oil, Kerosine

Physical Properties:

		<u>Reference</u>
Molecular Weight	142.20	see footnote (a)
Water Solubility, mg/L	3.2E+01	see footnote (a)
Vapor Pressure, mm Hg	4.5E-02	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	2.9E-04	see footnote (a)
Octanol-Water Partition Coefficient	7.2E+03	see footnote (a)
Carbon matter partition Coefficient, L/g	4.5E+03	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.1E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.0E+02	Calculated from Kow
Soil-to-Edible Plant	5.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.8E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.8E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.9E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.0E-01	TLV
Ingestion Reference Dose, mg/kg/d	7.0E-01	= inh

(a) Physical properties are set to those for 2-methyl naphthalene.

3.260 Data Summary for LEAD

CAS: 7439921

Common Synonyms: Lead, DI, Col. Pigment metal 4

Physical Properties:

Molecular Weight	207.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+02	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	6.8E-02	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	2.9E-04	Streng et al. (1986)
Feed-to-Cow Milk, d/L	1.0E-05	Napier et al. (1980)
Water Purification Factor	.90	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	4.3E-04	EPA (1984ab)
Ingestion Reference Dose, mg/kg/d	1.4E-03	EPA (1986b)

3.261 Data Summary for LEAD OXIDE

CAS: 1317368

Common Synonyms: Lead oxide, Massicotite, Litharge

Physical Properties:

Molecular Weight	223.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+02	Napier et al. (1980)(a)
Bioaccumulation in Shellfish	1.0E+02	Napier et al. (1980)(a)
Soil-to-Edible Plant	6.8E-02	Napier et al. (1980)(a)
Feed-to-Animal Meat, d/kg	2.9E-04	Streng et al. (1986)(a)
Feed-to-Cow Milk, d/L	1.0E-05	Napier et al. (1980)(a)
Water Purification Factor	.90	Napier et al. (1980)(a)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	4.3E-04	EPA (1984ab)
Ingestion Reference Dose, mg/kg/d	1.4E-03	EPA (1986b)

(a) Value for lead.

3.262 Data Summary for LITHIUM HYDROXIDE

CAS: 1310652

Common Synonyms: Lithium hydroxide

Physical Properties:

Molecular Weight	23.95	Empirical
Water Solubility, mg/L		No value in data base

ReferenceEnvironmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

ReferenceEnvironmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

ReferenceChemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	1.4E-01	see footnote (a)
Ingestion Reference Dose, mg/kg/d	1.4E-01	see footnote (a)

Reference

(a) Chemical toxicity values set equal to values for sodium hydroxide.

3.263 Data Summary for LITHIUM ION

CAS: 7447418

Common Synonyms: Lithium ion (as lithium chloride)

Physical Properties:

		<u>Reference</u>
Molecular Weight	6.94	Weast (1979)
Water Solubility, mg/L	7.0E+04	Weast (1979)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.0E-01	Streng et al. (1986)
Bioaccumulation in Shellfish	4.0E+01	Streng et al. (1986)
Soil-to-Edible Plant	8.3E-04	Streng et al. (1986)
Feed-to-Animal Meat, d/kg	1.0E-02	Streng et al. (1986)
Feed-to-Cow Milk, d/L	5.0E-02	Streng et al. (1986)
Water Purification Factor	.90	Streng et al. (1986) ^(a)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	6.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	6.0E+00	see footnote (b)

- (a) Water purification factor same as sodium.
 (b) The toxicity of lithium is based on the sodium reference dose and the relative toxicity of lithium to sodium for human low dose.

LDL mg/kg
 L: 243
 Na 12,400
 Ratio 243/12,400 = 0.020

RfD (lithium) = RfD (sodium) x .02
 = 300 x .02 = 6 mg/kg/d.

3.264 Data Summary for MAGNESIUM

CAS: 7786303

Common Synonyms: Magnesium

Physical Properties:

Molecular Weight	24.30	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	5.0E+01	Strenge et al. (1986)
Bioaccumulation in Shellfish	1.0E+02	Strenge et al. (1986)
Soil-to-Edible Plant	1.3E-01	Strenge et al. (1986)
Feed-to-Animal Meat, d/kg	5.0E-03	Strenge et al. (1986)
Feed-to-Cow Milk, d/L	1.0E-02	Strenge et al. (1986)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.0E-02	TLV
Ingestion Reference Dose, mg/kg/d	5.0E+01	see footnote (a)

- (a) The recommended daily intake for magnesium is 350 mg/d for a 70-kg individual.
The RfD (oral) is set to 10 times this ratio as follows:

$$350 \text{ mg/d} \times 1/70 \text{ kg} \times 10 = 50 \text{ mg/kg/d.}$$

3.265 Data Summary for MANGANESE

CAS: 7439965

Common Synonyms: Manganese

Physical Properties:

Molecular Weight	55.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	4.0E+02	Napier et al. (1980)
Bioaccumulation in Shellfish	9.0E+04	Napier et al. (1980)
Soil-to-Edible Plant	3.0E-02	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	1.0E-04	Napier et al. (1980)
Water Purification Factor	.50	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	3.0E-04	EPA (1984ac)
Ingestion Reference Dose, mg/kg/d	2.2E-01	EPA (1984ac)

3.266 Data Summary for MERCURY

CAS: 7439976

Common Synonyms: Mercury, Quicksilver

Physical Properties:

		<u>Reference</u>
Molecular Weight	201.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	2.0E-03	EPA (1981)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.0E+05	Napier et al. (1980)
Bioaccumulation in Shellfish	2.0E+05	Napier et al. (1980)
Soil-to-Edible Plant	3.8E-01	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	1.0E-01	Napier et al. (1980)
Feed-to-Cow Milk, d/L	1.9E-02	Napier et al. (1980)
Water Purification Factor	.50	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.1E-05	EPA (1984ad)
Ingestion Reference Dose, mg/kg/d	2.0E-03	EPA (1986b)

3.267 Data Summary for METHANOL

CAS: 67561

Common Synonyms: Methanol, Methyl alcohol, Carbinol

Physical Properties:

		<u>Reference</u>
Molecular Weight	32.04	Empirical
Water Solubility, mg/L	3.0E+05	GEMS - E
Vapor Pressure, mm Hg	1.3E+02	GEMS - E
Henrys Law Constant, atm-m ³ /mole	2.0E-05	GEMS - E
Octanol-Water Partition Coefficient	1.7E-01	GEMS - M
Carbon matter partition Coefficient, L/g	1.0E-01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	2.0E+00	Estimate
In Water, days	6.9E+07	Default
In Soil, days	1.1E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.3E+00	Calculated from Kow
Bioaccumulation in Shellfish	3.1E-01	Calculated from Kow
Soil-to-Edible Plant	3.5E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.5E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	4.7E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.2E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-01	EPA (1986a)

3.268 Data Summary for METHAPYRILENE

CAS: 91805

Common Synonyms: Methapyrilene, Tenalin, Restryl

Physical Properties:

		<u>Reference</u>
Molecular Weight	261.39	Empirical
Water Solubility, mg/L	3.6E+01	Method S-1
Vapor Pressure, mm Hg	1.5E-07	Method VP-2
Henry's Law Constant, atm-m ³ /mole	1.6E-09	see footnote (a)
Octanol-Water Partition Coefficient	7.4E+02	Wang and Lien
Carbon matter partition Coefficient, L/g	4.6E+02	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	8.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	1.6E+01	Calculated from Kow
Soil-to-Edible Plant	2.1E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.9E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	5.9E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	5.5E-02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	5.5E-02	Salée (1984)
Inhalation Reference Dose, mg/kg/d	2.2E-01	= ing
Ingestion Reference Dose, mg/kg/d	2.2E-01	EPA (1984a)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.269 Data Summary for METHOXYCHLOR

CAS: 72435

Common Synonyms: Methoxychlor, Metox, DMDT

Physical Properties:

		<u>Reference</u>
Molecular Weight	345.65	Empirical
Water Solubility, mg/L	1.0E-01	CHEMEST
Vapor Pressure, mm Hg	5.0E-09	Method VP-2
Henry's Law Constant, atm-m ³ /mole	2.5E-08	see footnote (a)
Octanol-Water Partition Coefficient	2.0E+04	Fujita
Carbon matter partition Coefficient, L/g	4.2E+04	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	8.3E+03	Lyman et al. (1982)
Bioaccumulation in Shellfish	2.4E+02	Calculated from Kow
Soil-to-Edible Plant	3.2E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	1.5E-04	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-02	EPA (1985c)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.270 Data Summary for 2-METHOXY-1-PROPANO

CAS: 107982

Common Synonyms: 2-Methoxy-1-propanol, Dowtherm 209

Physical Properties:

		<u>Reference</u>
Molecular Weight	90.12	Empirical
Water Solubility, mg/L	3.9E+05	Method S-2
Vapor Pressure, mm Hg	1.4E+01	Method VP-1
Henry's Law Constant, atm-m ³ /mole	4.7E-06	see footnote (a)
Octanol-Water Partition Coefficient	6.6E-01	PCALC
Carbon matter partition Coefficient, L/g	4.1E-01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	8.5E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	4.3E-01	Calculated from K _{ow}
Bioaccumulation in Shellfish	5.1E-02	Calculated from K _{ow}
Soil-to-Edible Plant	1.2E+01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.7E-08	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	5.3E-09	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.1E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.9E-01	EPA (1984a)
Ingestion Reference Dose, mg/kg/d	6.8E-01	EPA (1984w)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.271 Data Summary for METHYLACRLONITRILE

CAS: 126987

Common Synonyms: Methylacrlonitrile, Isopropene cyanide

Physical Properties:

		<u>Reference</u>
Molecular Weight	67.09	Empirical
Water Solubility, mg/L	2.5E+04	Verschueren (1983)
Vapor Pressure, mm Hg	6.5E+01	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	2.3E-04	see footnote (a)
Octanol-Water Partition Coefficient	3.5E+00	CLOGP#
Carbon matter partition Coefficient, L/g	2.1E+00	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.9E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.5E+00	Calculated from K _{ow}
Bioaccumulation in Shellfish	2.0E-01	Calculated from K _{ow}
Soil-to-Edible Plant	4.7E+00	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	8.7E-08	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	2.8E-08	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.0E-06	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.272 Data Summary for METHYLCYCLOHEXANE

CAS: 108872

Common Synonyms: Methylcyclohexane, Hexahydrotoluene, UN2296

Physical Properties:

		<u>Reference</u>
Molecular Weight	98.21	Empirical
Water Solubility, mg/L	2.1E+01	GEMS - E
Vapor Pressure, mm Hg	4.2E+01	GEMS - E
Henry's Law Constant, atm-m ³ /mole	3.1E-01	GEMS - E
Octanol-Water Partition Coefficient	7.4E+03	GEMS - E
Carbon matter partition Coefficient, L/g	4.6E+03	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.8E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.1E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.1E+02	Calculated from Kow
Soil-to-Edible Plant	5.6E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.9E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.9E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.1E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.1E+01	TLV
Ingestion Reference Dose, mg/kg/d	9.0E-02	RTECS - T; see footnote (a)

(a) RTECS Oral LD50, mouse = 2250 mg/kg

$$RfD = 2250 \times 4 \times 10^{-5} = 0.09 \text{ mg/kg/d}$$

3.273 Data Summary for METHYLCYCLOPENTANE

CAS: 96377

Common Synonyms: Methylcyclopentane, UN2298

Physical Properties:

		<u>Reference</u>
Molecular Weight	84.18	Empirical
Water Solubility, mg/L	7.7E+01	GEMS - E
Vapor Pressure, mm Hg	1.2E+02	GEMS - E
Henrys Law Constant, atm-m ³ /mole	1.8E-01	GEMS - E
Octanol-Water Partition Coefficient	2.1E+03	GEMS - E
Carbon matter partition Coefficient, L/g	1.3E+03	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.9E+02	Calculated from Kow
Bioaccumulation in Shellfish	3.7E+01	Calculated from Kow
Soil-to-Edible Plant	1.2E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.2E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	1.6E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.4E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.1E+02	TLV; see footnote (a)
Ingestion Reference Dose, mg/kg/d	9.0E-02	RTECS - T; see footnote (a)

(a) Values are based on data for methylcyclohexane.

3.274 Data Summary for 4,4'-METHYLENE-BIS(2

CAS: 101144

Common Synonyms: 4,4'-Methylenebis (2-chloroaniline), Bis amine, MOCA

Physical Properties:

		<u>Reference</u>
Molecular Weight	267.16	Empirical
Water Solubility, mg/L	7.4E+00	Method S-1
Vapor Pressure, mm Hg	1.3E-08	Method VP-2
Henry's Law Constant, atm-m ³ /mole	6.7E-10	see footnote (a)
Octanol-Water Partition Coefficient	8.7E+03	CLOGP#
Carbon matter partition Coefficient, L/g	5.3E+03	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.8E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.2E+02	Calculated from Kow
Soil-to-Edible Plant	5.1E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.2E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	6.9E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.4E-02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.4E-02	Salée (1984)
Inhalation Reference Dose, mg/kg/d	6.8E-01	= ing
Ingestion Reference Dose, mg/kg/d	6.8E-01	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.275 Data Summary for METHYLENE CHLORIDE

CAS: 75092

Common Synonyms: Methylene chloride, Dichloromethane, DCM, Freon 30

Physical Properties:

		<u>Reference</u>
Molecular Weight	84.93	Empirical
Water Solubility, mg/L	2.0E+04	Mabey et al. (1982)
Vapor Pressure, mm Hg	3.6E+02	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.0E-03	see footnote (a)
Octanol-Water Partition Coefficient	2.0E+01	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	8.8E+00	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.3E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.7E+00	Calculated from K _{ow}
Bioaccumulation in Shellfish	8.3E-01	Calculated from K _{ow}
Soil-to-Edible Plant	1.7E+00	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	5.0E-07	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	1.6E-07	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	7.5E-07	Estimated
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.4E-02	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	7.5E-03	IRIS
Ingestion Reference Dose, mg/kg/d	6.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.276 Data Summary for METHYLENE DITHIOCYAN

CAS: 6317186

Common Synonyms: Methylene dithiocyanate

Physical Properties:

		<u>Reference</u>
Molecular Weight	130.19	Empirical
Water Solubility, mg/L	4.9E+05	GEMS - E
Vapor Pressure, mm Hg	7.6E+02	Default
Henrys Law Constant, atm-m ³ /mole	2.9E-04	GEMS - E
Octanol-Water Partition Coefficient	7.5E-01	GEMS - E
Carbon matter partition Coefficient, L/g	4.6E-01	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.5E+00	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	4.7E-01	Calculated from Kow
Bioaccumulation in Shellfish	5.6E-02	Calculated from Kow
Soil-to-Edible Plant	1.1E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.9E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	6.0E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.4E-06	Estimated
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	6.4E-03	= ing
Ingestion Reference Dose, mg/kg/d	6.4E-03	RTECS - T; see footnote (a)

- (a) RTECS Oral LD50 mg/kg
 Rat: $161 \text{ mg/kg} \times 4 \times 10^{-5} = 6.4\text{E-}3 \text{ mg/kg/d}$

3.277 Data Summary for METHYL ETHYL KETONE

CAS: 78933

Common Synonyms: Methyl ethyl ketone, Meeto, 2-butanone

Physical Properties:

		<u>Reference</u>
Molecular Weight	72.12	Empirical
Water Solubility, mg/L	2.7E+05	EPA (1984ae)
Vapor Pressure, mm Hg	7.8E+01	EPA (1984ae)
Henrys Law Constant, atm-m ³ /mole	2.7E-05	see footnote (a)
Octanol-Water Partition Coefficient	1.9E+00	EPA (1984ae)
Carbon matter partition Coefficient, L/g	4.5E+00	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.6E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	9.5E-01	Calculated from Kow
Bioaccumulation in Shellfish	1.2E-01	Calculated from Kow
Soil-to-Edible Plant	6.7E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.7E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	1.5E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.1E-06	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.278 Data Summary for 2-METHYLNAPHTHALENE

CAS: 91576

Common Synonyms: Methylnaphthalene, Methylanftalen

Physical Properties:

		<u>Reference</u>
Molecular Weight	142.20	Empirical
Water Solubility, mg/L	3.2E+01	Method S-1
Vapor Pressure, mm Hg	4.5E-02	Method VP-1
Henry's Law Constant, atm-m ³ /mole	2.9E-04	see footnote (a)
Octanol-Water Partition Coefficient	7.2E+03	EPA (1979)
Carbon Matter partition Coefficient, L/g	4.5E+03	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.1E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.0E+02	Calculated from Kow
Soil-to-Edible Plant	5.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.8E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.8E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.9E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.4E-02	EPA (1984a)
Ingestion Cancer Potency Factor, kg-d/mg	1.4E-02	= inh
Inhalation Reference Dose, mg/kg/d	6.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	6.0E-02	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.279 Data Summary for 4-METHYL-2-PENTANONE

CAS: 108101

Common Synonyms: 4-Methyl-2-pentanone, Hexone

Physical Properties:

		<u>Reference</u>
Molecular Weight	100.16	Empirical
Water Solubility, mg/L	1.9E+04	Verschueren (1983)
Vapor Pressure, mm Hg	6.0E+00	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	4.2E-05	see footnote (a)
Octanol-Water Partition Coefficient	5.3E+00	ICF (1987)
Carbon matter partition Coefficient, L/g	1.9E+01	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.0E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.1E+00	Calculated from K _{ow}
Bioaccumulation in Shellfish	2.8E-01	Calculated from K _{ow}
Soil-to-Edible Plant	3.7E+00	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.3E-07	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.2E-08	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.2E-06	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.280 Data Summary for 2-METHYLPHENOL(0-CRE

CAS: 95487

Common Synonyms: 2-Methylphenol, O-cresylic acid

Physical Properties:

Molecular Weight	108.15
Water Solubility, mg/L	3.1E+04
Vapor Pressure, mm Hg	2.4E-01
Henrys Law Constant, atm-m ³ /mole	1.1E-06
Octanol-Water Partition Coefficient	9.3E+01
Carbon matter partition Coefficient, L/g	1.5E+01

Reference

Empirical
Verschuere (1983)
Verschuere (1983)
see footnote (a)
ICF (1987)
Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07
In Water, days	6.9E+07
In Soil, days	4.8E+03

Reference

Default
Default
VOL-S

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.8E+01
Bioaccumulation in Shellfish	2.9E+00
Soil-to-Edible Plant	7.0E-01
Feed-to-Animal Meat, d/kg	2.3E-06
Feed-to-Cow Milk, d/L	7.4E-07
Water Purification Factor	1.00
Deposition Velocity, m/sec	4.1E-04
Atmospheric Deposition Class	6

Reference

Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Default
Method DVM
Gas as Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	1.0E-01
Ingestion Reference Dose, mg/kg/d	5.0E-02

Reference

EPA (1984a)
IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.281 Data Summary for 4-METHYLPHENOL(P-CRE

CAS: 106445

Common Synonyms: 4-Methylphenol, p-Cresol

Physical Properties:

		<u>Reference</u>
Molecular Weight	108.15	Empirical
Water Solubility, mg/L	2.4E+04	Verschueren (1983)
Vapor Pressure, mm Hg	4.0E-02	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	2.4E-07	see footnote (a)
Octanol-Water Partition Coefficient	8.5E+01	EPA (1979)
Carbon matter partition Coefficient, L/g	1.7E+01	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.9E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.7E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.7E+00	Calculated from Kow
Soil-to-Edible Plant	7.4E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.1E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	6.8E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	7.3E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-01	EPA (1984o)
Ingestion Reference Dose, mg/kg/d	5.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.282 Data Summary for 2(METHYLTHIO)PROPANE

CAS: 75661

Common Synonyms: 2-Methyl-2-propanethiol

Physical Properties:

		<u>Reference</u>
Molecular Weight	90.19	Empirical
Water Solubility, mg/L	3.4E+03	Method S-1
Vapor Pressure, mm Hg	3.5E+01	Method VP-1
Henry's Law Constant, atm-m ³ /mole	1.4E-03	see footnote (a)
Octanol-Water Partition Coefficient	7.6E+01	CLOGP#
Carbon matter partition Coefficient, L/g	4.7E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.4E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.6E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.5E+00	Calculated from Kow
Soil-to-Edible Plant	7.9E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.9E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	6.0E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.3E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-02	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.283 Data Summary for MINERAL OIL

CAS: 8012951

Common Synonyms: Mineral oil, Kaydol, Paroleine

Physical Properties:

Molecular Weight	178.00	see footnote (a)
Water Solubility, mg/L	4.5E-02	see footnote (a)
Vapor Pressure, mm Hg	2.0E-04	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	1.0E-03	see footnote (a)
Octanol-Water Partition Coefficient	2.8E+04	see footnote (a)
Carbon matter partition Coefficient, L/g	1.4E+04	see footnote (a)

ReferenceEnvironmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.5E+06	VOL-S

ReferenceEnvironmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.4E+03	Calculated from Kow
Bioaccumulation in Shellfish	3.2E+02	Calculated from Kow
Soil-to-Edible Plant	2.6E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.1E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	2.2E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	6	Gas as Particulate

ReferenceChemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	9.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	9.0E-01	RTECS - T; see footnote (b)

Reference

- (a) Physical properties are set to those of anthracene.
 (b) RTECS Oral LD₅₀ for mouse is 22 g/kg.
 $RfD = 22 \times 10^{-3} \text{ (mg/g)} \times 4 \times 10^{-5} = 9 \times 10^{-1}$.

3.284 Data Summary for MINERAL SPIRITS

CAS: 8030306

Common Synonyms: Mineral spirits, Petroleum spirits, Benzine, Naphtha

Physical Properties:

		<u>Reference</u>
Molecular Weight	120.00	Empirical
Water Solubility, mg/L	1.8E+03	see footnote (a)
Vapor Pressure, mm Hg	9.5E+01	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	5.6E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.3E+02	see footnote (a)
Carbon matter partition Coefficient, L/g	8.3E+01	see footnote (a)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.4E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.9E+00	Calculated from Kow
Soil-to-Edible Plant	5.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.3E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.0E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.2E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.6E-01	see footnote (b)
Ingestion Reference Dose, mg/kg/d	3.6E-01	see footnote (b)

(a) Physical properties based on benzene.

(b) Chemical toxicity properties based on diesel fuel.

3.285 Data Summary for MOLYBDENUM

CAS: 7439987

Common Synonyms: Molybdenum ion

Physical Properties:

Molecular Weight
Water Solubility, mg/L

95.94
2.0E+03

Reference

Weast (1979)
Weast (1979); see footnote (a)

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days
In Water, days
In Soil, days

6.9E+07
6.9E+07
6.9E+07

Reference

Default
Default
Default

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class

1.0E+01
1.0E+01
1.3E-01
1.0E-02
4.0E-03
.90
1.0E-03
1

Reference

Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d
Ingestion Reference Dose, mg/kg/d

3.5E-01
3.5E-01

Reference

TLV
= inh

(a) Value for hydroxide.

3.286 Data Summary for MOTOR OIL

CAS: MOTOR OL

Common Synonyms: Motor oil

Physical Properties:

		<u>Reference</u>
Molecular Weight	178.00	see footnote (a)
Water Solubility, mg/L	4.5E-02	see footnote (a)
Vapor Pressure, mm Hg	2.0E-04	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	1.0E-03	see footnote (a)
Octanol-Water Partition Coefficient	2.8E+04	see footnote (a)
Carbon matter partition Coefficient, L/g	1.4E+04	see footnote (a)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.5E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.4E+03	Calculated from Kow
Bioaccumulation in Shellfish	3.2E+02	Calculated from Kow
Soil-to-Edible Plant	2.6E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.1E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	2.2E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.0E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	9.0E-01	see footnote (b)
Ingestion Reference Dose, mg/kg/d	9.0E-01	see footnote (b)

- (a) Physical properties are set to those of anthracene.
 (b) Chemical toxicity parameters based on mineral oil.

3.287 Data Summary for NONANE

CAS: 111842

Common Synonyms: Nonane

Physical Properties:

		<u>Reference</u>
Molecular Weight	128.29	RTECS - D
Water Solubility, mg/L	4.7E-01	GEMS - E
Vapor Pressure, mm Hg	6.5E+00	GEMS - E
Henrys Law Constant, atm-m ³ /mole	3.5E+00	GEMS - E
Octanol-Water Partition Coefficient	2.9E+05	GEMS - E
Carbon matter partition Coefficient, L/g	1.8E+05	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.7E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	8.2E+03	Calculated from Kow
Bioaccumulation in Shellfish	2.1E+03	Calculated from Kow
Soil-to-Edible Plant	6.8E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.2E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	2.3E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.8E-06	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.4E+01	TLV
Ingestion Reference Dose, mg/kg/d	7.4E+01	= inh

3.288 Data Summary for NAPHTHALENE

CAS: 91203

Common Synonyms: Naphthalene, Naphthalin

Physical Properties:

		<u>Reference</u>
Molecular Weight	128.16	Empirical
Water Solubility, mg/L	3.2E+01	Verschueren (1983)
Vapor Pressure, mm Hg	8.7E-02	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	4.6E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.7E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	9.4E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.3E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.7E+02	Calculated from Kow
Bioaccumulation in Shellfish	3.2E+01	Calculated from Kow
Soil-to-Edible Plant	1.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.3E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	2.0E-04	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.8E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.6E-01	EPA (1984az)
Ingestion Reference Dose, mg/kg/d	2.6E-01	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.289 Data Summary for 1,4-NAPHTHOPQUINONE

CAS: 130154

Common Synonyms: 1,4-Naphthopquinone, USAF CY-10

Physical Properties:

		<u>Reference</u>
Molecular Weight	158.15	Empirical
Water Solubility, mg/L	3.5E+03	CHEMEST
Vapor Pressure, mm Hg	3.6E+01	Method VP-2
Henry's Law Constant, atm-m ³ /mole	2.4E-03	see footnote (a)
Octanol-Water Partition Coefficient	5.1E+01	Currie et al. (1966)
Carbon matter partition Coefficient, L/g	3.2E+01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.0E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.2E+01	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.8E+00	Calculated from K _{ow}
Soil-to-Edible Plant	9.9E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.3E-06	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.1E-07	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.2E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.3E-03	= ing
Ingestion Reference Dose, mg/kg/d	4.3E-03	Salee (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.290 Data Summary for 1-NAPHTHYLAMINE

CAS: 134327

Common Synonyms: 1-Naphthylamine, Fast garnet base B

Physical Properties:

		<u>Reference</u>
Molecular Weight	143.19	Empirical
Water Solubility, mg/L	2.4E+03	Jaber et al. (1984)
Vapor Pressure, mm Hg	6.5E-05	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	5.2E-09	see footnote (a)
Octanol-Water Partition Coefficient	1.2E+02	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	6.1E+01	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.7E+07	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.2E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.5E+00	Calculated from Kow
Soil-to-Edible Plant	6.2E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.9E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	9.3E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.9E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	8.5E-03	= ing
Ingestion Cancer Potency Factor, kg-d/mg	8.5E-03	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.291 Data Summary for 2-NAPHTHYLAMINE

CAS: 91598

Common Synonyms: 2-Naphthylamine, USAF CB-22

Physical Properties:

		<u>Reference</u>
Molecular Weight	143.19	Empirical
Water Solubility, mg/L	5.9E+02	Jaber et al. (1984)
Vapor Pressure, mm Hg	2.6E-04	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	8.2E-08	see footnote (a)
Octanol-Water Partition Coefficient	1.2E+02	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	1.3E+02	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.3E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.2E+01	Calculated from Kow
Bioaccumulation in Shellfish	3.5E+00	Calculated from Kow
Soil-to-Edible Plant	6.2E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.9E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	9.3E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.1E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.6E-02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	2.6E-02	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.292 Data Summary for NICKEL

CAS: 7440020

Common Synonyms: Nickel, Raney alloy

Physical Properties:

		<u>Reference</u>
Molecular Weight	59.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	0.0E+00	Callahan et al. (1979)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.0E+02	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	1.9E-02	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	1.0E-03	Napier et al. (1980)
Feed-to-Cow Milk, d/L	3.4E-03	Napier et al. (1980)
Water Purification Factor	.20	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	8.4E-01	IRIS
Ingestion Reference Dose, mg/kg/d	2.0E-02	IRIS

3.293 Data Summary for N-DODECANE

CAS: 112403

Common Synonyms: N-dodecane, Bihexyl

Physical Properties:

		<u>Reference</u>
Molecular Weight	170.34	Empirical
Water Solubility, mg/L	3.7E-03	Verschueren (1983)
Vapor Pressure, mm Hg	3.0E-01	Verschueren (1983)
Henrys Law Constant, atm-m ³ /mole	1.8E+01	see footnote (a)
Octanol-Water Partition Coefficient	4.4E+05	GEMS - M
Carbon matter partition Coefficient, L/g	2.7E+05	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.6E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.1E+04	Calculated from Kow
Bioaccumulation in Shellfish	3.0E+03	Calculated from Kow
Soil-to-Edible Plant	5.3E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.1E-02	Calculated from Kow
Feed-to-Cow Milk, d/L	3.5E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.1E-06	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.3E+00	TLV
Ingestion Reference Dose, mg/kg/d	7.3E+00	= inh

(a) Calculated from vapor pressure and water solubility.

3.294 Data Summary for NITRATE

CAS: 14797558

Common Synonyms: Nitrate

Physical Properties:

Molecular Weight	62.00	Empirical
Water Solubility, mg/L		No value in data base

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	1.0E+00	IRIS

3.295 Data Summary for NITRIC ACID

CAS: 7697372

Common Synonyms: Nitric acid, Aqua fortis

Physical Properties:

Molecular Weight
Water Solubility, mg/L

Reference

No value in data base
No value in data base

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days 6.9E+07
In Water, days 6.9E+07
In Soil, days 6.9E+07

Reference

Default
Default
Default

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish 0.0E+00
Bioaccumulation in Shellfish 0.0E+00
Soil-to-Edible Plant 0.0E+00
Feed-to-Animal Meat, d/kg 0.0E+00
Feed-to-Cow Milk, d/L 0.0E+00
Water Purification Factor 1.00
Deposition Velocity, m/sec 1.0E-03
Atmospheric Deposition Class 4

Reference

Pathway not used
Pathway not used
Pathway not used
Pathway not used
Pathway not used
Default
Default
Depositing Gas

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d 3.5E-02
Ingestion Reference Dose, mg/kg/d 3.5E-02

Reference

TLV
= inh

3.296 Data Summary for NITROBENZENE

CAS: 98953

Common Synonyms: Nitrobenzene, Nitrobenzol (liquid)

Physical Properties:

		<u>Reference</u>
Molecular Weight	123.11	Empirical
Water Solubility, mg/L	1.9E+03	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.5E-01	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	4.6E-04	see footnote (a)
Octanol-Water Partition Coefficient	7.1E+01	Callahan et al. (1979)
Carbon matter partition Coefficient, L/g	3.6E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	7.6E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.5E+01	Lyman et al. (1982)
Bioaccumulation in Shellfish	2.3E+00	Calculated from Kow
Soil-to-Edible Plant	8.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.8E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	5.6E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.9E-06	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.297 Data Summary for NITROGEN DIOXIDE

CAS: 10102440

Common Synonyms: Nitrogen dioxide, Nitrito

Physical Properties:

Molecular Weight	46.01	Empirical
Water Solubility, mg/L		No value in data base

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	1.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	1.0E+00	IRIS

3.298 Data Summary for 5-NITRO-O-TOLUIDINE

CAS: 99558

Common Synonyms: 5-Nitro-o-toluidine, NCl-C01843

Physical Properties:

		<u>Reference</u>
Molecular Weight	152.15	Empirical
Water Solubility, mg/L	4.7E+03	Method S-1
Vapor Pressure, mm Hg	8.4E-03	Method VP-1
Henry's Law Constant, atm-m ³ /mole	3.9E-07	see footnote (a)
Octanol-Water Partition Coefficient	9.1E+01	CLOGP#
Carbon matter partition Coefficient, L/g	5.6E+01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.3E+05	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.8E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.9E+00	Calculated from Kow
Soil-to-Edible Plant	7.1E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.3E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	7.2E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.4E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.8E-03	= ing
Ingestion Cancer Potency Factor, kg-d/mg	2.8E-03	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.299 Data Summary for 4-NITROPHENOL

CAS: 100027

Common Synonyms: 4-Nitrophenol, Ncl-C55992

Physical Properties:

		<u>Reference</u>
Molecular Weight	139.11	Empirical
Water Solubility, mg/L	1.6E+04	Verschueren (1983)
Vapor Pressure, mm Hg	2.2E+00	Verschueren (1983)
Henrys Law Constant, atm-m ³ /mole	3.0E-04	see footnote (a)
Octanol-Water Partition Coefficient	8.1E+01	Fujita et al. (1964)
Carbon matter partition Coefficient, L/g	5.0E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.1E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.3E+02	Lyman et al. (1982)
Bioaccumulation in Shellfish	2.6E+00	Calculated from Kow
Soil-to-Edible Plant	7.6E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.0E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	6.5E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	7.5E-06	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.5E-02	= ing
Ingestion Reference Dose, mg/kg/d	7.5E-02	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.300 Data Summary for N-NITROSODIETHYLAMIN

CAS: 55185

Common Synonyms: N-Nitrosodiethylamine, DANA

Physical Properties:

		<u>Reference</u>
Molecular Weight	102.14	Empirical
Water Solubility, mg/L	9.3E+04	Method S-2
Vapor Pressure, mm Hg	5.0E+00	Dawson et al. (1980)
Henry's Law Constant, atm-m ³ /mole	7.9E-06	see footnote (a)
Octanol-Water Partition Coefficient	3.0E+00	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	1.9E+00	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.3E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.4E+00	Calculated from Kow
Bioaccumulation in Shellfish	1.8E-01	Calculated from Kow
Soil-to-Edible Plant	5.1E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.6E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	2.4E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.5E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.5E+02	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	1.5E+02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.301 Data Summary for N-NITROSODIMETHYLAMI

CAS: 62759

Common Synonyms: N-Nitrosodimethylamine, DNMA

Physical Properties:

		<u>Reference</u>
Molecular Weight	74.08	Empirical
Water Solubility, mg/L	1.0E+06	Method S-4
Vapor Pressure, mm Hg	8.1E+00	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	7.9E-07	see footnote (a)
Octanol-Water Partition Coefficient	2.1E-01	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.0E-01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.5E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	8.5E-02	EPA (1980q)
Bioaccumulation in Shellfish	2.0E-02	Calculated from Kow
Soil-to-Edible Plant	2.4E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.2E-09	Calculated from Kow
Feed-to-Cow Milk, d/L	1.7E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.1E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	5.1E+01	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	5.1E+01	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.302 Data Summary for N-NITROSODI-N-BUTYLA

CAS: 924163

Common Synonyms: N-Nitro-di-n-butylamine, DBN

Physical Properties:

		<u>Reference</u>
Molecular Weight	158.24	Empirical
Water Solubility, mg/L	5.4E+03	Method S-1
Vapor Pressure, mm Hg	1.8E+02	Method VP-1
Henry's Law Constant, atm-m ³ /mole	7.5E-03	see footnote (a)
Octanol-Water Partition Coefficient	8.3E+01	Singer et al. (1977)
Carbon matter partition Coefficient, L/g	5.1E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.2E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.7E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.7E+00	Calculated from Kow
Soil-to-Edible Plant	7.5E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.1E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	6.6E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.7E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	5.4E+00	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	5.4E+00	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.303 Data Summary for N-NITROSODIPHNYLAMNE

CAS: 86306

Common Synonyms: N-Nitrosodiphenylamine, REDAX

Physical Properties:

		<u>Reference</u>
Molecular Weight	198.20	Empirical
Water Solubility, mg/L	4.0E+01	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.0E-01	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	6.6E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.4E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	6.5E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.4E+02	Calculated from Kow
Bioaccumulation in Shellfish	2.6E+01	Calculated from Kow
Soil-to-Edible Plant	1.5E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.4E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	1.1E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.1E-05	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.9E-03	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.9E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.304 Data Summary for N-NITROSODIPROPYLAMI

CAS: 621649

Common Synonyms: N-Nitrosodipropylamine, N-nitroso-1-propyl-1-propanamine

Physical Properties:

		<u>Reference</u>
Molecular Weight	130.20	Empirical
Water Solubility, mg/L	9.9E+03	Mabey et al. (1982)
Vapor Pressure, mm Hg	4.0E-01	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	6.3E-06	see footnote (a)
Octanol-Water Partition Coefficient	3.1E+01	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.5E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.8E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	8.0E+00	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.2E+00	Calculated from K _{ow}
Soil-to-Edible Plant	1.3E+00	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	7.8E-07	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	2.5E-07	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	7.1E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.6E+01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	2.6E+01	EPA (1985b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.305 Data Summary for N-NITROSOMORPHOLINE

CAS: 59892

Common Synonyms: N-Nitrosomorpholine, 4-Nitrosomorpholine, NMOR

Physical Properties:

		<u>Reference</u>
Molecular Weight	116.12	Empirical
Water Solubility, mg/L	9.4E+05	Method S-2
Vapor Pressure, mm Hg	1.5E+03	Method VP-1
Henry's Law Constant, atm-m ³ /mole	2.7E-04	see footnote (a)
Octanol-Water Partition Coefficient	3.6E-01	Singer et al. (1977)
Carbon matter partition Coefficient, L/g	2.2E-01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	7.7E-01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.7E-01	Calculated from Kow
Bioaccumulation in Shellfish	3.1E-02	Calculated from Kow
Soil-to-Edible Plant	1.7E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	9.1E-09	Calculated from Kow
Feed-to-Cow Milk, d/L	2.9E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.5E-06	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.5E+02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.5E+02	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.306 Data Summary for N-NITROSOPIPERIDINE

CAS: 100754

Common Synonyms: N-Nitrosopiperidine, NPIP

Physical Properties:

		<u>Reference</u>
Molecular Weight	114.15	Empirical
Water Solubility, mg/L	1.9E+06	Jaber et al. (1984)
Vapor Pressure, mm Hg	1.4E-01	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	1.1E-08	see footnote (a)
Octanol-Water Partition Coefficient	3.2E-01	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	1.5E+00	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	8.2E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.5E-01	Calculated from Kow
Bioaccumulation in Shellfish	2.8E-02	Calculated from Kow
Soil-to-Edible Plant	1.9E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	8.1E-09	Calculated from Kow
Feed-to-Cow Milk, d/L	2.6E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.5E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	4.6E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	4.6E-01	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.307 Data Summary for N-NITROSOPYRROLIDINE

CAS: 930552

Common Synonyms: N-Nitrosopyrrolidine, NPYR

Physical Properties:

		<u>Reference</u>
Molecular Weight	100.00	Empirical
Water Solubility, mg/L	7.0E+06	Jaber et al. (1984)
Vapor Pressure, mm Hg	1.1E-01	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	2.1E-09	see footnote (a)
Octanol-Water Partition Coefficient	8.7E-02	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	8.0E-01	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	9.2E-02	Calculated from Kow
Bioaccumulation in Shellfish	9.7E-03	Calculated from Kow
Soil-to-Edible Plant	4.0E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.2E-09	Calculated from Kow
Feed-to-Cow Milk, d/L	6.9E-10	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.7E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.1E+00	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	2.1E+00	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.308 Data Summary for NO. 6 FUEL

CAS: NO. 6 FL

Common Synonyms: No. 6 fuel

Physical Properties:

		<u>Reference</u>
Molecular Weight	142.20	see footnote (a)
Water Solubility, mg/L	3.2E+01	see footnote (a)
Vapor Pressure, mm Hg	4.5E-02	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	2.9E-04	see footnote (a)
Octanol-Water Partition Coefficient	7.2E+03	see footnote (a)
Carbon matter partition Coefficient, L/g	4.5E+03	see footnote (a)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.5E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	5.1E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.0E+02	Calculated from Kow
Soil-to-Edible Plant	5.7E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.8E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.8E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.9E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation <u>Reference</u> Dose, mg/kg/d	3.6E-01	= ing
Ingestion <u>Reference</u> Dose, mg/kg/d	3.6E-01	RTECS - T; see footnote (b)

- (a) Physical properties are set to those of 2-methylnaphthalene.
 (b) RfD based on RTECS oral LD50 rate for diesel fuel.

3.309 Data Summary for O-NITROANILINE

CAS: 88747

Common Synonyms: O-Nitroaniline, Devol orange B

Physical Properties:

		<u>Reference</u>
Molecular Weight	138.12	Empirical
Water Solubility, mg/L	8.9E+02	Verschueren (1983)
Vapor Pressure, mm Hg	1.0E-01	CHEMEST
Henry's Law Constant, atm-m ³ /mole	2.3E-05	see footnote (a)
Octanol-Water Partition Coefficient	6.2E+01	Fujita et al. (1964)
Carbon matter partition Coefficient, L/g	4.4E+01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.4E+01	Calculated from K _{ow}
Bioaccumulation in Shellfish	2.1E+00	Calculated from K _{ow}
Soil-to-Edible Plant	8.9E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.5E-06	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.9E-07	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.3E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-02	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.310 Data Summary for P-NITROANILINE

CAS: 100016

Common Synonyms: P-nitroaniline, Paranitroaniline (solid)

Physical Properties:

		<u>Reference</u>
Molecular Weight	138.12	Empirical
Water Solubility, mg/L	8.0E+02	Verschueren (1983)
Vapor Pressure, mm Hg	1.5E-03	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	3.8E-07	see footnote (a)
Octanol-Water Partition Coefficient	2.5E+01	Fujita et al. (1964)
Carbon matter partition Coefficient, L/g	1.5E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	7.4E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.7E+00	Calculated from Kow
Bioaccumulation in Shellfish	9.8E-01	Calculated from Kow
Soil-to-Edible Plant	1.5E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.2E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	1.9E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.1E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	1.0E+00	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.311 Data Summary for OCTANE

CAS: 111659

Common Synonyms: Octane

Physical Properties:

		<u>Reference</u>
Molecular Weight	114.23	Empirical
Water Solubility, mg/L	1.1E+00	GEMS - M
Vapor Pressure, mm Hg	1.7E+01	GEMS - E
Henrys Law Constant, atm-m ³ /mole	3.5E+00	GEMS - E
Octanol-Water Partition Coefficient	1.5E+05	GEMS - M
Carbon matter partition Coefficient, L/g	9.3E+04	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.7E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	5.1E+03	Calculated from Kow
Bioaccumulation in Shellfish	1.2E+03	Calculated from Kow
Soil-to-Edible Plant	9.8E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.8E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	1.2E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E+01	TLV
Ingestion Reference Dose, mg/kg/d	1.0E+01	= inh

3.312 Data Summary for ORTHENE OR ACEPHATE

CAS: 30560191

Common Synonyms: Orthene, Acephate, Ortril

Physical Properties:

		<u>Reference</u>
Molecular Weight	183.16	Empirical
Water Solubility, mg/L	9.3E+04	see footnote (a)
Vapor Pressure, mm Hg	1.0E-04	see footnote (b)
Henry's Law Constant, atm-m ³ /mole	3.0E-07	Default
Octanol-Water Partition Coefficient	1.4E-01	ICF (1987b)
Carbon matter partition Coefficient, L/g	8.6E-02	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.3E-01	Calculated from Kow
Bioaccumulation in Shellfish	1.4E-02	Calculated from Kow
Soil-to-Edible Plant	3.0E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.5E-09	Calculated from Kow
Feed-to-Cow Milk, d/L	1.1E-09	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	4.0E-03	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	8.7E-03	IRIS

(a) Water solubility estimated using Equation 2.3 from Lyman et al. (1982):

$$\log S = -0.922 \log Kow + 4.184.$$

(b) Vapor pressure assumed to be low based on data for similar compounds.

3.313 Data Summary for PARATHION

CAS: 56382

Common Synonyms: Parathion, Pethion, Alleron

Physical Properties:

		<u>Reference</u>
Molecular Weight	291.27	Empirical
Water Solubility, mg/L	1.2E+01	CHEMEST
Vapor Pressure, mm Hg	3.8E-05	Bright et al. (1950)
Henry's Law Constant, atm-m ³ /mole	1.2E-06	see footnote (a)
Octanol-Water Partition Coefficient	6.5E+03	Chiou et al. (1977)
Carbon matter partition Coefficient, L/g	4.0E+03	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.6E+07	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	4.6E+02	Calculated from Kow
Bioaccumulation in Shellfish	9.4E+01	Calculated from Kow
Soil-to-Edible Plant	6.1E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.6E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.1E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.7E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.8E-03	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.8E-03	ICF (1987)
Inhalation Reference Dose, mg/kg/d	5.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-03	Salée (1984)

(a) From ICF (1987b) as calculated from solubility and vapor pressure.

3.314 Data Summary for PAPER FIBER

CAS: PAPFIBER

Common Synonyms: Paper fiber

Physical Properties:

		<u>Reference</u>
Molecular Weight	.00	Not defined
Water Solubility, mg/L		No value in data base

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	.00	Pathway not used
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.5E-02	TLV

3.315 Data Summary for PENTACHLOROBENZENE

CAS: 608935

Common Synonyms: Pentachlorobenzene, QCB

Physical Properties:

		<u>Reference</u>
Molecular Weight	250.14	Empirical
Water Solubility, mg/L	1.4E-01	Dawson et al. (1980)
Vapor Pressure, mm Hg	6.6E-03	CHEMEST
Henry's Law Constant, atm-m ³ /mole	1.8E-02	see footnote (a)
Octanol-Water Partition Coefficient	1.6E+05	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	9.1E+04	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.5E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.4E+03	Lyman et al. (1982)
Bioaccumulation in Shellfish	1.3E+03	Calculated from Kow
Soil-to-Edible Plant	9.7E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.9E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	1.2E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.0E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	8.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	8.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.316 Data Summary for PENTACHLOROETHANE

CAS: 76017

Common Synonyms: Pentachloroethane, Pentalin

Physical Properties:

		<u>Reference</u>
Molecular Weight	202.30	Empirical
Water Solubility, mg/L	7.4E+01	Method S-1
Vapor Pressure, mm Hg	3.4E+00	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	1.3E-02	see footnote (a)
Octanol-Water Partition Coefficient	4.7E+03	PCALC
Carbon matter partition Coefficient, L/g	2.9E+03	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.1E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.7E+01	Lyman et al. (1982)
Bioaccumulation in Shellfish	7.2E+01	Calculated from Kow
Soil-to-Edible Plant	7.3E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.2E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	3.7E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.3E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.0E-03	= ing
Ingestion Cancer Potency Factor, kg-d/mg	6.0E-03	Salee (1984)
Inhalation Reference Dose, mg/kg/d	8.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	8.0E-04	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.317 Data Summary for PENTACHLORONITROBENZ

CAS: 82688

Common Synonyms: Pentachloronitrobenzene, Tritisan

Physical Properties:

		<u>Reference</u>
Molecular Weight	295.34	Empirical
Water Solubility, mg/L	7.1E-02	Jaber et al. (1984)
Vapor Pressure, mm Hg	1.1E-04	Jaber et al. (1984)
Henrys Law Constant, atm-m ³ /mole	6.2E-04	see footnote (a)
Octanol-Water Partition Coefficient	2.8E+05	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	1.9E+04	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	8.7E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	8.2E+03	Calculated from Kow
Bioaccumulation in Shellfish	2.1E+03	Calculated from Kow
Soil-to-Edible Plant	6.9E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.1E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	2.2E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	7.5E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.6E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	2.6E-01	Salée (1984)
Inhalation Reference Dose, mg/kg/d	3.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.318 Data Summary for PENTACHLOROPHENOL

CAS: 87865

Common Synonyms: Pentachlorophenol, Permite, EP 30

Physical Properties:

		<u>Reference</u>
Molecular Weight	266.00	Empirical
Water Solubility, mg/L	1.4E+01	Mabey et al. (1982)
Vapor Pressure, mm Hg	1.1E-04	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	2.8E-06	see footnote (a)
Octanol-Water Partition Coefficient	1.0E+05	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	5.3E+04	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	9.1E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.7E+03	Calculated from Kow
Bioaccumulation in Shellfish	8.9E+02	Calculated from Kow
Soil-to-Edible Plant	1.2E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.319 Data Summary for n-PENTANE

CAS: 109660

Common Synonyms: n-Pentane

Physical Properties:

		<u>Reference</u>
Molecular Weight	72.17	RTECS - D
Water Solubility, mg/L	4.8E+01	GEMS - M
Vapor Pressure, mm Hg	5.1E+02	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	1.5E+00	GEMS - E
Octanol-Water Partition Coefficient	2.5E+03	GEMS - M
Carbon matter partition Coefficient, L/g	1.5E+03	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.4E+00	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.2E+02	Calculated from Kow
Bioaccumulation in Shellfish	4.3E+01	Calculated from Kow
Soil-to-Edible Plant	1.1E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.2E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	1.9E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.5E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.3E+01	TLV
Ingestion Reference Dose, mg/kg/d	1.3E+01	= inh

(a) Calculated from Weast (1979, p. D-214).

3.320 Data Summary for PETN 5ERYTHRITOL-4NO

CAS: 78115

Common Synonyms: Initiating explosive pentaerythrite tetranitrate, PETN

Physical Properties:

		<u>Reference</u>
Molecular Weight	316.10	Empirical
Water Solubility, mg/L	9.9E+01	Urbanski (1965)
Vapor Pressure, mm Hg	8.4E-04	Urbanski (1965)
Henrys Law Constant, atm-m ³ /mole	3.5E-06	see footnote (a)
Octanol-Water Partition Coefficient	3.9E+00	PCALC
Carbon matter partition Coefficient, L/g	2.4E+00	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.7E+00	Calculated from Kow
Bioaccumulation in Shellfish	2.2E-01	Calculated from Kow
Soil-to-Edible Plant	4.4E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	9.8E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	3.1E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.8E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-03	see footnote (b)
Ingestion Reference Dose, mg/kg/d	3.0E-03	see footnote (b)

(a) Calculated from water solubility and vapor pressure.

(b) Chemical toxicity values set to values for RDX.

3.321 Data Summary for PHENACETIN

CAS: 62442

Common Synonyms: Phenacetin, Fenia, Kalmin

Physical Properties:

		<u>Reference</u>
Molecular Weight	179.22	Empirical
Water Solubility, mg/L	7.6E+02	CHEMEST
Vapor Pressure, mm Hg	3.2E+00	Method VP-2
Henry's Law Constant, atm-m ³ /mole	1.1E-03	see footnote (a)
Octanol-Water Partition Coefficient	3.7E+01	Lepetit (1977)
Carbon matter partition Coefficient, L/g	2.3E+01	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.5E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	9.2E+00	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.4E+00	Calculated from K _{ow}
Soil-to-Edible Plant	1.2E+00	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	9.3E-07	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	3.0E-07	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.7E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	5.0E+00	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.322 Data Summary for PHENANTHRENE

CAS: 85018

Common Synonyms: Phenanthrene

Physical Properties:

		<u>Reference</u>
Molecular Weight	178.00	Empirical
Water Solubility, mg/L	1.3E+00	Callahan et al. (1979)
Vapor Pressure, mm Hg	6.8E-04	EPA (1984ai)
Henry's Law Constant, atm-m ³ /mole	1.6E-04	see footnote (a)
Octanol-Water Partition Coefficient	2.9E+04	Radding et al. (1976)
Carbon matter partition Coefficient, L/g	1.4E+04	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.6E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.4E+03	Calculated from Kow
Bioaccumulation in Shellfish	3.2E+02	Calculated from Kow
Soil-to-Edible Plant	2.6E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.2E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	2.3E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.6E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.1E+00	see footnote (b)
Ingestion Cancer Potency Factor, kg-d/mg	1.2E+01	see footnote (b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

(b) Chemical toxicity values based on benzo(a)pyrene.

3.323 Data Summary for PHENOL

CAS: 108952

Common Synonyms: Phenol, Carbolic acid, Ocybenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	94.11	Empirical
Water Solubility, mg/L	9.3E+04	EPA (1984aj)
Vapor Pressure, mm Hg	3.4E-01	EPA (1984aj)
Henry's Law Constant, atm-m ³ /mole	4.5E-07	see footnote (a)
Octanol-Water Partition Coefficient	2.9E+01	EPA (1984aj)
Carbon matter partition Coefficient, L/g	1.4E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	9.0E+00	EPA (1984aj)
In Water, days	6.9E+07	Default
In Soil, days	3.5E+03	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	7.6E+00	Calculated from Kow
Bioaccumulation in Shellfish	1.1E+00	Calculated from Kow
Soil-to-Edible Plant	1.4E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.2E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	2.3E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.9E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	6.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	6.0E-01	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.324 Data Summary for PHOSPHATE ION

CAS: 7601549

Common Synonyms: Phosphate ion (as tri-sodium salt)

Physical Properties:Molecular Weight
Water Solubility, mg/L

94.97

ReferenceEmpirical
No value in data baseEnvironmental Degradation/Removal Half-times:Media of TransportIn Air, days
In Water, days
In Soil, days6.9E+07
6.9E+07
6.9E+07ReferenceDefault
Default
DefaultEnvironmental Transfer Factors:Transfer ParameterBioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class1.0E+05
2.0E+04
5.0E+01
5.0E-02
1.2E-02
.40
1.0E-03
1ReferenceNapier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Napier et al. (1980)
Default
ParticulateChemical Toxicity Parameters:Inhalation Reference Dose, mg/kg/d
Ingestion Reference Dose, mg/kg/d7.0E-03
4.6E-01ReferenceRTECS - T; see footnote (a)
RTECS - T; see footnote (b)

- (a) Acid TWA 1 mg/m^3 RfD Inhalation = 0.007.
 (b) Oral rat 1050 12930 mg/kg
 Oral mouse LD50 $\frac{10.3 \text{ g/kg}}{11615 \text{ mg/kg avg}}$

RfD Oral = 0.46 mg/kg/d.

3.325 Data Summary for PICOLINE

CAS: 109068

Common Synonyms: Picoline, 2-Picoline, alpha-Picoline, 2-Methylpyridine

Physical Properties:

		<u>Reference</u>
Molecular Weight	93.12	Empirical
Water Solubility, mg/L	2.6E+04	Method S-1
Vapor Pressure, mm Hg	8.0E+00	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	4.2E-05	see footnote (a)
Octanol-Water Partition Coefficient	1.3E+01	Kaitani and Hansch
Carbon matter partition Coefficient, L/g	7.9E+00	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.5E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	4.1E+00	Calculated from Kow
Bioaccumulation in Shellfish	5.8E-01	Calculated from Kow
Soil-to-Edible Plant	2.2E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.2E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	1.0E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.2E-02	= ing
Ingestion Reference Dose, mg/kg/d	3.2E-02	RTECS - T; see footnote (b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

(b) RTECS Oral LD50, mg/kg

Animal	<u>LD50</u>
Guinea Pig	900
Mouse	674
Rat	<u>790</u>
Average	788 mg/kg

$$RfD = 788 \times 4 \times 10^{-5} = 0.032 \text{ mg/kg/d.}$$

3.326 Data Summary for POLYACRYLAMIDE

CAS: 9003058

Common Synonyms: Polyacrylamide

Physical Properties:

		<u>Reference</u>
Molecular Weight	1000.00	Empirical
Water Solubility, mg/L	1.0E+00	see footnote (a)
Vapor Pressure, mm Hg	1.0E-03	Method K-1
Henry's Law Constant, atm-m ³ /mole	1.0E-04	see footnote (b)
Octanol-Water Partition Coefficient	1.0E+03	see footnote (c)
Carbon Matter partition Coefficient, L/g	1.0E+03	see footnote (d)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	8.0E+05	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.1E+02	Calculated from Kow
Bioaccumulation in Shellfish	2.0E+01	Calculated from Kow
Soil-to-Edible Plant	1.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	7.9E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	8.4E-02	see footnote (e)
Ingestion Reference Dose, mg/kg/d	2.7E-01	see footnote (e)

- (a) Very low solubility.
 (b) Henry's Law constant by comparison with large molecule chemicals having similar components.
 (c) Kow set to 1000; long chain large molecule, but with typically water soluble groups.
 (d) Approximately equal to Kow.
 (e) RTECS data suggest polymer is 40 x less toxic than monomer:
 $RfD = 2.1E-4 \times 40 = 8.2E-3$ for inhalation
 $RfD = 6.7E-3 \times 40 = 2.7E-1$ for ingestion.

3.327 Data Summary for POLYCHLORINATED FURANS

CAS: 55684944

Common Synonyms: Polychlorinated furans

Physical Properties:

		<u>Reference</u>
Molecular Weight	322.00	Empirical
Water Solubility, mg/L	2.0E-04	see footnote (a)
Vapor Pressure, mm Hg	1.7E-06	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	3.6E-03	see footnote (a)
Octanol-Water Partition Coefficient	5.3E+06	see footnote (a)
Carbon matter partition Coefficient, L/g	3.3E+06	see footnote (a)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	7.6E+04	Calculated from K _{ow}
Bioaccumulation in Shellfish	2.3E+04	Calculated from K _{ow}
Soil-to-Edible Plant	1.3E-03	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.3E-01	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.2E-02	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.1E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-04	see footnote (b)
Ingestion Reference Dose, mg/kg/d	3.0E-04	see footnote (b)

(a) Physical properties based on 3,4,7,8-tetrachlorodibenzodioxin.

(b) Chemical toxicity based on values for hexachlorodibenzofuran.

3.328 Data Summary for POTASSIUM HYDROXIDE

CAS: 1310583

Common Synonyms: Potassium hydroxide, Potash lye

Physical Properties:

Molecular Weight	.00	Empirical
Water Solubility, mg/L		No value in data base

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.4E-01	see footnote (a)
Ingestion Reference Dose, mg/kg/d	1.4E-01	see footnote (a)

(a) RfD values set equal to values for sodium hydroxide.

3.329 Data Summary for POTASSIUM ION

CAS: 7447407

Common Synonyms: Potassium ion (as Potassium chloride)

Physical Properties:

		<u>Reference</u>
Molecular Weight	39.10	Weast (1979)
Water Solubility, mg/L	3.5E+04	Weast (1979)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.0E+03	Streng et al. (1986)
Bioaccumulation in Shellfish	8.3E+02	Streng et al. (1986)
Soil-to-Edible Plant	3.7E-01	Streng et al. (1986)
Feed-to-Animal Meat, d/kg	1.2E-02	Streng et al. (1986)
Feed-to-Cow Milk, d/L	1.0E-02	Streng et al. (1986)
Water Purification Factor	.90	see footnote (a)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.1E+02	see footnote (b)
Ingestion Reference Dose, mg/kg/d	5.1E+02	see footnote (b)

(a) Water purification factor assumed to be equal to water purification factor for sodium.

(b) RfD set to sodium RfD corrected for atomic weight.

$$\text{RfD} = 300 \times \frac{39.1}{23} = 510 \text{ mg/kg/d.}$$

3.330 Data Summary for PROPANE

CAS: 74986

Common Synonyms: Propane, Dimethyl methane

Physical Properties:

		<u>Reference</u>
Molecular Weight	44.11	RTECS -D
Water Solubility, mg/L	3.9E+02	GEMS - M
Vapor Pressure, mm Hg	7.6E+03	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	1.2E-01	GEMS - E
Octanol-Water Partition Coefficient	2.3E+02	GEMS - M
Carbon matter partition Coefficient, L/g	1.4E+02	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.8E-01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.7E+01	Calculated from Kow
Bioaccumulation in Shellfish	6.1E+00	Calculated from Kow
Soil-to-Edible Plant	4.2E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.8E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.8E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.7E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.9E+04	TLV Asphyxiant

(a) Calculated from Weast (1979, p. D-214).

3.331 Data Summary for PYRENE

CAS: 129000

Common Synonyms: Pyrene, Benzo(def)phenanthrene

Physical Properties:

		<u>Reference</u>
Molecular Weight	202.26	Empirical
Water Solubility, mg/L	1.3E-01	EPA (1984am)
Vapor Pressure, mm Hg	2.5E-06	EPA (1984am)
Henrys Law Constant, atm-m ³ /mole	5.0E-06	see footnote (a)
Octanol-Water Partition Coefficient	2.1E+05	Radding et al. (1976)
Carbon matter partition Coefficient, L/g	3.8E+04	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.8E+03	EPA (1980t)
Bioaccumulation in Shellfish	1.6E+03	Calculated from Kow
Soil-to-Edible Plant	8.1E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.2E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	1.7E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E-03	see footnote (b)
Ingestion Reference Dose, mg/kg/d	2.0E-03	see footnote (b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

(b) Chemical toxicity values set equal to values for pyridine.

3.332 Data Summary for PYRIDINE

CAS: 110861

Common Synonyms: Pyridine, Azine, Azabenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	79.10	Empirical
Water Solubility, mg/L	1.0E+06	Dawson et al. (1980)
Vapor Pressure, mm Hg	2.0E+01	Dawson et al. (1980)
Henry's Law Constant, atm-m ³ /mole	2.3E-06	see footnote (a)
Octanol-Water Partition Coefficient	4.6E+00	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	2.8E+00	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.1E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.9E+00	Calculated from Kow
Bioaccumulation in Shellfish	2.5E-01	Calculated from Kow
Soil-to-Edible Plant	4.0E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.1E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	3.6E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.8E-05	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:^(b)

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	8.5E-02	= ing
Ingestion Reference Dose, mg/kg/d	8.5E-02	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

(b) Chemical toxicity values based on data for acenaphthene.

3.333 Data Summary for RDX 6H-3NO₂-TRIAZINE

CAS: 121824

Common Synonyms: RDX, Hexahydro-1,3,4-Trinitro-1,3,5-Triazine

Physical Properties:

Molecular Weight	222.12
Water Solubility, mg/L	3.8E+01
Vapor Pressure, mm Hg	4.1E-04
Henry's Law Constant, atm-m ³ /mole	8.3E-06
Octanol-Water Partition Coefficient	1.9E+03
Carbon matter partition Coefficient, L/g	1.0E+03

Reference

Empirical
Spanggord et al. (1983)
Urbanski (1965)
see footnote (a)
see footnote (b)
Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07
In Water, days	6.9E+07
In Soil, days	2.5E+06

Reference

Default
Default
VOL-S

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.8E+02
Bioaccumulation in Shellfish	3.5E+01
Soil-to-Edible Plant	1.2E-01
Feed-to-Animal Meat, d/kg	4.8E-05
Feed-to-Cow Milk, d/L	1.5E-05
Water Purification Factor	1.00
Deposition Velocity, m/sec	6.2E-04
Atmospheric Deposition Class	6

Reference

Calculated from K_{ow}
Calculated from K_{ow}
Calculated from K_{ow}
Calculated from K_{ow}
Calculated from K_{ow}
Default
Method DVM
Gas as Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	3.0E-03
Ingestion Reference Dose, mg/kg/d	3.0E-03

Reference

= ing
IRIS

(a) Calculated from vapor pressure and water solubility.

(b) Based on inverse of K_{ow}/solubility correlation for triazines from Lyman et al. (1982).

3.334 Data Summary for RESORCINOL

CAS: 108463

Common Synonyms: Resorcinol, m-Hydrophenol

Physical Properties:

		<u>Reference</u>
Molecular Weight	110.11	Empirical
Water Solubility, mg/L	2.3E+06	Verschueren (1983)
Vapor Pressure, mm Hg	6.9E-01	CHEMEST
Henry's Law Constant, atm-m ³ /mole	4.8E-08	see footnote (a)
Octanol-Water Partition Coefficient	6.3E+00	Fujita et al. (1964)
Carbon matter partition Coefficient, L/g	3.9E+00	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.7E+03	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.4E+00	Calculated from Kow
Bioaccumulation in Shellfish	3.2E-01	Calculated from Kow
Soil-to-Edible Plant	3.3E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.6E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	5.0E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.9E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.7E-01	= ing
Ingestion Reference Dose, mg/kg/d	5.7E-01	Salee (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.335 Data Summary for ROZOL/QUICK/MURIOL

CAS: 3691358

Common Synonyms: Rozol, Quick, Muriol, Caid, Afnor

Physical Properties:

		<u>Reference</u>
Molecular Weight	374.83	Empirical
Water Solubility, mg/L	4.7E-02	GEMS - E
Vapor Pressure, mm Hg	9.6E-14	GEMS - E
Henry's Law Constant, atm-m ³ /mole	1.1E-12	GEMS - E
Octanol-Water Partition Coefficient	3.1E+05	GEMS - E
Carbon matter partition Coefficient, L/g	1.9E+05	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	8.7E+03	Calculated from Kow
Bioaccumulation in Shellfish	2.2E+03	Calculated from Kow
Soil-to-Edible Plant	6.5E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.7E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	2.4E-03	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.1E-04	= ing
Ingestion Reference Dose, mg/kg/d	7.1E-04	RTECS-T; see footnote (a)

(a) RTECS Oral LD50	mg/kg
Animal	<u>LD50</u>
Mouse	1.06
Rat	2.10
Rabbit	<u>50.00</u>
Average	17.7 mg/kg

$$\text{RfD} = 1.7 \times 4 \times 10^{-4} \text{ mg/kg/d.}$$

3.336 Data Summary for SAFROLE

CAS: 94597

Common Synonyms: Safrole, Phynoo oil, Shikomol

Physical Properties:

Molecular Weight	162.19	Empirical
Water Solubility, mg/L	1.5E+03	Jaber et al. (1984)
Vapor Pressure, mm Hg	9.1E-04	Jaber et al. (1984)
Henry's Law Constant, atm-m ³ /mole	1.3E-07	see footnote (a)
Octanol-Water Partition Coefficient	3.4E+02	Jaber et al. (1984)
Carbon matter partition Coefficient, L/g	7.8E+01	Method K-1

ReferenceEnvironmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+06	VOL-S

ReferenceEnvironmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	4.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	8.4E+00	Calculated from Kow
Soil-to-Edible Plant	3.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	8.5E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	2.7E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.5E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

ReferenceChemical Toxicity Parameters:

Inhalation Cancer Potency Factor, kg-d/mg	2.5E-02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	2.5E-02	Salée (1984)
Inhalation Reference Dose, mg/kg/d	2.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-03	EPA (1986b)

Reference

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.337 Data Summary for SELENIUM

CAS: 7782492

Common Synonyms: Selenium

Physical Properties:

		<u>Reference</u>
Molecular Weight	79.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	0.0E+00	EPA (1981)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.7E+02	Napier et al. (1980)
Bioaccumulation in Shellfish	1.7E+02	Napier et al. (1980)
Soil-to-Edible Plant	1.3E+00	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	1.0E+00	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.3E-02	Napier et al. (1980)
Water Purification Factor	.80	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-03	EPA (1984an)
Ingestion Reference Dose, mg/kg/d	3.0E-03	EPA (1984an)

3.338 Data Summary for SILICATE ION

CAS: 6834920

Common Synonyms: Silicate ion

Physical Properties:

Molecular Weight	92.10	Empirical
Water Solubility, mg/L	0	No value in data base

ReferenceEnvironmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

ReferenceEnvironmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.5E+00	Streng et al. (1986)
Bioaccumulation in Shellfish	2.5E+01	Streng et al. (1986)
Soil-to-Edible Plant	1.5E-04	Streng et al. (1986)
Feed-to-Animal Meat, d/kg	4.0E-05	Streng et al. (1986)
Feed-to-Cow Milk, d/L	1.0E-04	Streng et al. (1986)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

ReferenceChemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	7.0E-01	TLV; see footnote (a)
Ingestion Reference Dose, mg/kg/d	2.0E-01	RTECS - T; see footnote (b)

Reference

(a) Inhalation TLV silica gel, precipitated silic = 10 mg/kg.

10 mg/kg x .07 = 7.0E-01.

(b) LD₅₀ dog = 250 mg/kg

mouse = 770 mg/kg

500 mg/kg x 1 x 4 x 10⁻⁵ = 2.0E-01.

3.339 Data Summary for SILVER

CAS: 7440224

Common Synonyms: Silver

Physical Properties:

		<u>Reference</u>
Molecular Weight	108.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	0.0E+00	Callahan et al. (1979)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.3E+00	Napier et al. (1980)
Bioaccumulation in Shellfish	7.7E+02	Napier et al. (1980)
Soil-to-Edible Plant	1.5E-01	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	1.7E-02	Streng et al. (1986)
Feed-to-Cow Milk, d/L	2.5E-02	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-03	IRIS

3.340 Data Summary for SILVEX

CAS: 93721

Common Synonyms: Silvex, Propon, Aqua-vex

Physical Properties:

		<u>Reference</u>
Molecular Weight	269.50	Empirical
Water Solubility, mg/L	4.3E+03	Method S-3
Vapor Pressure, mm Hg	9.2E-07	Method VP-2
Henry's Law Constant, atm-m ³ /mole	8.4E-11	see footnote (a)
Octanol-Water Partition Coefficient	8.5E+03	PCALC
Carbon matter partition Coefficient, L/g	5.3E+03	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	5.7E+02	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.2E+02	Calculated from K _{ow}
Soil-to-Edible Plant	5.2E-02	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	2.1E-04	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	6.8E-05	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	8.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	8.0E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.341 Data Summary for SODIUM HYDROXIDE

CAS: 1310732

Common Synonyms: Sodium hydroxide, Sodium hydrate, Soda lye

Physical Properties:

		<u>Reference</u>
Molecular Weight	46.00	Empirical
Water Solubility, mg/L	4.2E+04	Weast (1979)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.4E-02	TLV
Ingestion Reference Dose, mg/kg/d	1.4E-02	= inh

3.342 Data Summary for SODIUM ION

CAS: 7647145

Common Synonyms: Sodium ion (as sodium chloride)

Physical Properties:

Molecular Weight	22.99	RTECS - D
Water Solubility, mg/L	3.6E+04	Weast (1979)

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+02	Napier et al. (1980)
Bioaccumulation in Shellfish	2.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	5.0E-02	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-02	Napier et al. (1980)
Feed-to-Cow Milk, d/L	4.0E-02	Napier et al. (1980)
Water Purification Factor	.90	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	3.0E+02	= ing
Ingestion Reference Dose, mg/kg/d	3.0E+02	see footnote (a)

(a) Average intake of sodium is 1600 to 9600 mg/day.

RfD is set to twice the higher value

$$\text{RfD} = \frac{9600 \text{ ug/day}}{70 \text{ kg}} \times 2 = 300 \text{ mg/kg/d.}$$

3.343 Data Summary for STRONTIUM ION

CAS: 10476854

Common Synonyms: Strontium ion (as strontium chloride)

Physical Properties:

		<u>Reference</u>
Molecular Weight	87.62	Weast (1979)
Water Solubility, mg/L	5.4E+05	Weast (1979)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.0E+01	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+02	Napier et al. (1980)
Soil-to-Edible Plant	2.0E-01	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	3.0E-04	Napier et al. (1980)
Feed-to-Cow Milk, d/L	1.5E-03	Napier et al. (1980)
Water Purification Factor	.20	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.7E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.7E-01	RTECS - T; see footnote (a)

(a) RTECS Oral LD50 mg/kg

Animal	<u>LD50</u>
Mouse	3,100
Rat	2,250
Rabbit	<u>7,500</u>
Average	4,283

$$RfD = 4283 \times 4 \times 10^{-5} = 0.17 \text{ mg/kg/d.}$$

3.344 Data Summary for STYRENE

CAS: 100425

Common Synonyms: Styrene, Cinnamene, Styron

Physical Properties:

		<u>Reference</u>
Molecular Weight	104.16	Empirical
Water Solubility, mg/L	3.2E+02	CHEMEST
Vapor Pressure, mm Hg	1.0E+02	CHEMEST
Henry's Law Constant, atm-m ³ /mole	4.7E-03	see footnote (a)
Octanol-Water Partition Coefficient	8.9E+02	Kaitani and Hansch
Carbon matter partition Coefficient, L/g	5.5E+02	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	1.8E+04	Selicki et al. (1978); Datta and Rao (1979)
In Water, days	6.9E+07	Default
In Soil, days	1.2E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.0E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.9E+01	Calculated from Kow
Soil-to-Edible Plant	1.9E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.2E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	7.1E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.3E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-01	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.345 Data Summary for STYRENE-BUTADIENE

CAS: 9003558

Common Synonyms: Styrene-butadiene co-polymer

Physical Properties:

		<u>Reference</u>
Molecular Weight	158.11	Empirical
Water Solubility, mg/L	6.6E+00	GEMS - E
Vapor Pressure, mm Hg	1.2E-02	GEMS - E
Henry's Law Constant, atm-m ³ /mole	4.1E-04	GEMS - E
Octanol-Water Partition Coefficient	1.2E+04	GEMS - E
Carbon matter partition Coefficient, L/g	7.3E+03	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	9.1E+04	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.4E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.6E+02	Calculated from Kow
Soil-to-Edible Plant	4.3E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	9.5E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.1E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	6.2E-03	see footnote (a)
Ingestion Cancer Potency Factor, kg-d/mg	6.2E-03	= inh

(a) No data available on toxicity of styrene butadiene polymer.

IRIS lists a CPF of 1.8 for inhalation of butadiene.

For MEPAS, the inhalation CPF will be used with modifications as follows:

- 1) The fraction of styrene-butadiene that is butadiene is 54/158 (stoichiometric correction) = 0.342.
- 2) Because the butadiene is bound in the styrene butadiene polymer and less available to cause injury, an arbitrary factor of 10^{-2} is applied.

Then, CPF inhalation = $1.8 \times 0.342 \times 10^{-2} = 6.2 \times 10^{-3}$.

3.346 Data Summary for SULFATE

CAS: 12808798

Common Synonyms: Sulfate ion

Physical Properties:

Molecular Weight	96.06	Empirical
Water Solubility, mg/L		No value in data base

ReferenceEnvironmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

ReferenceEnvironmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

ReferenceChemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	7.0E-02	see footnote (a)
Ingestion Reference Dose, mg/kg/d	7.1E+01	see footnote (b)

Reference

- (a) Inhalation: TLV for sulfuric acid is 1 mg/m^3 .
 (b) Ingestion: secondary standard = 250 mg/L

$$250 \text{ mg} \times 2 \frac{\text{L}}{\text{d}} \times \frac{1}{70} = 7.14 \text{ mg/kg/d}$$

Set RfD = 7.14×10 to account for secondary standard not being health-based.

3.347 Data Summary for SULFURIC ACID

CAS: 7664939

Common Synonyms: Sulfuric acid, Dipping acid, Sulfuric acid, Oil of vitriol

Physical Properties:

		<u>Reference</u>
Molecular Weight	98.06	Empirical
Water Solubility, mg/L	1.0E+06	Method S-4

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	0.0E+00	Pathway not used
Bioaccumulation in Shellfish	0.0E+00	Pathway not used
Soil-to-Edible Plant	0.0E+00	Pathway not used
Feed-to-Animal Meat, d/kg	0.0E+00	Pathway not used
Feed-to-Cow Milk, d/L	0.0E+00	Pathway not used
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.0E-03	TLV
Ingestion Reference Dose, mg/kg/d	7.0E-03	= inh

3.348 Data Summary for TATB 3NH2-3NO2-BNZNE

CAS: 3058386

Common Synonyms: TATB 3NH2-3NO2-BNZNE

Physical Properties:

		<u>Reference</u>
Molecular Weight	258.15	Empirical
Water Solubility, mg/L	2.6E+02	GEMS - E
Vapor Pressure, mm Hg	7.4E-15	GEMS - E
Henry's Law Constant, atm-m ³ /mole	9.1E-18	see footnote (a)
Octanol-Water Partition Coefficient	1.2E+01	GEMS - E
Carbon matter partition Coefficient, L/g	7.5E+00	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	4.0E+00	Calculated from Kow
Bioaccumulation in Shellfish	5.6E-01	Calculated from Kow
Soil-to-Edible Plant	2.3E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.1E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	9.8E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-02	see footnote (b)
Ingestion Reference Dose, mg/kg/d	1.0E-02	see footnote (b)

(a) Calculated from water solubility and vapor pressure.

(b) Chemical toxicity based on values for o-nitroaniline because of similarity of ring constituents.

3.349 Data Summary for 2,3,7,8TCDD DIOXIN

CAS: 1746016

Common Synonyms: 2,3,7,8-Tetrachlorodibenzo-p-Dioxin, TCDD

Physical Properties:

		<u>Reference</u>
Molecular Weight	322.00	Empirical
Water Solubility, mg/L	2.0E-04	EPA (1984ao)
Vapor Pressure, mm Hg	1.7E-06	EPA (1984ao)
Henry's Law Constant, atm-m ³ /mole	3.6E-03	see footnote (a)
Octanol-Water Partition Coefficient	5.3E+06	EPA (1984ao)
Carbon matter partition Coefficient, L/g	3.3E+06	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	7.5E+04	Calculated from Kow
Bioaccumulation in Shellfish	2.3E+04	Calculated from Kow
Soil-to-Edible Plant	1.3E-03	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.5E-02	Travis and Arms (1988)
Feed-to-Cow Milk, d/L	1.0E-02	Travis and Arms (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.1E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.6E+05	= ing
Ingestion Cancer Potency Factor, kg-d/mg	1.6E+05	EPA (1984ao)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.350 Data Summary for TERSAN 1991

CAS: 17804352

Common Synonyms: Tersan 1991, Benlat, MBC

Physical Properties:

		<u>Reference</u>
Molecular Weight	290.36	Empirical
Water Solubility, mg/L	1.4E-01	GEMS - E
Vapor Pressure, mm Hg	2.2E-01	GEMS - E
Henry's Law Constant, atm-m ³ /mole	8.4E-05	see footnote (a)
Octanol-Water Partition Coefficient	2.0E+02	PCALC
Carbon matter partition Coefficient, L/g	1.2E+02	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.6E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.3E+01	Calculated from Kow
Bioaccumulation in Shellfish	5.5E+00	Calculated from Kow
Soil-to-Edible Plant	4.5E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.0E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.6E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.6E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-02	IRIS

(a) From ICF (1987b) as calculated from solubility and vapor pressure.

3.351 Data Summary for 1,2,4,5-TETRACHLOROB

CAS: 95943

Common Synonyms: 1,2,4,5-Tetrachlorobenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	215.90	Empirical
Water Solubility, mg/L	6.0E+00	Dawson et al. (1980)
Vapor Pressure, mm Hg	5.0E-02	Slimak et al. (1979)
Henry's Law Constant, atm-m ³ /mole	2.4E-03	see footnote (a)
Octanol-Water Partition Coefficient	4.7E+04	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	1.6E+03	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.1E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.8E+03	Lyman et al. (1982)
Bioaccumulation in Shellfish	4.8E+02	Calculated from Kow
Soil-to-Edible Plant	1.9E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.2E-03	Calculated from Kow
Feed-to-Cow Milk, d/L	3.7E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.6E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.352 Data Summary for 1,1,1,2-TETRACHLOROE

CAS: 630206

Common Synonyms: 1,1,1,2-Tetrachloroethane

Physical Properties:

		<u>Reference</u>
Molecular Weight	167.85	Empirical
Water Solubility, mg/L	2.9E+03	Verschueren (1983)
Vapor Pressure, mm Hg	5.0E+00	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	4.9E-04	see footnote (a)
Octanol-Water Partition Coefficient	1.1E+03	GEMS - E
Carbon matter partition Coefficient, L/g	6.7E+02	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.2E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.2E+02	Calculated from Kow
Bioaccumulation in Shellfish	2.2E+01	Calculated from Kow
Soil-to-Edible Plant	1.7E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.7E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	8.5E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.3E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.6E-02	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	2.6E-02	IRIS
Ingestion Reference Dose, mg/kg/d	3.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.353 Data Summary for 1,1,2,2-TETRACHLOROET

CAS: 79345

Common Synonyms: 1,1,2,2-Tetrachloroethane, Cello

Physical Properties:

		<u>Reference</u>
Molecular Weight	167.85	Empirical
Water Solubility, mg/L	2.9E+03	EPA (1984ap)
Vapor Pressure, mm Hg	5.0E+00	EPA (1984ap)
Henry's Law Constant, atm-m ³ /mole	3.8E-04	see footnote (a)
Octanol-Water Partition Coefficient	2.5E+02	EPA (1984ap)
Carbon matter partition Coefficient, L/g	1.2E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.2E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	6.5E+00	Calculated from Kow
Soil-to-Edible Plant	4.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.2E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.9E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.3E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.0E-01	= ing
Ingestion Cancer Potency Factor, kg-d/mg	2.0E-01	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.354 Data Summary for 2,3,4,6,-TETRACHLORO

CAS: 58902

Common Synonyms: 2,3,4,6,-Tetrahlorophenol, Dowicide 6

Physical Properties:

		<u>Reference</u>
Molecular Weight	231.89	Empirical
Water Solubility, mg/L	1.0E+03	Dawson et al. (1980)
Vapor Pressure, mm Hg	9.1E-04	Method VP-1
Henrys Law Constant, atm-m ³ /mole	3.1E-07	see footnote (a)
Octanol-Water Partition Coefficient	1.3E+04	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	1.7E+04	Method K-2

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.1E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.7E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.6E+02	Calculated from Kow
Soil-to-Edible Plant	4.1E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.2E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	1.0E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.355 Data Summary for TETRACHLOROETHYLENE

CAS: 127184

Common Synonyms: Tetrachloroethylene, Ankilostin, PCE

Physical Properties:

		<u>Reference</u>
Molecular Weight	165.85	Empirical
Water Solubility, mg/L	1.5E+02	EPA (1984aq)
Vapor Pressure, mm Hg	1.8E+01	EPA (1984aq)
Henry's Law Constant, atm-m ³ /mole	2.6E-02	see footnote (a)
Octanol-Water Partition Coefficient	4.0E+02	EPA (1984aq)
Carbon matter partition Coefficient, L/g	3.6E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.1E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	5.6E+01	Calculated from Kow
Bioaccumulation in Shellfish	9.6E+00	Calculated from Kow
Soil-to-Edible Plant	3.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	3.2E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.1E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.7E-03	EPA (1984aq)
Ingestion Cancer Potency Factor, kg-d/mg	5.1E-02	EPA (1984aq)
Ingestion Reference Dose, mg/kg/d	1.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.356 Data Summary for TETRAETHYLDITHIOPYRO

CAS: 3689245

Common Synonyms: Tetraethyl dithio pyrophosphate, Pirofos

Physical Properties:

		<u>Reference</u>
Molecular Weight	322.34	Empirical
Water Solubility, mg/L	6.6E-01	Verschueren (1983)
Vapor Pressure, mm Hg	1.7E-04	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	1.8E-06	see footnote (a)
Octanol-Water Partition Coefficient	8.9E+03	see footnote (b)
Carbon matter partition Coefficient, L/g	5.5E+03	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.7E+06	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	5.9E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.2E+02	Calculated from Kow
Soil-to-Edible Plant	5.0E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.2E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	7.1E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.8E-04	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-04	IRIS

- (a) From ICF (1987a) as calculated from solubility and vapor pressure.
 (b) Estimated from the inverse of Method K-2.

3.357 Data Summary for TETRAHYDRO FURAN

CAS: 109999

Common Synonyms: Tetrahydro furan, Dethylene oxide

Physical Properties:

		<u>Reference</u>
Molecular Weight	72.11	Empirical
Water Solubility, mg/L	6.9E+04	GEMS - E
Vapor Pressure, mm Hg	3.7E+02	GEMS - E
Henrys Law Constant, atm-m ³ /mole	5.1E-04	see footnote (a)
Octanol-Water Partition Coefficient	2.9E+00	GEMS - M
Carbon matter partition Coefficient, L/g	1.8E+00	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.4E+00	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.3E+00	Calculated from Kow
Bioaccumulation in Shellfish	1.7E-01	Calculated from Kow
Soil-to-Edible Plant	5.3E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.2E-08	Calculated from Kow
Feed-to-Cow Milk, d/L	2.3E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.0E-06	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.1E+00	TLV
Ingestion Reference Dose, mg/kg/d	4.1E+00	= inh

(a) Calculated from solubility and vapor pressure.

3.358 Data Summary for THALLIUM

CAS: 7440280

Common Synonyms: Thallium, Fomor

Physical Properties:

		<u>Reference</u>
Molecular Weight	204.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)
Vapor Pressure, mm HG	0.0E+00	EPA (1981)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.0E+04	Streng et al. (1986)
Bioaccumulation in Shellfish	1.5E+04	Streng et al. (1986)
Soil-to-Edible Plant	2.5E-01	Streng et al. (1986)
Feed-to-Animal Meat, d/kg	4.0E-02	Streng et al. (1986)
Feed-to-Cow Milk, d/L	2.2E-02	Streng et al. (1986)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	4.0E-04	EPA (1986b)

3.359 Data Summary for TIN

CAS: 7440315

Common Synonyms: Tin, Zinn

Physical Properties:

Molecular Weight	118.69	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	3.0E+03	Napier et al. (1980)
Bioaccumulation in Shellfish	1.0E+03	Napier et al. (1980)
Soil-to-Edible Plant	2.5E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	8.0E-02	Streng et al. (1986)
Feed-to-Cow Milk, d/L	1.3E-03	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	1.4E-02	TLV
Ingestion Reference Dose, mg/kg/d	1.0E-02	EPA (1986b)

3.360 Data Summary for TNT 3NO2-TOLUENE

CAS: 118967

Common Synonyms: TNT, Trinitrotoluene (dry)

Physical Properties:

		<u>Reference</u>
Molecular Weight	227.13	Empirical
Water Solubility, mg/L	4.8E+02	Windholtz et al. (1976)
Vapor Pressure, mm Hg	9.0E-08	Clayton and Clayton (1981)
Henry's Law Constant, atm-m ³ /mole	1.4E-04	see footnote (a)
Octanol-Water Partition Coefficient	7.8E+01	PCALC
Carbon matter partition Coefficient, L/g	1.8E+01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.6E+01	Calculated from Kow
Bioaccumulation in Shellfish	2.5E+00	Calculated from Kow
Soil-to-Edible Plant	7.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.9E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	6.2E-07	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.3E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	5.0E-04	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.361 Data Summary for TOLUENE

CAS: 108883

Common Synonyms: Toluene, Toluol

Physical Properties:

		<u>Reference</u>
Molecular Weight	92.15	Empirical
Water Solubility, mg/L	5.4E+02	EPA (1984ar)
Vapor Pressure, mm Hg	2.8E+01	EPA (1984ar)
Henry's Law Constant, atm-m ³ /mole	6.4E-03	see footnote (a)
Octanol-Water Partition Coefficient	5.4E+02	EPA (1984ar)
Carbon matter partition Coefficient, L/g	3.0E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.2E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	7.0E+01	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.2E+01	Calculated from K _{ow}
Soil-to-Edible Plant	2.6E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	1.3E-05	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	4.3E-06	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.9E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.5E+00	EPA (1984ar)
Ingestion Reference Dose, mg/kg/d	3.0E-01	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.362 Data Summary for TOLUENE DIISOCYANATE

CAS: 584849

Common Synonyms: Toluene diisocyanate, Hylenet

Physical Properties:

		<u>Reference</u>
Molecular Weight	174.18	Empirical
Water Solubility, mg/L	1.2E+02	see footnote (a)
Vapor Pressure, mm Hg	6.8E+02	see footnote (a)
Henry's Law Constant, atm-m ³ /mole	3.6E+00	see footnote (a)
Octanol-Water Partition Coefficient	4.1E+03	see footnote (a)
Carbon matter partition Coefficient, L/g	2.6E+03	see footnote (a)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.6E+00	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.3E+02	Calculated from Kow
Bioaccumulation in Shellfish	6.6E+01	Calculated from Kow
Soil-to-Edible Plant	7.9E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	3.3E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.8E-04	TLV
Ingestion Reference Dose, mg/kg/d	2.8E-04	= inh

- (a) Physical properties evaluated using GEMS for a similar compound in which the two isocyanate groups (-NCO) were replaced with the group -NCCl₂. GEMS does not recognize the isocyanate structure.

3.363 Data Summary for TORDON 22K

CAS: 2545600

Common Synonyms: Tordon 22K, 4-amino-3,5,6-trichloro-Picolinic acid K-salt, Picloram

Physical Properties:

		<u>Reference</u>
Molecular Weight	280.56	RTECS - D
Water Solubility, mg/L	1.6E+03	GEMS - E
Vapor Pressure, mm Hg	1.5E-06	GEMS - E
Henrys Law Constant, atm-m ³ /mole	3.2E-10	GEMS - E
Octanol-Water Partition Coefficient	2.3E+02	GEMS - E
Carbon matter partition Coefficient, L/g	1.4E+02	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	3.6E+01	Calculated from Kow
Bioaccumulation in Shellfish	6.1E+00	Calculated from Kow
Soil-to-Edible Plant	4.2E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.7E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.8E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	7.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	7.0E-02	IRIS

3.364 Data Summary for TOXAPHENE

CAS: 8001352

Common Synonyms: Toxaphene, Phenacide, Motox

Physical Properties:

		<u>Reference</u>
Molecular Weight	414.00	Empirical
Water Solubility, mg/L	5.0E-01	Mabey et al. (1982)
Vapor Pressure, mm Hg	4.0E-01	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	4.4E-01	see footnote (a)
Octanol-Water Partition Coefficient	2.0E+03	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	9.6E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.3E+03	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.9E+02	Calculated from Kow
Bioaccumulation in Shellfish	3.6E+01	Calculated from Kow
Soil-to-Edible Plant	1.2E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.6E-03	Travis et al. (1988)
Feed-to-Cow Milk, d/L	6.3E-04	Travis et al. (1988)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.2E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.1E+00	IRIS
Ingestion Cancer Potency Factor, kd-d/mg	1.1E+00	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.365 Data Summary for TRIBROMOMETHANE

CAS: 75252

Common Synonyms: Tribromomethane, Bromoform

Physical Properties:

		<u>Reference</u>
Molecular Weight	252.75	Empirical
Water Solubility, mg/L	3.0E+03	Mabey et al. (1982)
Vapor Pressure, mm Hg	5.0E+00	Mabey et al. (1982)
Henry's Law Constant, atm-m ³ /mole	5.5E-04	see footnote (a)
Octanol-Water Partition Coefficient	2.5E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.2E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.0E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	6.6E+00	Calculated from Kow
Soil-to-Edible Plant	4.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.3E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	2.0E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-05	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.366 Data Summary for TRIBUTYL PHOSPHATE

CAS: 126738

Common Synonyms: Tributyl phosphate, Celluphos 4

Physical Properties:

		<u>Reference</u>
Molecular Weight	266.32	Empirical
Water Solubility, mg/L	2.8E+02	GEMS - M
Vapor Pressure, mm Hg	1.5E+01	GEMS - M
Henry's Law Constant, atm-m ³ /mole	1.9E-02	see footnote (a)
Octanol-Water Partition Coefficient	9.8E+03	GEMS - M
Carbon matter partition Coefficient, L/g	6.0E+03	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.7E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	6.3E+02	Calculated from Kow
Bioaccumulation in Shellfish	1.3E+02	Calculated from Kow
Soil-to-Edible Plant	4.8E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.5E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	7.8E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.1E-05	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.7E-02	TLV
Ingestion Reference Dose, mg/kg/d	1.7E-02	= inh

(a) From ICF (1987b) as calculated from water solubility and vapor pressure.

3.367 Data Summary for 1,2,4TRICHLOROBENZNE

CAS: 120821

Common Synonyms: 1,2,4-Trichlorobenzene, unsym-Trichlorobenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	181.45	Empirical
Water Solubility, mg/L	3.0E+01	Mabey et al. (1982)
Vapor Pressure, mm Hg	2.9E-01	Mabey et al. (1982)
Henrys Law Constant, atm-m ³ /mole	2.3E-03	see footnote (a)
Octanol-Water Partition Coefficient	2.0E+04	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	9.2E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.7E+03	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.1E+03	Calculated from Kow
Bioaccumulation in Shellfish	2.4E+02	Calculated from Kow
Soil-to-Edible Plant	3.2E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	5.0E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	1.6E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	8.9E-05	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.368 Data Summary for 1,1,1-TRICHLOROETHAN

CAS: 71556

Common Synonyms: 1,1,1-Trichloroethane, Methyl chloroform

Physical Properties:

		<u>Reference</u>
Molecular Weight	133.41	Empirical
Water Solubility, mg/L	1.5E+03	EPA (1984as)
Vapor Pressure, mm Hg	1.2E+02	EPA (1984as)
Henry's Law Constant, atm-m ³ /mole	1.4E-02	see footnote (a)
Octanol-Water Partition Coefficient	3.2E+02	Mabey et al. (1982)
Carbon matter partition Coefficient, L/g	1.5E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	1.8E+03	EPA (1984as)
In Water, days	6.9E+07	Default
In Soil, days	9.1E+00	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	9.0E+00	EPA (1980h)
Bioaccumulation in Shellfish	8.0E+00	Calculated from Kow
Soil-to-Edible Plant	3.5E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.9E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	2.5E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.1E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	5.7E-02	= ing
Ingestion Cancer Potency Factor, kg-d/mg	5.7E-02	EPA (1984as)
Inhalation Reference Dose, mg/kg/d	9.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	9.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.369 Data Summary for 1,1,2-TRICHLOROETHAN

CAS: 79005

Common Synonyms: 1,1,2-Trichloroethane, Vinyl trichloride

Physical Properties:

		<u>Reference</u>
Molecular Weight	133.41	Empirical
Water Solubility, mg/L	4.5E+03	EPA (1984at)
Vapor Pressure, mm Hg	3.0E+01	EPA (1984at)
Henrys Law Constant, atm-m ³ /mole	1.2E-03	see footnote (a)
Octanol-Water Partition Coefficient	3.0E+02	EPA (1984at)
Carbon matter partition Coefficient, L/g	5.6E+01	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	3.7E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.9E+01	Lyman et al. (1982)
Bioaccumulation in Shellfish	7.5E+00	Calculated from Kow
Soil-to-Edible Plant	3.6E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	7.4E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	2.3E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.6E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	5.7E-02	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	5.7E-02	IRIS
Ingestion Reference Dose, mg/kg/d	4.0E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.370 Data Summary for TRICHLOROETHYLENE

CAS: 79016

Common Synonyms: Trichloroethylene, Vitran, TCE

Physical Properties:

		<u>Reference</u>
Molecular Weight	131.29	Empirical
Water Solubility, mg/L	1.1E+03	EPA (1984au)
Vapor Pressure, mm Hg	5.8E+01	EPA (1984au)
Henry's Law Constant, atm-m ³ /mole	9.1E-03	see footnote (a)
Octanol-Water Partition Coefficient	2.4E+02	EPA (1984au)
Carbon matter partition Coefficient, L/g	1.3E+02	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.9E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.8E+01	Calculated from Kow
Bioaccumulation in Shellfish	6.4E+00	Calculated from Kow
Soil-to-Edible Plant	4.1E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.0E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	1.9E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.2E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	1.3E-02	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	1.1E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.371 Data Summary for TRICL-HEPTAF-BUTANE

CAS: C4CL3F7

Common Synonyms: Trichloroheptafluorobutane

Physical Properties:

		<u>Reference</u>
Molecular Weight	287.39	Empirical
Water Solubility, mg/L	8.4E+01	GEMS - E
Vapor Pressure, mm Hg	4.3E+01	GEMS - E
Henrys Law Constant, atm-m ³ /mole	2.1E-01	GEMS - E
Octanol-Water Partition Coefficient	5.8E+03	GEMS - E
Carbon matter partition Coefficient, L/g	3.6E+03	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.3E+01	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	4.2E+02	Calculated from Kow
Bioaccumulation in Shellfish	8.6E+01	Calculated from Kow
Soil-to-Edible Plant	6.5E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.4E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	4.6E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.2E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	5.6E-02	= ing
Ingestion Reference Dose, mg/kg/d	5.6E-02	RTECS - T; see footnote (a)

- (a) RTECS small-animal oral LD₅₀ values for tetra-, penta-, and hexachloro substituted butanes average about 1400 mg/kg.
 RfD = 1400 mg/kg x 4 x 10⁻⁵ = 0.056 mg/kg/d.

3.372 Data Summary for TRICHLOROMETHANETHIO

CAS: 594423

Common Synonyms: Trichloromethanethiol, Perchloro-methyl mercaptan, Clairsit

Physical Properties:

		<u>Reference</u>
Molecular Weight	151.44	Empirical
Water Solubility, mg/L	1.1E+03	Method S-1
Vapor Pressure, mm Hg	4.0E+00	Method VP-1
Henrys Law Constant, atm-m ³ /mole	8.1E-04	see footnote (a)
Octanol-Water Partition Coefficient	3.4E+02	CLOGP#
Carbon matter partition Coefficient, L/g	2.1E+02	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	2.8E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	4.9E+01	Calculated from Kow
Bioaccumulation in Shellfish	8.4E+00	Calculated from Kow
Soil-to-Edible Plant	3.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	8.5E-06	Calculated from Kow
Feed-to-Cow Milk, d/L	2.7E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.7E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.9E+00	= ing
Ingestion Reference Dose, mg/kg/d	1.9E+00	Salée (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.373 Data Summary for TRICHLOROMONOFUOROM

CAS: 75694

Common Synonyms: Trichloromonofluoromethane, Arcton 9, Freon 11

Physical Properties:

Molecular Weight	137.40
Water Solubility, mg/L	1.1E+03
Vapor Pressure, mm Hg	6.7E+02
Henry's Law Constant, atm-m ³ /mole	1.1E-01
Octanol-Water Partition Coefficient	3.4E+02
Carbon matter partition Coefficient, L/g	1.6E+02

Reference

Empirical
Mabey et al. (1982)
Mabey et al. (1982)
see footnote (a)
Callahan et al. (1979)
Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07
In Water, days	6.9E+07
In Soil, days	1.7E+00

Reference

Default
Default
VOL-S

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	4.9E+01
Bioaccumulation in Shellfish	8.4E+00
Soil-to-Edible Plant	3.3E-01
Feed-to-Animal Meat, d/kg	8.5E-06
Feed-to-Cow Milk, d/L	2.7E-06
Water Purification Factor	1.00
Deposition Velocity, m/sec	2.4E-07
Atmospheric Deposition Class	5

Reference

Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Default
Method DVM
Non-depositing Gas

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	3.0E-01
Ingestion Reference Dose, mg/kg/d	3.0E-01

Reference

= ing
IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.374 Data Summary for 2,4,5-TRICHLOROPHENO

CAS: 95954

Common Synonyms: 2,4,5-Trichlorophenol, Nurelle

Physical Properties:

		<u>Reference</u>
Molecular Weight	197.44	Empirical
Water Solubility, mg/L	1.2E+03	EPA (1984av)
Vapor Pressure, mm Hg	1.0E+00	EPA (1984av)
Henry's Law Constant, atm-m ³ /mole	2.2E-04	see footnote (a)
Octanol-Water Partition Coefficient	5.3E+03	EPA (1984av)
Carbon matter partition Coefficient, L/g	8.9E+01	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.7E+03	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.9E+03	Lyman et al. (1982)
Bioaccumulation in Shellfish	8.0E+01	Calculated from Kow
Soil-to-Edible Plant	6.9E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.3E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	4.2E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.8E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-01	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-01	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.375 Data Summary for 2,4,6-TRICHLOROPHENO

CAS: 88062

Common Synonyms: 2,4,6-Trichlorophenol, Omal

Physical Properties:

		<u>Reference</u>
Molecular Weight	197.44	Empirical
Water Solubility, mg/L	8.0E+02	EPA (1984aw)
Vapor Pressure, mm Hg	1.2E-02	EPA (1984aw)
Henry's Law Constant, atm-m ³ /mole	3.9E-06	see footnote (a)
Octanol-Water Partition Coefficient	7.4E+03	EPA (1984aw)
Carbon matter partition Coefficient, L/g	2.0E+03	Mabey et al. (1982)

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	8.7E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.0E+01	EPA (1980i)
Bioaccumulation in Shellfish	1.1E+02	Calculated from Kow
Soil-to-Edible Plant	5.6E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.9E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	5.9E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	9.3E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.0E-02	IRIS
Ingestion Cancer Potency Factor, kg-d/mg	2.0E-02	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.376 Data Summary for 1,2,3TRICHLOROPRPANE

CAS: 96184

Common Synonyms: 1,2,3-Trichloropropane, NCl-C60220

Physical Properties:

		<u>Reference</u>
Molecular Weight	147.43	Empirical
Water Solubility, mg/L	4.0E+03	Method S-1
Vapor Pressure, mm Hg	5.8E+00	Method VP-1
Henry's Law Constant, atm-m ³ /mole	3.1E-04	see footnote (a)
Octanol-Water Partition Coefficient	3.7E+04	PCALC
Carbon matter partition Coefficient, L/g	6.3E+01	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.9E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.8E+03	Calculated from Kow
Bioaccumulation in Shellfish	4.0E+02	Calculated from Kow
Soil-to-Edible Plant	2.2E-02	Calculated from Kow
Feed-to-Animal Meat, d/kg	9.3E-04	Calculated from Kow
Feed-to-Cow Milk, d/L	3.0E-04	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.7E-04	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	6.0E-03	= ing
Ingestion Reference Dose, mg/kg/d	6.0E-03	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.377 Data Summary for TRIETHANOLAMINE

CAS: 102716

Common Synonyms: Triethanolamine, 2,2',2''-Nitrilotriethanol

Physical Properties:

		<u>Reference</u>
Molecular Weight	149.22	RTECS - D
Water Solubility, mg/L	1.4E+06	GEMS - E
Vapor Pressure, mm Hg	2.4E-06	GEMS - E
Henrys Law Constant, atm-m ³ /mole	3.8E-13	GEMS - E
Octanol-Water Partition Coefficient	1.8E-02	GEMS - M
Carbon matter partition Coefficient, L/g	1.1E-02	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.8E-02	Calculated from Kow
Bioaccumulation in Shellfish	2.6E-03	Calculated from Kow
Soil-to-Edible Plant	9.9E+01	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.5E-10	Calculated from Kow
Feed-to-Cow Milk, d/L	1.4E-10	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.1E-01	= ing
Ingestion Reference Dose, mg/kg/d	2.1E-01	RTECS - T; see footnote (a)

(a) RTECS Oral LD50 mg/kg

Animal	<u>LD50</u>
Guinea Pig	530
Mouse	7,400
Rat	8,000
Rabbit	<u>5,160</u>
Average	5,270

$$RfD = 4 \times 10^{-5} = 2.1 \times 10^{-1} \text{ mg/kg/d.}$$

3.378 Data Summary for TRIETHYLENE GLYCOL

CAS: 112276

Common Synonyms: Triethylene Glycol, 2,2'-Ethylenedioxy)diethanol

Physical Properties:

		<u>Reference</u>
Molecular Weight	150.18	Empirical
Water Solubility, mg/L	1.4E+06	GEMS - E
Vapor Pressure, mm Hg	8.7E-04	GEMS - E
Henry's Law Constant, atm-m ³ /mole	1.3E-10	GEMS - E
Octanol-Water Partition Coefficient	8.3E-03	GEMS - M
Carbon matter partition Coefficient, L/g	5.1E-03	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.3E+06	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.5E-02	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.4E-03	Calculated from K _{ow}
Soil-to-Edible Plant	1.5E+02	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	2.1E-10	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	6.6E-11	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.4E-01	= ing
Ingestion Reference Dose, mg/kg/d	4.4E-01	RTECS - T; see footnote (a)

(a) RTECS Oral LD50 (mg/kg)

Animal	<u>LD50</u>
Guinea Pig	7,900
Rat	17,000
Rabbit	<u>8,400</u>
Average	11,100

$$RfD = 4 \times 10^{-5} = 0.44 \text{ mg/kg/d.}$$

3.379 Data Summary for TRIMETHYLBENZENE

CAS: 25551137

Common Synonyms: Trimethylbenzene (mixed isomers)

Physical Properties:

		<u>Reference</u>
Molecular Weight	120.21	RTECS - D
Water Solubility, mg/L	6.4E+01	GEMS - E
Vapor Pressure, mm Hg	1.4E+00	GEMS - E
Henrys Law Constant, atm-m ³ /mole	3.7E-01	GEMS - E
Octanol-Water Partition Coefficient	2.6E+03	GEMS - M
Carbon matter partition Coefficient, L/g	1.6E+03	GEMS - E

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	8.4E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	2.3E+02	Calculated from Kow
Bioaccumulation in Shellfish	4.5E+01	Calculated from Kow
Soil-to-Edible Plant	1.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.6E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	2.1E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.5E-07	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	8.8E-01	TLV
Ingestion Reference Dose, mg/kg/d	8.8E-01	= inh

3.3780 Data Summary for 2,4,6-TRIMETHYLPHENO

CAS: 527606

Common Synonyms: 2,4,6-Trimethylphenol

Physical Properties:

		<u>Reference</u>
Molecular Weight	136.20	Empirical
Water Solubility, mg/L	9.5E+01	Method S-1
Vapor Pressure, mm Hg	1.6E-02	Method VP-1
Henrys Law Constant, atm-m ³ /mole	3.3E-05	see footnote (a)
Octanol-Water Partition Coefficient	2.6E+03	CLOGP#
Carbon matter partition Coefficient, L/g	1.6E+03	Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.3E+02	Calculated from Kow
Bioaccumulation in Shellfish	4.5E+01	Calculated from Kow
Soil-to-Edible Plant	1.0E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	6.6E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	2.1E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.8E-04	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	1.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	1.0E-04	EPA (1986b)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.381 Data Summary for TRIS(2,3-DIBROMOPROP

CAS: 126727

Common Synonyms: Tris(2,3-Dibromopropyl)phosphate, Flacavon R

Physical Properties:

Molecular Weight	697.93
Water Solubility, mg/L	1.2E+02
Vapor Pressure, mm Hg	1.9E-04
Henrys Law Constant, atm-m ³ /mole	1.5E-06
Octanol-Water Partition Coefficient	1.3E+04
Carbon matter partition Coefficient, L/g	8.1E+03

Reference

Empirical
Jaber et al. (1984)
IARC (1979)
see footnote (a)
Jaber et al. (1984)
Method K-2

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07
In Water, days	6.9E+07
In Soil, days	4.5E+06

Reference

Default
Default
VOL-S

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	2.7E+00
Bioaccumulation in Shellfish	1.7E+02
Soil-to-Edible Plant	4.0E-02
Feed-to-Animal Meat, d/kg	3.3E-04
Feed-to-Cow Milk, d/L	1.0E-04
Water Purification Factor	1.00
Deposition Velocity, m/sec	9.8E-04
Atmospheric Deposition Class	6

Reference

Lyman et al. (1982)
Calculated from Kow
Calculated from Kow
Calculated from Kow
Calculated from Kow
Default
Method DVM
Gas as Particulate

Chemical Toxicity Parameters:

Inhalation Cancer Potency Factor, kg-d/mg	2.2E-01
Ingestion Cancer Potency Factor, kg-d/mg	2.2E-01

Reference

= ing
Salee (1984)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.382 Data Summary for UO2F2

CAS: 13536840

Common Synonyms: Uranium Oxyfluoride, Uranyl Fluoride

Physical Properties:

Molecular Weight	.00	Empirical
Water Solubility, mg/L		No value in data base

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.0E+00	Napier et al. (1980); see footnote (a)
Bioaccumulation in Shellfish	6.0E+01	Napier et al. (1980); see footnote (a)
Soil-to-Edible Plant	2.5E-03	Napier et al. (1980); see footnote (a)
Feed-to-Animal Meat, d/kg	5.0E-03	Napier et al. (1980); see footnote (a)
Feed-to-Cow Milk, d/L	6.0E-04	Napier et al. (1980); see footnote (a)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	4.2E-05	Just (1984)
Ingestion Reference Dose, mg/kg/d	4.2E-05	= inh

(a) Value for uranium.

3.383 Data Summary for URANIUM

CAS: 7440611

Common Synonyms: Uranium, Pyrophoric

Physical Properties:Reference

Molecular Weight	238.00	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:Media of TransportReference

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer ParameterReference

Bioaccumulation in Fish	2.0E+00	Napier et al. (1980)
Bioaccumulation in Shellfish	6.0E+01	Napier et al. (1980)
Soil-to-Edible Plant	2.5E-03	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	3.4E-04	Streng et al. (1986)
Feed-to-Cow Milk, d/L	2.5E-06	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:Reference

Inhalation Reference Dose, mg/kg/d	1.4E-03	TLV
Ingestion Reference Dose, mg/kg/d	1.4E-03	= inh

3.384 Data Summary for VANADIUM

CAS: 7440622

Common Synonyms: Vanadium

Physical Properties:

Molecular Weight	50.94	Empirical
Water Solubility, mg/L	0.0E+00	Weast (1979)

Environmental Degradation/Removal Half-times:Media of Transport

In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

Bioaccumulation in Fish	1.0E+01	Streng et al. (1986)
Bioaccumulation in Shellfish	3.0E+03	Streng et al. (1986)
Soil-to-Edible Plant	1.3E-03	Streng et al. (1986)
Feed-to-Animal Meat, d/kg	2.3E-03	Streng et al. (1986)
Feed-to-Cow Milk, d/L	1.0E-03	Streng et al. (1986)
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

Inhalation Reference Dose, mg/kg/d	2.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	2.0E-02	EPA (1986b)

3.385 Data Summary for VELSICOL R OR MDBA

CAS: 1918009

Common Synonyms: MDBA, Velsicol compound 'R', Benvel, Dicamba

Physical Properties:

		<u>Reference</u>
Molecular Weight	221.04	Empirical
Water Solubility, mg/L	4.5E+03	EPA (1980u)
Vapor Pressure, mm Hg	2.8E+00	EPA (1980u)
Henry's Law Constant, atm-m ³ /mole	6.8E-04	GEMS - E
Octanol-Water Partition Coefficient	1.0E+03	Travis and Arms (1988)
Carbon matter partition Coefficient, L/g	6.3E+02	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	5.0E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.1E+02	Calculated from Kow
Bioaccumulation in Shellfish	2.1E+01	Calculated from Kow
Soil-to-Edible Plant	1.8E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	2.6E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	8.1E-06	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	2.5E-05	Method DVM
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.0E-02	= ing
Ingestion Reference Dose, mg/kg/d	3.0E-02	IRIS

3.386 Data Summary for VAPONITE

CAS: 62737

Common Synonyms: Vaponite, Dichlorvos, 2,2-dichlorovinyl dimethyl phosphate

Physical Properties:

		<u>Reference</u>
Molecular Weight	220.98	RTECS - D
Water Solubility, mg/L	1.7E+05	GEMS - E
Carbon matter partition coefficient (L/g)	3.15	GEMS - E
Octanol Water partition coefficient	5.12	GEMS - E

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.0E+04	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	2.0E+00	Calculated from Kow
Bioaccumulation in Shellfish	2.7E-01	Calculated from Kow
Soil-to-Edible Plant	3.8E+00	Calculated from Kow
Feed-to-Animal Meat, d/kg	1.3E-07	Calculated from Kow
Feed-to-Cow Milk, d/L	4.1E-08	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	6	Gas as Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	8.0E-04	= ing
Ingestion Reference Dose, mg/kg/d	8.0E-04	IRIS

3.387 Data Summary for VINYL ACETATE

CAS: 108051

Common Synonyms: Vinyl acetate, 1-Acetoxyethylene

Physical Properties:

		<u>Reference</u>
Molecular Weight	86.10	Empirical
Water Solubility, mg/L	2.5E+04	Verschueren (1983)
Vapor Pressure, mm Hg	8.3E+01	Verschueren (1983)
Henry's Law Constant, atm-m ³ /mole	3.8E-04	see footnote (a)
Octanol-Water Partition Coefficient	3.0E+00	PCALC
Carbon matter partition Coefficient, L/g	1.7E+01	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	2.9E+04	Datta and Rao (1979); Joshi et al. (1982)
In Water, days	6.9E+07	Default
In Soil, days	1.5E+01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.3E+00	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.7E-01	Calculated from K _{ow}
Soil-to-Edible Plant	5.2E+00	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	7.4E-08	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	2.3E-08	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	1.4E-06	Method DVM
Atmospheric Deposition Class	4	Depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.1E-01	TLV
Ingestion Reference Dose, mg/kg/d	2.1E-01	= inh

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.388 Data Summary for VINYL CHLORIDE

CAS: 75014

Common Synonyms: Vinyl chloride, Monochloroethylene

Physical Properties:

		<u>Reference</u>
Molecular Weight	62.50	Empirical
Water Solubility, mg/L	2.7E+03	EPA (1984ax)
Vapor Pressure, mm Hg	2.7E+03	EPA (1984ax)
Henry's Law Constant, atm-m ³ /mole	8.2E-02	see footnote (a)
Octanol-Water Partition Coefficient	2.4E+01	EPA (1984ax)
Carbon matter partition Coefficient, L/g	5.7E+01	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	4.8E-01	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	6.6E+00	Calculated from K _{ow}
Bioaccumulation in Shellfish	9.6E-01	Calculated from K _{ow}
Soil-to-Edible Plant	1.5E+00	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	6.0E-07	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	1.9E-07	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.2E-08	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Cancer Potency Factor, kg-d/mg	2.3E+00	= ing
Ingestion Cancer Potency Factor, kg-d/mg	2.3E+00	EPA (1984ax)

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.389 Data Summary for XYLENE (MIXED)

CAS: 1330207

Common Synonyms: Xylene, Benzene (dimethyl)

Physical Properties:

		<u>Reference</u>
Molecular Weight	106.17	Empirical
Water Solubility, mg/L	2.0E+02	Dawson et al. (1980)
Vapor Pressure, mm Hg	1.0E+01	Dawson et al. (1980)
Henry's Law Constant, atm-m ³ /mole	7.0E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.8E+03	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	2.4E+02	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.8E+02	Calculated from K _{ow}
Bioaccumulation in Shellfish	3.3E+01	Calculated from K _{ow}
Soil-to-Edible Plant	1.3E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	4.6E-05	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	1.4E-05	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	6.6E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	2.0E+00	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.390 Data Summary for m-XYLENE

CAS: 108383

Common Synonyms: m-Xylene, 1,3-Dimethylbenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	106.17	Empirical
Water Solubility, mg/L	1.3E+02	Dawson et al. (1980)
Vapor Pressure, mm Hg	1.0E+01	Dawson et al. (1980)
Henry's Law Constant, atm-m ³ /mole	1.1E-02	see footnote (a)
Octanol-Water Partition Coefficient	1.8E+03	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	3.0E+02	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.8E+02	Calculated from Kow
Bioaccumulation in Shellfish	3.3E+01	Calculated from Kow
Soil-to-Edible Plant	1.3E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	4.6E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	1.4E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	4.8E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	2.0E+00	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.391 Data Summary for o-XYLENE

CAS: 95476

Common Synonyms: o-Xylene, 1,2-Dimethylbenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	106.17	Empirical
Water Solubility, mg/L	1.8E+02	Dawson et al. (1980)
Vapor Pressure, mm Hg	1.0E+01	EPA (1981)
Henry's Law Constant, atm-m ³ /mole	8.0E-03	see footnote (a)
Octanol-Water Partition Coefficient	8.9E+02	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	2.6E+02	Method K-1

Environmental Degradation/Removal Half-times:

<u>Media of Transport</u>		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	1.2E+02	VOL-S

Environmental Transfer Factors:

<u>Transfer Parameter</u>		<u>Reference</u>
Bioaccumulation in Fish	1.0E+02	Calculated from K _{ow}
Bioaccumulation in Shellfish	1.9E+01	Calculated from K _{ow}
Soil-to-Edible Plant	1.9E-01	Calculated from K _{ow}
Feed-to-Animal Meat, d/kg	2.2E-05	Calculated from K _{ow}
Feed-to-Cow Milk, d/L	7.1E-06	Calculated from K _{ow}
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	3.6E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	2.0E+00	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.392 Data Summary for P-XYLENE

CAS: 106423

Common Synonyms: P-Xylene, 1,4-Dimethylbenzene

Physical Properties:

		<u>Reference</u>
Molecular Weight	106.17	Empirical
Water Solubility, mg/L	2.0E+02	Dawson et al. (1980)
Vapor Pressure, mm Hg	1.0E+01	Dawson et al. (1980)
Henry's Law Constant, atm-m ³ /mole	7.4E-03	see footnote (a)
Octanol-Water Partition Coefficient	1.4E+03	Dawson et al. (1980)
Carbon matter partition Coefficient, L/g	2.4E+02	Method K-1

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	8.0E+03	Davis (1977); Pate et al. (1976)
In Water, days	6.9E+07	Default
In Soil, days	1.2E+02	VOL-S

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	1.5E+02	Calculated from Kow
Bioaccumulation in Shellfish	2.7E+01	Calculated from Kow
Soil-to-Edible Plant	1.5E-01	Calculated from Kow
Feed-to-Animal Meat, d/kg	3.5E-05	Calculated from Kow
Feed-to-Cow Milk, d/L	1.1E-05	Calculated from Kow
Water Purification Factor	1.00	Default
Deposition Velocity, m/sec	5.3E-06	Method DVM
Atmospheric Deposition Class	5	Non-depositing Gas

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	2.0E+00	= ing
Ingestion Reference Dose, mg/kg/d	2.0E+00	IRIS

(a) From ICF (1987a) as calculated from solubility and vapor pressure.

3.393 Data Summary for ZINC COMPOUNDS

CAS: 7646857

Common Synonyms: Zinc compounds

Physical Properties:Molecular Weight
Water Solubility, mg/L

65.38

ReferenceEmpirical
No value in data baseEnvironmental Degradation/Removal Half-times:Media of TransportIn Air, days
In Water, days
In Soil, days6.9E+07
6.9E+07
6.9E+07ReferenceDefault
Default
DefaultEnvironmental Transfer Factors:Transfer ParameterBioaccumulation in Fish
Bioaccumulation in Shellfish
Soil-to-Edible Plant
Feed-to-Animal Meat, d/kg
Feed-to-Cow Milk, d/L
Water Purification Factor
Deposition Velocity, m/sec
Atmospheric Deposition Class2.0E+03
1.0E+04
4.0E-01
5.0E-02
6.0E-03
.40
1.0E-03
1ReferenceNapier et al. (1980); see footnote (a)
Napier et al. (1980); see footnote (a)
Napier et al. (1980); see footnote (a)
Napier et al. (1980); see footnote (a)
Napier et al. (1980); see footnote (a)
Napier et al. (1980)
Default
ParticulateChemical Toxicity Parameters:Inhalation Reference Dose, mg/kg/d
Ingestion Reference Dose, mg/kg/d3.5E-02
1.1E+00ReferenceTLV; see footnote (b)
see footnote (c)

- (a) Value for zinc.
 (b) From TLV value for zinc oxide:
 RfD = $5 \times .007 = 0.035$ mg/kg/d.
 (c) Based on 5 times recommended daily allowance for zinc:
 RfD = 5×15 mg/d/70 kg = 1.1 mg/kg/d.

3.394 Data Summary for ZIRCONIUM

CAS: 7440672

Common Synonyms: Zirconium

Physical Properties:

		<u>Reference</u>
Molecular Weight	.00	Empirical
Water Solubility, mg/L		No value in data base

Environmental Degradation/Removal Half-times:Media of Transport

		<u>Reference</u>
In Air, days	6.9E+07	Default
In Water, days	6.9E+07	Default
In Soil, days	6.9E+07	Default

Environmental Transfer Factors:Transfer Parameter

		<u>Reference</u>
Bioaccumulation in Fish	3.3E+00	Napier et al. (1980)
Bioaccumulation in Shellfish	6.7E+00	Napier et al. (1980)
Soil-to-Edible Plant	1.7E-04	Napier et al. (1980)
Feed-to-Animal Meat, d/kg	5.0E-04	Napier et al. (1980)
Feed-to-Cow Milk, d/L	2.5E-06	Napier et al. (1980)
Water Purification Factor	.70	Napier et al. (1980)
Deposition Velocity, m/sec	1.0E-03	Default
Atmospheric Deposition Class	1	Particulate

Chemical Toxicity Parameters:

		<u>Reference</u>
Inhalation Reference Dose, mg/kg/d	3.5E-02	TLV
Ingestion Reference Dose, mg/kg/d	3.5E-02	= inh

4.0 SORPTION DISTRIBUTION COEFFICIENT DATA

As a solution (groundwater) migrates through the partially saturated and/or saturated zone, geochemical considerations determine the extent to which a particular chemical in the solution will be retarded relative to the groundwater velocity. Geochemical mechanisms such as precipitation/dissolution and adsorption/desorption can increase or decrease the concentrations of various groundwater chemicals, depending upon the particular solution/sediment interactions that occur. The only geochemical mechanism considered in this study was adsorption. Adsorption was incorporated into the MEPAS methodology through the use of a distribution coefficient (K_d). As commonly determined and used, the K_d is a "bulk" chemical parameter that often includes the effects of precipitation/dissolution and adsorption/desorption.

The groundwater transport model of MEPAS requires estimates of the equilibrium coefficient (also referred to as the distribution coefficient or K_d) for each pollutant in soil. This section describes the data base that is accessed by the MEPAS shell to provide suggested values for the sorption distribution coefficients of inorganic pollutants and radionuclides. (Values for organic pollutants are also provided in the chemical data base, as described in Section 2.2.6.) Details of justifications and references for sorption distribution coefficients are given, along with the supporting rationale.

Because the distribution coefficient is dependent on soil pH and soil characteristics, the distribution coefficient values in the data base have been determined for a three-dimensional matrix that addresses both the effects of pH and the clay, aluminum and iron oxyhydroxide, and organic matter content of the sediments. In evaluating distribution coefficient values, compilations were made of

- K_d values given as distribution coefficients in the literature
- Selected Langmuir and Freundlich adsorption constants that were converted to K_d values.

The effect of the pH was taken into account by dividing measurements of the distribution coefficients into three pH regimes. These pH regimes

encompassed distribution coefficients recorded in environments with pH values less than or equal to 5, distribution coefficients measured at pH values between 5 and 9, and coefficients determined at pH values greater than or equal to 9. Few data in the literature address adsorption at pH values greater than 9. If no data were available for a given element in the high-pH regime, very conservative estimates (i.e., small values) of adsorption were made based on soil chemistry and the available literature.

The effect of the adsorbent on the distribution coefficient was taken into account by dividing the total percent-by-weight composition of the clay, iron and aluminum oxyhydroxide, and organic matter contents into three categories. The categories are 1) those sediments whose total weight percent (of the aforementioned constituents) is less than 10, those sediments whose total weight percent is greater than or equal to 10 and less than 30, and those sediments whose total weight percent totals 30 or more. The three categories correspond roughly to sandy soils (<10%), loamy soils (10-30%), and clayey soils ($\geq$ 30%).

The numerical values of distribution coefficients for each inorganic and radionuclide constituent are summarized in Table 4.1. A value is given for each of the nine possible combinations of pH and soil content.

Distribution coefficients are dependent on many factors. The selected scheme of considering pH and soil content is expected to provide a reasonable estimate of distribution coefficients for most applications of MEPAS. The total dissolved solids content of the solute can also affect distribution coefficients; however, the total dissolved solids content was not considered in this study because the solids content tends not to vary significantly in natural fresh-water environments. This lack of variability is a result of the concentrations of the background electrolytes. In addition, the nature of the chemical constituents that determine the total dissolved solids content can be more important than the total dissolved solids content itself.

Concentrations of dissolved organic and inorganic carbon may also impact the values of distribution coefficients through aqueous complexation reactions. The complexation of inorganic and radioactive constituents with

TABLE 4.1. Summary of Distribution Coefficient Values Used in MEPAS for Inorganic Constituents

ID Name	Constituent Name	pH Range and Soil Composition (a)									
		pH > 9					pH 5 - 9				
		<10%	10 - 30%	>30%	<10%	10 - 30%	>30%	<10%	10 - 30%	>30%	>30%
AC225	Actinium-225	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	6.0	6.0	6.0
AC227	Actinium-227	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	6.0	6.0	6.0
7429905	Aluminum	353.0	353.0	353.0	35,300.0	35,300.0	35,300.0	3,980.0	3,980.0	3,980.0	44,600.0
AM241	Americium-241	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	200.0	1,000.0
AM242	Americium-242	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	200.0	1,000.0
AM242M	Americium-242M	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	200.0	1,000.0
AM243	Americium-243	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	200.0	1,000.0
7440360	Antimony	0.0	1.0	1.0	2.0	6.0	15.9	2.0	5.0	5.0	15.9
SB125	Antimony-125	0.0	1.0	1.0	2.0	6.0	15.9	2.0	5.0	5.0	15.9
7440382	Arsenic	0.6	2.0	2.0	5.86	19.4	19.4	5.86	19.2	19.2	21.5
12001284	Asbestos (Croc)	1.ES	1.ES	1.ES	1.ES	1.ES	1.ES	1.ES	1.ES	1.ES	1.ES
7440393	Barium	530.0	2,800.0	16,000.0	530.0	2,800.0	16,000.0	53.0	280.0	280.0	1,600.0
7440417	Beryllium	7.0	140.0	800.0	70.0	1,400.0	8,000.0	7.0	140.0	140.0	800.0
BE7	Beryllium-7	7.0	140.0	800.0	70.0	1,400.0	8,000.0	7.0	140.0	140.0	800.0
1303964	Borate (As Na Salt)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
744428	Boron	0.19	1.3	1.3	0.19	1.3	1.3	0.19	1.3	1.3	1.3
7440439	Cadmium	3.0	42.9	100.0	14.9	423.0	567.0	3.0	42.9	42.9	100.0
7778543	Calcium Hypochlorite	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1305788	Calcium Oxide	70.0	1,400.0	8,000.0	70.0	1,400.0	8,000.0	7.0	140.0	140.0	800.0
C14	Carbon-14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CEMENT D	Cement Dust	1.ES	1.ES	1.ES	1.ES	1.ES	1.ES	1.ES	1.ES	1.ES	1.ES
CE141	Cerium-141	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	6.0	6.0	6.0
CE144	Cerium-144	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	6.0	6.0	6.0
CS134	Cesium-134	51.0	249.0	270.0	51.0	249.0	270.0	10.0	24.9	24.9	27.0
CS135	Cesium-135	51.0	249.0	270.0	51.0	249.0	270.0	10.0	24.9	24.9	27.0
CS137	Cesium-137+0	51.0	249.0	270.0	51.0	249.0	270.0	10.0	24.9	24.9	27.0
7775099	Chlorate (As Na Salt)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CR-111	Chromium III	10.0	10.0	79.0	168.0	565.0	3,600.0	10.0	10.0	10.0	79.0
7440473	Chromium VI	1.0	1.0	7.9	16.8	56.5	360.0	1.0	1.0	1.0	7.9
7440484	Cobalt	1.94	8.81	200.0	1.94	8.81	200.0	0.2	0.9	0.9	0.2
C057	Cobalt-57	1.94	8.81	200.0	1.94	8.81	200.0	0.2	0.9	0.9	0.2
C060	Cobalt-60	1.94	8.81	200.0	1.94	8.81	200.0	0.2	0.9	0.9	0.2
7440508	Copper	4.19	9.2	33.6	41.9	92.2	336.0	4.19	9.2	9.2	33.6
CM242	Curium-242	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	200.0	1,000.0
CM243	Curium-243	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	200.0	1,000.0
CM244	Curium-244	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	200.0	1,000.0
CM245	Curium-245	8.2	20.0	100.0	82.0	200.0	1,000.0	82.0	200.0	200.0	1,000.0
EU152	Europium-152	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	6.0	6.0	6.0
EU154	Europium-154	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	6.0	6.0	6.0
EU155	Europium-155	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	6.0	6.0	6.0
7782414	Fluoride	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7669393	Hydrogen Fluoride	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I129	Iodine-129	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE 4.1. (contd)

ID Name	Constituent Name	pH Range and Soil Composition (a)									
		pH ≥ 9			pH 5 - 9			pH ≤ 5			
		<10%	10 - 30%	$\geq 30\%$	<10%	10 - 30%	$\geq 30\%$	<10%	10 - 30%	$\geq 30\%$	
I131	Iodine-131	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I135	Iodine-135	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15438310	Iron	1.5	1.5	1.5	15.0	15.0	15.0	10.0	10.0	10.0	12.9
KR85	Krypton-85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7439921	Lead	234.0	597.0	1,830.0	234.0	597.0	1,830.0	10.0	10.0	10.0	12.1
1317368	Lead Oxide	234.0	597.0	1,830.0	234.0	597.0	1,830.0	10.0	10.0	10.0	12.1
PB210	Lead-210	234.0	597.0	1,830.0	234.0	597.0	1,830.0	10.0	10.0	10.0	12.1
PB212	Lead-212	234.0	597.0	1,830.0	234.0	597.0	1,830.0	10.0	10.0	10.0	12.1
1310652	Lithium Hydroxide	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0	0.0
7447418	Lithium Ion	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0	0.0
7786303	Magnesium	7.0	140.0	800.0	70.0	1,400.0	8,000.0	7.0	140.0	800.0	800.0
7439965	Manganese	16.5	25.3	36.9	16.5	25.3	36.9	1.5	2.5	4.0	4.0
MN54	Manganese-54	16.5	25.3	36.9	16.5	25.3	36.9	1.5	2.5	4.0	4.0
7439976	Mercury	322.0	580.0	5,280.0	322.0	580.0	5,280.0	30.0	60.0	500.0	500.0
7439987	Molybdenum	0.0	0.0	0.0	40.0	120.0	280.0	100.0	300.0	700.0	700.0
NP237	Neptunium-237	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
7440020	Nickel	1.22	5.86	65.0	12.2	58.6	650.0	1.2	5.86	65.0	65.0
NI56	Nickel-56	1.22	5.86	65.0	12.2	58.6	650.0	1.2	5.86	65.0	65.0
NI63	Nickel-63	1.22	5.86	65.0	12.2	58.6	650.0	1.2	5.86	65.0	65.0
NB93M	Niobium-93M	5.0	100.0	10.0	50.0	100.0	100.0	50.0	100.0	100.0	100.0
NB95	Niobium-95	5.0	100.0	10.0	50.0	100.0	100.0	50.0	100.0	100.0	100.0
14797558	Nitrate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7697372	Nitric Acid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10102440	Nitrogen Dioxide	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PD107	Palladium-107	0.4	4.0	40.0	0.4	4.0	40.0	0.4	4.0	39.3	39.3
PAPFIBER	Paper Fiber	1.E5	1.E5	1.E5	1.E5	1.E5	1.E5	1.E5	1.E5	1.E5	1.E5
7601549	Phosphate Ion	5.0	5.0	5.0	50.0	50.0	50.0	100.0	100.0	100.0	100.0
P32	Phosphorus-32	5.0	5.0	5.0	50.0	50.0	50.0	100.0	100.0	100.0	100.0
PU238	Plutonium-238	10.0	10.0	14.0	10.0	100.0	250.0	4.0	4.0	4.0	43.0
PU239	Plutonium-239	10.0	10.0	14.0	10.0	100.0	250.0	4.0	4.0	4.0	43.0
PU240	Plutonium-240	10.0	10.0	14.0	10.0	100.0	250.0	4.0	4.0	4.0	43.0
PU241	Plutonium-241	10.0	10.0	14.0	10.0	100.0	250.0	4.0	4.0	4.0	43.0
PQ210	Polonium-210	5.9	14.9	14.9	5.9	14.9	14.9	5.91	14.9	14.9	14.9
1310583	Potassium Hydroxide	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0	0.0
7447407	Potassium Ion	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0	0.0
K40	Potassium-40	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0	0.0
PA231	Protactinium-231	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	50.0
PA233	Protactinium-233	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	50.0
RA223	Radium-223	24.3	100.0	124.0	24.3	100.0	124.0	2.43	100.0	124.0	124.0
RA225	Radium-225	24.3	100.0	124.0	24.3	100.0	124.0	2.43	100.0	124.0	124.0
RA226	Radium-226	24.3	100.0	124.0	24.3	100.0	124.0	2.43	100.0	124.0	124.0
RU103	Ruthenium-103	27.0	50.0	50.0	274.0	351.0	690.0	26.0	26.0	26.0	26.0
RU106	Ruthenium-106	27.0	50.0	50.0	274.0	351.0	690.0	26.0	26.0	26.0	26.0

TABLE 4.1. (contd)

ID Name	Constituent Name	pH Range and Soil Composition (a)									
		pH >9			pH 5 - 9			pH ≤5			
		<10%	10 - 30%	≥30%	<10%	10 - 30%	≥30%	<10%	10 - 30%	≥30%	
SM151	Samarium-151	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	6.0	6.0	6.0
7782492	Selenium	5.9	14.9	14.9	5.91	14.9	14.9	5.91	14.9	14.9	14.9
SE79	Selenium-79	5.9	14.9	14.9	5.91	14.9	14.9	5.91	14.9	14.9	14.9
6834920	Silicate Ion	2.0	2.0	2.0	5.0	5.0	5.0	4.0	4.0	4.0	4.0
7440224	Silver	0.4	4.0	40.0	0.4	4.0	40.0	0.4	4.0	39.3	39.3
1310732	Sodium Hydroxide	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0	0.0
7647145	Sodium Ion	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0	0.0
NA22	Sodium-22	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0	0.0
10476854	Strontium Ion	24.3	100.0	124.0	24.3	100.0	124.0	2.34	100.0	12.4	12.4
SR89	Strontium-89	24.3	100.0	124.0	24.3	100.0	124.0	2.43	100.0	12.4	12.4
SR90	Strontium-90	24.3	100.0	124.0	24.3	100.0	124.0	2.43	100.0	12.4	12.4
12808798	Sulfate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7664939	Sulfuric Acid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S35	Sulphur-35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TC99	Technetium-99	3.0	20.0	20.0	3.0	20.0	20.0	3.0	20.0	20.0	20.0
7440280	Thallium	0.0	0.2	0.8	0.0	0.2	0.8	0.0	0.0	0.0	0.0
TH228	Thorium-228	40.0	60.0	100.0	100.0	500.0	2,700.0	40.0	60.0	100.0	100.0
TH229	Thorium-229	40.0	60.0	100.0	100.0	500.0	2,700.0	40.0	60.0	100.0	100.0
TH230	Thorium-230	40.0	60.0	100.0	100.0	500.0	2,700.0	40.0	60.0	100.0	100.0
TH232	Thorium-232	40.0	60.0	100.0	100.0	500.0	2,700.0	40.0	60.0	100.0	100.0
TH234	Thorium-234	40.0	60.0	100.0	100.0	500.0	2,700.0	40.0	60.0	100.0	100.0
7440315	Tin	2.5	5.0	5.0	5.0	10.0	10.0	2.5	5.0	5.0	5.0
SN126	Tin-126	2.5	5.0	5.0	5.0	10.0	10.0	2.5	5.0	5.0	5.0
H3	Tritium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13536840	UO ₂ F ₂	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	50.0
7440611	Uranium	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	50.0
U233	Uranium-233	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	50.0
U234	Uranium-234	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	50.0
U235	Uranium-235	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	50.0
U236	Uranium-236	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	50.0
U238	Uranium-238	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	50.0
U239	Uranium-239	0.0	5.0	50.0	0.0	50.0	500.0	0.0	5.0	50.0	50.0
7440622	Vanadium	5.0	100.0	10.0	50.0	100.0	100.0	50.0	100.0	100.0	100.0
Y90	Yttrium-90	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	6.0	6.0	6.0
Y91	Yttrium-91	100.0	250.0	2,000.0	228.0	538.0	4,600.0	3.0	6.0	6.0	6.0
7646857	Zinc Compounds	12.7	143.0	1,460.0	12.7	939.0	1,460.0	3.0	280.0	280.0	280.0
ZN65	Zinc-65	12.7	143.0	1,460.0	12.7	939.0	1,460.0	3.0	280.0	280.0	280.0
ZR95	Zirconium	5.0	50.0	100.0	50.0	500.0	1,000.0	50.0	500.0	1,000.0	1,000.0
7440672	Zirconium	5.0	50.0	100.0	50.0	500.0	1,000.0	50.0	500.0	1,000.0	1,000.0
ZR93M	Zirconium-93M	5.0	50.0	100.0	50.0	500.0	1,000.0	50.0	500.0	1,000.0	1,000.0

(a) Soil composition is total weight percent of clay, organic matter, and iron and aluminum oxyhydroxides.

organic material can significantly increase the mobility of a given element. Such increased mobility would be reflected in a smaller distribution coefficient.

If the migrating solution contains significant quantities of organic material, it is recommended that the K_d values be set to zero. This extremely conservative estimate accounts for the fact that the movement of organic materials may be water coincident (i.e., have a K_d of 0.0). Complexation reactions between organic and inorganic carbon and the inorganic and radioactive constituents were not considered in the distribution coefficient matrix because of the dearth of published information.

The distribution coefficients documented in this section should not be used if:

- Distribution coefficients have been determined for that particular waste unit or for a facility where several waste units have similar characteristics, or
- Inorganic and/or radioactive constituents are mixed with organically complexed wastes (the distribution coefficients should be set to zero).

If onsite or experimental K_d values have been determined using the waste and soils at the waste unit, use those K_d values rather than the values suggested here.

Several caveats should be mentioned regarding the distribution coefficients. Conservative values have been chosen for each value. If several K_d values were obtained for a given chemical/soil-type interaction, the most conservative (i.e., the smallest) was usually selected for inclusion in the matrix. This does not mean that for any specific case the cited K_d will always be lower than what might actually be measured. The literature cited is not exhaustive, and at a particular site conditions could be present that would lead to even lower K_d values.

The values for K_d selected are representative of commonly occurring environments. When data for adsorption onto pure minerals and soils were found, preference in selection was given to experiments that considered adsorption onto soil material. Several of the distribution coefficients

mentioned in the sections that follow were originally reported in the literature as Langmuir or Freundlich coefficients. The Freundlich and Langmuir coefficients were converted to distribution coefficients as described in subsection 4.1. It should also be noted that all values are described as distribution coefficients, regardless of the form in which they were originally reported. All distribution coefficients reported in this document have units of ml/g.

4.1 THEORY SUPPORTING PARAMETERS

Adsorption is a process by which molecular or ionic species of a substance become concentrated at the solid/solution interface as a result of physico-chemical interactions between the adsorbing species and the solid surface. Adsorption of a solute molecule on the surface of a solid can involve removing the solute molecule from the solution, removing solvent from the solid surface, and attaching the solute to the surface of the solid. The material adsorbed is called the adsorbate, and the material at whose interface adsorption occurs is called the adsorbent. Adsorption models conveniently describe the adsorption of solutes by solids at constant temperature (hence the label "isotherm") in quantitative terms. Examples of adsorption models that can describe adsorption onto solid surfaces include 1) a distribution coefficient, K_d , 2) a Langmuir isotherm; 3) a Freundlich isotherm, 4) an ion exchange model; 5) a constant-capacitance surface complexation model; and 6) a triple-layer surface complexation model. For the MEPAS methodology, only the distribution coefficient (K_d) was used to reduce the mobility of chemical solutes relative to the migrating water. Constant-capacitance and triple-layer surface complexation models were developed for pure hydrous oxide adsorbents. Because the requisite input parameters are very complex and because the constants have not yet been developed for many of the chemicals and adsorbents of interest, surface complexation models were not considered in this study. Ion exchange coefficients were not addressed because they are usually developed for the macroscopic constituents of an aqueous system. However, applicable Freundlich and Langmuir isotherms were considered by converting the Freundlich and Langmuir coefficients to linear distribution coefficients (K_d s).

The K_d is defined as the ratio of the mass of adsorbed species to the concentration of the species remaining in solution. The K_d is described by the following expression:

$$K_d = S/C \quad (1)$$

where S is the concentration of the chemical on the solid (per gram of adsorbent) and C is the concentration of the chemical in solution (per milliliter of solution). Some data represented in the form of other adsorption algorithms (e.g., Langmuir and Freundlich) were used after being converted to a distribution coefficient (K_d). The Langmuir isotherm has an advantage over the K_d for considering a mass balance on surface adsorption sites. The Langmuir isotherm is described by the equation

$$S = K_L A_m C / (1 + K_L C) \quad (2)$$

in which K_L is the Langmuir adsorption constant and A_m is the maximum number of sites available for adsorption.

At low adsorbate concentrations, the bottom term in the Langmuir isotherm approaches 1, and the amount adsorbed is proportional to the concentration of the adsorbate. Thus, at low concentrations, the Langmuir equation approaches a linear adsorption isotherm and the term $K_L A_m$ may be equated with the constant (K_d) in Equation 1.

The Freundlich isotherm was derived empirically from adsorption data for dilute solutions. Although the Freundlich equation is empirical, it has come to be interpreted as implying that the energy of adsorption decreases logarithmically as the fraction of surface sites covered increases. The Freundlich isotherm is represented by the equation

$$S = K_F C^{1/n} \quad (3)$$

where K_F is the Freundlich adsorption constant and n is an empirically determined constant dependent upon the specific adsorbate/adsorbent pair.

When n approaches 1, the Freundlich adsorption constant (K_F) is approximately equivalent to the distribution coefficient (K_d).

4.2 SORPTION DISTRIBUTION VALUE JUSTIFICATION

This section describes the process for determining each constituent's equilibrium coefficient. Each constituent is described below, along with the justification for the equilibrium coefficients assigned to it (summarized in Table 4.1). The discussion refers to "tiers" and "cells" of a 3-by-3 matrix of K_d values for the nine possible combinations of pH and soil type. The tiers and cells are defined as follows:

Tier 1: pH ≤ 5

Cell 1: pH ≤ 5 and soil composition $< 10\%$
Cell 2: pH ≤ 5 and soil composition 10-30%
Cell 3: pH ≤ 5 and soil composition $\geq 30\%$

Tier 2: pH 5-9

Cell 4: pH 5-9 and soil composition $< 10\%$
Cell 5: pH 5-9 and soil composition 10-30%
Cell 6: pH 5-9 and soil composition $\geq 30\%$

Tier 3: pH ≥ 9

Cell 7: pH ≥ 9 and soil composition $< 10\%$
Cell 8: pH ≥ 9 and soil composition 10-30%
Cell 9: pH ≥ 9 and soil composition $\geq 30\%$

These tier and cell representations will be used throughout the text.

Alkaline Earth Cations

Barium, beryllium, calcium, and magnesium are alkaline earth cations and exist only in the +2 oxidation state. Because of the similarity of their chemical properties, and because of the paucity of available distribution coefficients (K_d s), these alkaline earth cations will be discussed as a group.

The lyotropic series defines the ease of removal of ions from specific colloids. In this series, the ease of replaceability of a specific ion decreases as we move down the alkaline earths. In other words, barium

should be more tightly held (and have a higher K_d) than calcium, which, in turn, is more tightly held than magnesium; beryllium should be the least tightly held of these four alkaline earth cations. Within a given valence series, the lyotropic series is a function of increasing dehydrated-radius size. As the dehydrated radius of an ion increases, the ion will have a greater affinity and higher distribution coefficient. The changing radius size and its effect on the distribution coefficient will be employed to estimate distribution coefficients where none are available.

McGinnis et al. (1987a), citing Gerritse et al. (1982), report distribution coefficients for beryllium ranging from 7.0×10^1 to 1.6×10^4 in sandy and sandy loam soils in the pH range of 5-8. McGinnis et al. (1987a) computed K_d values of 1.4×10^3 for a silt loam and 8.0×10^3 for a sandy clay loam. Kinniburgh et al. (1975) measured a value of 3.2×10^1 for the adsorption of calcium on an iron gel. Li and Chan (1979) found distribution coefficients of 5.30×10^2 and 2.8×10^3 for the adsorption of barium on river sediments. The lower distribution coefficient (5.30×10^2) was measured in seawater, and the higher value was found when river water was used as the background electrolyte.

Based on the values from the literature and the changing radius sizes of the alkaline earth cations, the values in Table 4.1 were selected. The lowest value (7.0×10^1) reported by Gerritse et al. (1982) was used for Cell 4 of the beryllium matrix. The beryllium values computed by McGinnis et al. (1987a) for the silt loam (1.4×10^3) and the sandy clay loam (8.0×10^3) were placed in Cells 5 and 6 of the matrix. Conservative values were used in Tier 3 of the beryllium matrix. The values used in Tier 3 were an order of magnitude lower than the values used in Tier 2 of the beryllium matrix. The increasing negative charge on the sediments and the predominance of negatively charged beryllium hydrolysis species at pH values above 9 should contribute to the mobility of beryllium. The values chosen for Tier 1 of the beryllium matrix were also an order of magnitude lower than the Tier 2 values because protonation of surface sites raises the potential for migration of Be^{2+} , which is a dominant ion at low pH values.

The values used for beryllium were also used for magnesium because of their similar chemistries. These values are conservative because magnesium should have higher distribution coefficients than beryllium, given the larger dehydrated radius of magnesium.

Kinniburgh et al. (1975) studied calcium adsorption on iron gels. Calcium adsorption at pH values above 9 was higher than that at pH values between 5 and 9. In fact, the adsorption was four orders of magnitude greater at the higher pH values. Therefore, conservative values were selected for calcium by assigning values for Tiers 2 and 3 of the calcium matrix that were the same as those in Tier 2 of the beryllium matrix. Similarly, the values in Tier 1 of the calcium matrix were the same as the values in Tier 1 of the beryllium matrix. Again, these values should be conservative because the dehydrated radius of calcium is larger than that of beryllium.

The K_d values of Li and Chan (1979) were used in Cells 4 (5.30×10^2) and 5 (2.8×10^3) of the barium matrix. The coefficient used in Cell 6 was estimated based on the study of calcium adsorption conducted by Posselt et al. (1978), on the work of Li and Chan (1979), and on the range of beryllium values reported by Gerritse et al. (1982). The coefficients used in Tier 1 (Cells 1, 2, and 3) were conservative estimates based on the studies by Li and Chan (1979), on the work of Posselt et al. (1978), and on the potential for increased barium mobility at low pH values. The distribution coefficients in Tier 3 of the barium matrix are the values in Tier 2. This is probably a conservative estimate. The hydrolysis species of barium are unimportant compared to the Ba^{2+} species, and the adsorption of the barium cation should increase as the negative charge on the sediments increases at higher pH values.

The values as defined above are also used for the isotopes of beryllium.

Aluminum

Aluminum is found only in the +3 oxidation state. Adsorption data for aluminum were often reported in the literature as selectivity coefficients, from which it is impossible to compute K_d values. McBride and Bloom (1977)

have reported the adsorption of aluminum on montmorillonite at pH values less than 5.0. They gave two values for the adsorption of aluminum onto montmorillonite (4.16×10^5 and 4.46×10^4). The more conservative value (4.46×10^4) was chosen for inclusion in Cell 3 of the matrix. Hahn and Stumm (1968) have reported distribution coefficients of 3.53×10^4 and 3.98×10^3 for aluminum adsorption onto silica at pH values of 5.25 and 5.0, respectively. The values 3.53×10^4 and 3.98×10^3 were placed in Cells 4 and 1, respectively. The adsorption characteristics of the silica were considered to be most representative of coarser (sandy) soil materials. The value placed in Cell 2 (3.98×10^3) was taken from Cell 1 (Hahn and Stumm 1968) and is considered a conservative value, because the finer soil material in Cell 2 should have a higher distribution coefficient than the material in Cell 1. The distribution coefficient chosen for Cell 2 is also consistent with the value (McBride and Bloom 1977) in Cell 3, which is about an order of magnitude greater. This higher value in Cell 3 is consistent with the finer (more clay) soil material encountered in Cell 3.

The distribution coefficient used in Cell 4 (3.53×10^4 ; Hahn and Stumm 1968) was also used in Cells 5 and 6. Again, these should be considered conservative values because of the finer soil materials represented.

No distribution coefficients for aluminum at pH values greater than 9 were found in the literature. However, it is known that aluminum oxyhydroxides exhibit greater solubilities at low and high pH values. Above a pH of 9, $\text{Al}(\text{OH})_4^-$ is the dominant aluminum hydrolysis species. Moreover, at high pH values, clay particles (sediments) tend to be more negatively charged. The combination of more negatively charged sediments and negatively charged hydrolysis species would have a tendency to increase the migration of aluminum (i.e., to reduce the distribution coefficient). Therefore, the distribution coefficients for Cells 7, 8, and 9 were estimated to be two orders of magnitude lower than those of Cells 4, 5, and 6, and a value of 3.53×10^2 was placed in each cell.

Americium

Americium exists in the +3, +4, +5, and +6 oxidation states. The +3 oxidation state is the most stable valence state. Americium in the other

oxidation states is a powerful oxidizing agent and will only remain in solution if no oxidizable materials exist. Because of the stability of the +3 oxidation state, no tables were constructed to represent the other oxidation states.

The following literature on americium adsorption was considered: Ames and McGarrah (1980), Cloninger et al. (1980), Cloninger and Cole (1981), Emery and Klopfer (1976), Fukai and Murray (1974), Routson et al. (1975, 1976a,b), Schell et al. (1979, 1980), Serne et al. (1977), Serne and Relyea (1983), and Sheppard et al. (1976).

Glover et al. (1977) found that americium adsorption correlated well with the clay content of soils. Another factor that affects americium adsorption is the concentration of competing ions. As expected, the higher the concentration of competing ions, the lower the retardation of americium. Sheppard et al. (1976) measured distribution coefficients (K_d s) for americium adsorption on twelve soils. The measured K_d values ranged from 1.25×10^1 to 4.35×10^4 . These values agree well with those found by Glover et al. (1977), who had characterized 17 soils from around the United States and found that americium adsorption on these soils had K_d values varying from a low of 8.2×10^1 up to 1.0×10^4 . These findings were taken into consideration in constructing the americium K_d matrix.

These values were used for the isotopes Am-241, Am-242, Am-242m, and Am-243.

Antimony

Antimony exists in a multitude of valence states, from -3 to +5, but +3 and +5 are the stable oxidation states in aqueous solutions. The literature we investigated did not permit us to distinguish K_d values for the two common valence states of antimony.

Duguid (1976) observed very little movement of antimony at a field site near Oak Ridge, Tennessee. The antimony K_d values calculated by Duguid ranged from 1×10^3 to 1×10^6 . However, experimental K_d values measured in the laboratory have generally been considerably lower than the values measured by Duguid. Based on K_d values reported by Coles et al. (1980), Serne

et al. (1977), and Essington and Nork (1969), we have accepted a value of 2.0 (Coles et al. 1980) for Cell 4 of Tier 2. The K_d values selected for Cells 5 and 6 of the matrix were 6.0 (Serne et al. 1977) and 15.9 (Brannon 1985), respectively.

The negatively charged Sb(OH)_6^- species should be the major species at the high pH values corresponding to Tier 3 of the matrix. Based on the increased tendency toward negatively charged soil materials and negatively charged hydrolysis species as pH increases, it is expected that the K_d values at the high pH levels of Tier 3 would be lower than the K_d values in Tier 2. This is supported by the work of Serne reported by Ames and Rai (1978). Values based on the work of Serne have been incorporated into Tier 3 of the matrix.

Arnold and Crouse (1971) measured the adsorption on antimony onto copper ores at low pH values and calculated values of 4.0×10^1 at a pH of 1.5, 5.0×10^1 at a pH of 2.1, and 4.5×10^1 at a pH of 2.7. Arnold and Crouse (1971) state, however, that in additional adsorption tests performed on the ore material, antimony was not as strongly adsorbed. Therefore, the conservative K_d values of Tier 2 were also used in Tier 3.

These values were also used for the isotope Sb-125.

Arsenic

Arsenic is found in the +3 and +5 oxidation states in aqueous solutions. Distribution coefficients for arsenic(V) and arsenic(III) are considered. Each oxidation state of arsenic will be discussed separately.

The U.S. Environmental Protection Agency (EPA) has listed distribution coefficients of 5.86 and 1.94×10^1 for arsenic in sandy and sandy loam soils, respectively. However, they do not specify the oxidation state of the arsenic. Elkhatab et al. (1984) studied arsenite [arsenic(III)] adsorption on the A and Bt horizons of five soils. Seven of the values they obtained correspond to the pH regime and sediment composition of Cell 5. The values of Elkhatab et al. (1984) for Cell 5 range from a low of 2.83×10^1 to a high of 1.02×10^2 . This compares with the value of 1.94×10^1 determined for this cell by the EPA (1985). We chose the value from the EPA

(1.94×10^1) for Cell 5 because it was both conservative and in the general range of the data reported by Elkhatib et al. (1984). The EPA value of 5.86 was chosen for Cell 4. The same distribution coefficient used in Cell 5 was chosen for Cell 6, where it should be considered conservative, but reasonable.

The values reported by Elkhatib et al. (1984) for Cells 2 and 3 were approximately the same. Elkhatib et al. determined values of 2.27×10^1 and 1.92×10^1 for soils that correspond to the pH regime and sediment composition of Cell 2. We chose 1.92×10^1 for Cell 2 because it was the more conservative value. Elkhatib et al. (1984) reported a value of 2.15×10^1 in an environment that corresponds to Cell 3. This value was used in Cell 3 because it was the only value found. Because the values in Cells 5 and 6 were close to the values in Cells 2 and 3, a value of 5.86 (the value in Cell 4) was chosen for Cell 1.

At pH values greater than 9, H_2AsO_3^- becomes an important arsenic(III) species. Because soils tend to become more negatively charged at higher pH values, a negatively charged arsenic species has a greater potential for migration. Accordingly, all distribution coefficients for Tier 3 (pH values ≥ 9) were reduced by an order of magnitude from the values given in Tier 2 (pH 5 - 9).

Four references contained data applicable to the +5 oxidation state of arsenic. In lieu of other data, the EPA (EPA 1985) values of 5.86 and 1.94×10^1 were used for Cells 4 and 5, respectively, and a conservative value of 1.94×10^1 was used for Cell 6.

Two references contained arsenic(V) data for conditions that correspond to Cell 3. Frost and Griffin (1977) measured distribution coefficients of 2.49×10^1 and 3.68×10^1 , and Serne et al. (1983) determined a similar value (3.69×10^1) experimentally. The most conservative value (2.49×10^1) was chosen for Cell 3. This value is similar to the value in Tier 2 (Cell 6); in view of this similarity, the values in Cells 1 and 2 were chosen so that they were approximately equivalent to the values in Cells 4 and 5.

In pH regimes of 9 and above, negatively charged arsenic(V) species should dominate. This negative charge, in conjunction with the increased negative charge on the clay, should increase the mobility of the arsenic(V)

species. Therefore, the distribution coefficients in Tier 3 were reduced by an order of magnitude from the coefficients found in Tier 2.

Barium (see Alkaline Earth Cations)

Beryllium (see Alkaline Earth Cations)

Cadmium

Cadmium exists in the +2 oxidation state. A plethora of information was obtained on cadmium adsorption. Some of this information was not used because it concerned cadmium adsorption on either amorphous iron (Oakley et al. 1981; Benjamin and Leckie 1981; Bruninx 1975) or organic materials (Riffaldi and Levi-Minzi 1975; Oakley et al. 1981; John 1971). Petruzelli et al. (1978) studied six soils that correspond to Cell 6 of the cadmium matrix. The distribution coefficients for these soils varied from 4.5×10^1 to 6.88×10^3 with a mean of 1.67×10^3 . John (1971) determined a mean K_d of 4.3×10^3 for ten heavy clays that also correspond to Cell 6. Singh and Sekhon (1977a) measured a soil with 31% clay and 1.3% organic matter and determined a K_d value of 2.2×10^2 . Several studies (Egozy 1980; Levy and Francis 1976; Stuanes 1976; Garcia-Miragaya and Page 1976) considered the adsorption of cadmium on to various pure clays at intermediate pH values. The mean K_d values obtained from those studies on pure clays varied from 6.21×10^1 to 4.42×10^4 . The single value chosen for Cell 6 (5.67×10^2) was taken from Elliot (1983), because it is considered representative of the conservative side of the suite of literature values examined. Literature values that were applicable to Cell 5 came from Stuanes (1976), Duddridge and Wainwright (1981), EPA (1985), Christensen (1984), and Elliot (1983). The value chosen as being conservative yet representative was 4.23×10^2 (EPA 1985). Adsorption experiments performed by Duddridge and Wainwright (1981), EPA (1985), John (1971), Singh and Sekhon (1977a), and Christensen (1984) were pertinent to Cell 4 of the cadmium matrix. The values ranged from 1.35×10^1 to 2.78×10^3 . A conservative value of 1.49×10^1 , taken from the EPA, was chosen for Cell 4. Distribution coefficients considered for Cells 1, 2, and 3 of the cadmium matrix came from Christensen (1984), Elliot (1983), Bunzl et al. (1974), and Serne et al. (1983). The value determined by Christensen (1984) for a loamy sand (3.0×10^1) and Elliot's value

(4.29×10^1) were used to select K_d values for Cells 1 and 2, respectively. The representative value chosen for Cell 3 was 1.0×10^2 from Elliot (1983).

No cadmium values were obtained that apply to Tier 3 of the cadmium matrix. The values chosen for Tier 1 of the matrix were also used at the high pH values of Tier 3. At the low pH values in Tier 1, cadmium cations adsorb onto sediments that have an increasing tendency to become positively charged. In Tier 3, we have the reverse: an increasing tendency to negatively charged sediments accompanied by an increasing tendency for less positively charged cadmium species (neutral cadmium carbonate complexes) to dominate the system.

Calcium (see Alkaline Earth Cations)

Carbon-14

The normal oxidation state of carbon might be termed a four-covalence. The C^{4+} ion does not arise in normal chemical reactions, and the C^{4-} ion may exist in some carbides. The other naturally occurring oxidation state of carbon is 2^+ . Carbon, however, generally forms covalent bonds.

There are more known compounds of carbon than of any other element except hydrogen. The existence of these various compounds affects the mobility of carbon in the environment. Compounds that can normally influence the retardation or mobilization of carbon include carbon dioxide, carbonate precipitates, and organic forms of carbon. Some of these compounds are expected to be quite mobile, while others are highly retarded under the appropriate environmental conditions. For example, organic forms of carbon may be highly mobile, in contrast with the immobilized carbon in carbonate precipitates at high pH values. Because of the uncertainty involved in distinguishing the forms of carbon involved in reactions at a specific site, and because of the potentially high mobility of certain of these forms, conservative K_d values of 0.0 have been assigned to all cells of the carbon-14 matrix.

Cerium (see Lanthanides)

Cesium

Cesium exhibits only the +1 oxidation state. Cesium forms weak complexes with other ligands in aqueous solutions, permitting the Cs^+ species to predominate.

Distribution coefficients obtained for Cell 4 varied from 0.04 (Relyea and Serne 1979) to 1.03×10^4 (Janzer et al. 1962), with skewing toward the lower values. A representative yet conservative value of 5.1×10^1 (Baetsle et al. 1964) was selected for Cell 4. The K_d values relevant to Cell 5 ranged from a low of 1.7×10^1 (Seymour 1977; Seymour et al. 1979) up to 4.3×10^3 (Aston and Duursma 1973). Many of the values found for Cells 4 through 6 were for adsorption on rock in the presence of seawater. A value was selected for Cell 5 that considered adsorption on soil sediments with distilled water as the background electrolyte. A K_d from Schell et al. (1980) was chosen to represent Cell 6.

The K_d values picked for Tier 3 of the matrix were the same values used in Tier 2. It is expected that the adsorption of cesium at high pH values would be at least as strong as at intermediate pH values as a result of the deprotonation of soil surfaces and weak hydrolysis of the cesium ion. The only value from the literature that considered cesium adsorption at high pH values supports the argument for adsorption equivalency between Tiers 2 and 3. Pickering (1969, 1970) reported a value of 8.3×10^4 for the adsorption of cesium at a pH of 9 for sediments in the presence of tap water. The value of 1.0×10^1 reported by Baetsle et al. (1964) for adsorption on sand at a pH of 4 was accepted for Cell 1 of the matrix. This is a fivefold reduction from the corresponding soil in Tier 2 (Cell 4). The other values in Tier 1 (Cells 2 and 3) were reduced by an order of magnitude from those of the corresponding soils in Tier 2.

These values are used for the isotopes Cs-134, Cs-135, and Cs-137.

Chromium

Chromium has two oxidation states that are important in the environmental ranges of Eh and pH. These are the +6 and +3 oxidation states. The

chromate oxyanion (CrO_4^{2-}) is the dominant chromium species under highly oxidizing conditions and, as such, should be mobile when contacting negatively charged soil materials. Under reducing and mildly oxidizing conditions, positively charged Cr(III) species should dominate at pH values below approximately 9. Above a pH of 9, a negatively charged hydrolysis species [$\text{Cr}(\text{OH})_4^-$] becomes the dominant Cr(III) species. The values from the literature were not sufficient to permit chromium K_d values for the +6 and +3 oxidation states to be separated.

Gerritse et al. (1982) reported chromium K_d values between 2.5×10^1 and 7.00×10^2 for sandy and sandy loam soils in the pH range of 5-8. McGinnis et al. (1987b) calculated distribution coefficients of 1.70×10^2 for a silt loam in Florida and 3.60×10^2 for a sandy clay loam in the same state. Under acidic conditions, where uranium mill tailings solutions percolated through a silty clay loam, Serne et al. (1983) measured a K_d of 7.9. The EPA determined values of 1.68×10^1 and 5.65×10^1 for a sand and a sandy loam soil, respectively.

The EPA value of 1.6×10^1 was accepted for Cell 4, and the EPA measurement of 5.65×10^1 was selected for Cell 5. The K_d value of 5.6×10^1 is a conservative value, given that the distribution coefficients applicable to this cell varied from 5.65×10^1 to 1.70×10^2 . The value obtained by McGinnis et al. (1987b) for a sandy clay loam (3.60×10^2) was used in Cell 6 of Tier 2. The K_d from Serne et al. was accepted for Cell 3. The other values in Tier 1 (Cells 1 and 2) were conservative estimates based on data from Serne et al. (1983) and the EPA (1985) and on relationships with Tier 2. The values in Tier 3 were taken to be the same as the values in Tier 1. These are estimates based on soil and chromium chemistries. In parallel with the increasing tendency to develop negative charges on the soil, the chromium species are becoming more negatively charged at the pH values (≥ 9) of Tier 3. The soil and species charges work together to increase the potential for chromium mobility. This potential for increased mobility is similar to the situation that exists at low pH values (Tier 1) where increasingly positively charged sediments contact a solution in which positively charged chromium species are important.

Cobalt

Cobalt exists in the +2 and +3 oxidation states, with the +2 oxidation state being more common. The +3 oxidation state is relatively unstable unless complexed by anions. However, the K_d values in the cobalt matrix are not differentiated with respect to oxidation state. The lack of differentiation is justified by the predominance of the +2 oxidation state and the relative instability of the +3 oxidation state.

Several studies on cobalt adsorption were found. The studies most applicable to the cobalt distribution coefficient matrix were by the EPA (1985), Sorathes et al. (1960), Murray and Murray (1973), and Hawkins (1964). Other, less applicable studies dealt with cobalt adsorption on tuff and granite (Cloninger et al. 1980), in seawater (Aston and Duursma 1973; Duursma and Bosch 1970; Duursma and Eisma 1973), or in combination with complexing agents such as EDTA (Schell et al. 1980). The EPA values of 1.94 and 8.81 were selected for Cells 4 and 5, respectively, of the K_d matrix. The EPA values were at the lower end of the range of K_d values found for these cells and should, therefore, be conservative. Distribution coefficients applicable to Cell 5 were as high as 3×10^5 (Murray and Murray 1973) for cobalt adsorption on fine-grained sediments in seawater. A K_d value of 2×10^2 (Murray and Murray 1973) was chosen for Cell 6 of the cobalt matrix. Distribution coefficients measured by Murray and Murray (1973) ranged from 2×10^2 to 1×10^3 for adsorption on sediments in fresh water in a pH range of 5.8 to 7.

The dominant cobalt species at pH values less than approximately 9.5 is Co^{2+} . It is expected that the mobility of cobalt at low pH values will increase because of the dominance of the Co^{2+} species and the protonation of soil materials. A K_d value of 0.0 was reported by Murray and Murray (1973) for cobalt adsorption on sediments in fresh water at a pH of 4.2. Values accepted for cells in Tier 1 of the distribution coefficient matrix were approximately one order of magnitude less than the values in Tier 2. The values are based on the data of Murray and Murray (1973), the speciation chemistry of cobalt, and the surface chemistry of soil materials.

Above a pH of about 9.5, the CoOH_2O species becomes dominant. Negatively charged cobalt hydrolysis species remain minor species up to a pH of approximately 12. Based on the speciation of cobalt and the penchant for the negative charge on soil materials to increase at high pH values, the K_d values selected for Tier 3 of the cobalt matrix were the same as those in Tier 2. Additionally, at higher pH values the proclivity of cobalt to precipitate as a carbonate increases. The precipitation of the carbonate form of cobalt would limit cobalt concentrations to low levels (approximately 10^{-12} M at a pH of 9.5).

These values are also used for the cobalt isotopes Co-57 and Co-60.

Copper

In aqueous solutions, copper exists in the +1 oxidation state under reducing conditions and in the +2 state under oxidizing conditions. No data were obtained that segregated copper adsorption according to oxidation states.

Distribution coefficients for sand (4.19×10^1) and sandy loam (9.22×10^1) soils from the EPA (1985) were accepted for Cells 4 and 5. Other studies applicable to Cell 5 (McLaren and Crawford 1973; Gupta and Harrison 1982) considered the adsorption of copper onto pure kaolinite. Many of the studies encountered in the literature considered the adsorption of copper onto pure clays (Oakley et al. 1981; McLaren and Crawford 1973; Takematsu 1979). Ramamoorthy and Rust (1978) obtained values ranging from 3.90×10^3 to 3.44×10^5 for the adsorption of copper on sediments. The soils studied by Sidle and Kardos (1977) and Petruzelli et al. (1978) had K_d values that ranged from 3.36×10^2 to 2.81×10^5 . The conservative value of 3.36×10^2 (Petruzelli et al. 1978) was used in Cell 6 of the copper matrix.

At low pH values, Steger (1973) observed a K_d of 5.17×10^2 for copper adsorption on bentonite, and Kerndorff and Schnitzer (1980) measured a value of 1.15×10^4 for adsorption on humic acid (soil). The K_d value for copper adsorption on bentonite at the higher pH applicable to Cell 6 was two orders of magnitude greater than that at the lower pH that applied to Cell 3 (Steger 1973). However, the data were for adsorption onto different surface sites

and cannot be directly compared. The values in Tier 1 were estimated to be an order of magnitude lower than the values in Tier 2.

The values in Tier 3 of the copper matrix ($\text{pH} \geq 9$) were estimated to be the same as those values in Tier 1 based on increasing negative charges on soils at high pH values and on the increased importance of negatively charged copper carbonate complexes and hydrolysis species.

Europium (see Lanthanides)

Iodine

The -1 (iodide) state is the common oxidation state of iodine. The movement of iodine is generally considered to be water coincident, i.e., not retarded. The lack of retardation of iodine was supported by the literature that was reviewed. The K_d values reported for iodine came from Ames and McGarrah (1980), Baker et al. (1964), Beetem (1962), and Serne and Relyea (1983). This lack of retardation of iodine is reflected in the K_d values (0.0) that were selected for all cells of the iodine matrix. These values were also used for all iodine isotopes.

Iron

Iron exists in the +2 and +3 oxidation states in soil environments. References obtained on iron adsorption never differentiated the iron adsorption data according to oxidation state. The matrix for iron includes only the effects of soil composition and pH on iron distribution coefficients.

Most of the studies encountered addressed the adsorption of iron onto pure minerals, such as silicon dioxide (O'Melia and Stumm 1967), bentonite (Rengasamy and Oades 1977), kaolinite (Fordham 1969; Rengasamy and Oades 1977), and illite (Rengasamy and Oades 1977). Other studies, such as those by O'Melia and Stumm (1967), Serne et al. (1983), and Artiola and Fuller (1980), addressed the adsorption of iron on soil materials.

Again, conservative but representative values were chosen for all cells of the matrix. The value of 1.5×10^1 from O'Melia and Stumm (1967) was chosen for all cells of Tier 2. The values estimated for Tier 3 were reduced by an order of magnitude from the values in Tier 2 because of the

predominance of negatively charged hydrolysis species. The value measured at low pH values (Serne et al. 1983) was chosen for Cell 3 of the iron matrix. The values selected for Cells 1 and 2 were estimates based on Serne et al. (1983). The values are conservative estimates based on the references listed and on other adsorption data (pure minerals) applicable to these cells.

Krypton-85

Krypton is a noble gas and has the closed-shell electronic structure and stability characteristic of the other noble gases. The boiling point of krypton is approximately 120°K, which means that it will remain a gas at any environmental temperature. The chemical reactions of krypton are limited; krypton has been induced to enter into stable-chemical bonds with only oxygen and fluorine.

Because krypton is an inert gas, it is expected that it will move concomitantly with water and exhibit a K_D value of 0.0, which is in agreement with the conclusions of Onishi et al. (1981). Accordingly, a K_D value of 0.0 was chosen for all cells of the krypton matrix.

Lanthanides

The elements cerium, europium, praseodymium, promethium, and samarium are called lanthanides and, as such, their chemistries are similar to lanthanum and to each other. The chemistry of these elements is determined by the size of the +3 oxidation state, which all five elements readily form. Certain of these radionuclides also exhibit +2 and +4 oxidation states, but the +3 oxidation state is always the most stable in aqueous solutions. Because of their similar oxidation states and chemistries, these radionuclides are considered as a single group. The various isotopes of a given element will, of course, have almost identical chemistries and adsorptive characteristics.

The references used in assessing the adsorptive capabilities of the lanthanides are Baetsle et al. (1964), Baetsle and Dejonghe (1962), Cerrai et al. (1969), Cloninger et al. (1980), Coles et al. (1980), Essington and Nork (1969), Hoffman [(1975); as reported by Ames and Rai (1981)], Kuznetsov

and Schebethovskii (1971), Nishiwaki et al. (1973), Rhodes (1957a), Serne et al. (1977), Serne and Rai (1976), Serne and Relyea (1983) and Wolfram and Bunzl (1986).

The values selected for inclusion in the matrices of the lanthanide elements were conservative estimates taken from the range of reported K_d values. The K_d values are conservative in the sense that values on the low end of the range of values were selected. Lower K_d values mean that an element is more mobile (i.e., does not adsorb as strongly) than it would be if it had a higher K_d value.

These values are used for the isotopes Ce-141, Ce-144, Eu-152, Eu-154, Eu-155, and Sm-151.

Lead

In the Eh and pH ranges found in nature, lead exists in the +2 oxidation state. Lead adsorption has been found to correlate strongly with the clay and organic matter content of soils. After considering K_d values measured by Duddridge and Wainwright (1981), Lagerwerf and Brower (1973), Riffaldi et al. (1976), Singh and Sekhon (1977a), Soldatini et al. (1976), and EPA (1985), we chose values from EPA and from Singh and Sekhon for Tier 2 of the lead matrix. Distribution coefficients of 2.34×10^2 and 5.97×10^2 (EPA 1985) were selected for Cells 4 and 5, respectively. Values ranged from 4.26×10^1 to 2.47×10^3 for Cell 4 and from 5.56×10^1 to 1.53×10^4 for Cell 5. The K_d values obtained for Cell 6 ranged from 1.83×10^3 to 4.5×10^3 . The value of 1.83×10^3 (Singh and Sekhon 1977a) was selected for Cell 6.

Griffin and Au (1977), Griffin and Shimp (1976), Lagerwerff and Brower (1973), and Serne et al. (1983) measured lead adsorption at the low pH values applicable to Tier 1 of the matrix. A value from Lagerwerff and Brower (1973) was selected for Cell 3, and estimates based on values from Lagerwerff and Brower (1973) were chosen for Cells 1 and 2.

The values in Tier 3 are estimates based on those of EPA (1985) and Singh and Sekhon (1977a). Consideration was given to the speciation of lead and changing soil conditions with increasing pH.

The values for lead are also used for lead oxide and lead radionuclides.

Magnesium (see Alkaline Earth Cations)

Manganese

Manganese is found in the +2, +3, and +4 oxidation states in the environment. The two higher oxidation states (+3 and +4) exist in oxidizing ground waters, and the +2 oxidation state is stable under reducing environments. Under environmental conditions, manganese is most commonly found in the +2 oxidation state.

Shuman (1977) studied the adsorption of manganese on loamy sand soils at intermediate pH values. The distribution coefficients measured varied from 1.65×10^1 to 3.7×10^1 . The most conservative value (1.65×10^1) was selected for inclusion in Cell 4 of the manganese K_d matrix. Shuman (1977) also reported two distribution coefficients applicable to Cell 5 of the manganese matrix: 8.7×10^1 and 2.53×10^1 for the adsorption of manganese on a sandy loam soil. Reddy and Perkins (1976) and Stuanes (1976) measured K_d values that ranged from 1.1×10^1 to 4.3×10^1 for adsorption of manganese onto kaolinite. Distribution coefficients were measured for the adsorption of manganese in the presence of seawater by Duursma and Eisma (1973) and Duursma and Bosch (1970), whose experiments are also applicable to Cell 5 of the manganese distribution coefficient matrix and considered the effects of varying particle size on the adsorption characteristics of manganese. The K_d values measured varied from 2×10^2 to 7×10^4 . The conservative value (2.53×10^1) from Shuman (1977) was accepted for Cell 5. For a clay loam, corresponding to Cell 6 of the matrix, Shuman determined manganese K_d values of 3.69×10^1 and 4.85×10^1 . The K_d value of 3.69×10^1 (Shuman 1977) was chosen for Cell 6. Other values pertaining to Cell 6 concerned adsorption on pure clays (Reddy and Perkins 1976; Stuanes 1976) or on soils with organic matter contents of around 60% (Gerritse et al. 1982).

Gerritse et al. (1982) also reported K_d values for manganese at pH values less than 5 that are applicable to Tier 1 of the distribution coefficient matrix. The K_d values corresponding to Cell 1 of the matrix (1.05 to 3.5×10^1) were measured on a soil with 3.5% organic matter, while the K_d value pertaining to Cell 3 (9.9×10^2) was determined on a "soil" that was 90% organic matter. Serne et al. (1983) percolated an acidic uranium mill

tailings solution through a silty clay loam soil and measured a K_d of 1.6. A K_d of 1.0×10^1 was determined by Reddy and Perkins (1976) for the adsorption of manganese on bentonite. The values of Serne et al. (1983) and Reddy and Perkins (1976) apply to Cell 3 of the matrix. The dominant manganese species at low pH values is Mn^{2+} . The positive charge on the manganese species, coupled with a tendency toward an increase in positively charged soil materials due to protonation, indicates that the K_d values for manganese will decrease at the lower pH values of Tier 1. These predictions agree with the data of Serne et al. (1983), Reddy and Perkins (1976), and Gerritse et al. (1982). The studies of manganese adsorption on bentonite (Reddy and Perkins 1976) indicate that the K_d values in Tier 1 ($pH \leq 5$) are approximately an order of magnitude lower than the K_d values in Tier 2. This order-of-magnitude decrease in K_d values from Tier 1 to Tier 2 is also in accord with the data of Serne et al. (1983) and Reddy and Perkins (1976). The K_d values in Tier 1 were, therefore, chosen to be an order of magnitude lower than the values in Tier 2.

The values selected for Tier 3 were the same as those in Tier 2. These Tier 3 values should be conservative values, inasmuch as manganese does not hydrolyze extensively (species remain predominantly positively charged) and there is a tendency for the soil materials to increase in negative charge at higher pH values. Based on the foregoing discussion, the K_d values for manganese would be expected to increase with increasing pH. The values chosen for Tier 3 should be considered conservative yet realistic.

These values have also been used for the isotope Mn-54.

Mercury

In aqueous solutions, mercury exists in the 0, +1, and +2 oxidation states. The experimental literature we examined has not distinguished between the various oxidation states of mercury as far as adsorption is concerned.

Five literature sources containing mercury adsorption data were obtained (Kinniburgh and Jackson 1978; Lockwood and Chen 1974; Newton et al. 1976; Ramamoorthy and Rust 1976; and EPA 1985). The adsorption data covered the pH ranges in all tiers of the mercury matrix. Many of the data addressed

mercury adsorption on amorphous iron oxyhydroxides and bentonite, but data dealing with adsorption on soil materials were also found. The estimates used were based on soil chemistry, speciation, and the literature.

Neptunium

Five oxidation states of neptunium (+3, +4, +5, +6, and +7) are known to exist in aqueous solutions. These oxidation states can be unstable under many environmental conditions. For example, it is well known that the $\text{Pu}^{3+}/\text{Pu}^{4+}$ redox couple is readily reversible. Neptunium is generally more mobile (i.e., has a lower K_d value) under oxidizing conditions than under reducing conditions. Equilibrium coefficient values were developed to account for the varying mobility of neptunium under oxidizing and reducing conditions, respectively.

Under oxidizing conditions, K_d values of 3.0 (Serne and Relyea 1983; Cloninger and Cole 1981) were used for all cells of Tiers 1, 2, and 3. In reducing conditions, values of 5.0×10^1 (Serne and Relyea 1983) were used in all tiers of the matrix. These values were in general agreement with those reported elsewhere in the literature (Ames and McGarrah 1980; Cloninger et al. 1980; Kent et al. 1986; Routson et al. 1976a,b; and Serne et al. 1977).

These values were used for the isotope Np-237.

Nickel

The dominant nickel species in natural aqueous environments is Ni^{2+} . Nickel forms strong complexes with certain anions, such as sulfate, but Ni^{2+} remains the dominant species up to pH levels between 9 and 10.

The EPA (1985) reported a value of 1.22×10^1 for the adsorption of nickel on a sandy soil. Bowman et al. (1981) found an average value of 2.0×10^2 for six measurements also on a sandy soil. Both of these measurements apply to Cell 4 of the nickel matrix. Other K_d values applicable to Cell 4 ranged from 6 to 450 (Cloninger et al. 1980; Gerritse et al. 1982; Serne and Relyea 1983). These values were for the adsorption of nickel on tuff, on granite, and on sediments in the presence of a salt brine. The conservative value of 1.22×10^1 (EPA 1985) was accepted for Cell 4. Bowman

et al. (1981), EPA (1985), and Serne and Relyea (1983) measured values applicable to Cell 5 of the matrix that ranged from 5.86×10^1 to 2.48×10^2 . The K_d value of 2.48×10^2 was an average of twelve values reported by Bowman et al. (1981). The most conservative value (5.86×10^1) was selected for Cell 5 of the matrix. Gerritse et al. (1982), Bowman et al. (1981), and Takematsu (1979) measured K_d values that fit in Cell 6 of the matrix. The value obtained by Bowman (6.5×10^2), which was an average of three values, was chosen for Cell 6.

Gerritse et al. (1982) reported K_d values at the low pH regimes (Tier 1 of the nickel matrix). The reported values ranged from 1.05×10^1 to 1.05×10^2 for Cell 1. A value of 9.90×10^2 was measured for Cell 3. Some of the values given by Gerritse et al. (1982) were for soils with extremely high organic matter contents. Because the Ni^{2+} species is the dominant species below a pH of approximately 9, and because the charge on sediments tends to become more positive with decreasing pH values, the K_d values for Tier 1 were reduced by an order of magnitude from those values accepted for Tier 2. The reduced K_d values are in agreement with the values reported in the literature.

The K_d values chosen for Tier 3 were the same values chosen for Tier 1. These Tier 3 values have been reduced by an order of magnitude from the values in Tier 2. At the high pH values of Tier 3, neutral and negatively charged hydrolysis species of nickel become important. The presence of neutral and negatively charged hydrolysis species, coupled with the tendency for an increased negative charge to develop on sediments, increases the potential for migration of nickel.

These values are also used for the isotopes Ni-56 and Ni-63.

Niobium

Niobium exists in the +5 and +3 oxidation states in aqueous solutions, with the +5 state exhibiting dominance. The species distribution is one-sided, because although niobium has virtually no cationic species, it forms numerous anionic species.

The only references located for niobium (Cloninger and Cole 1981; Garder and Skulberg 1964; Serne and Relyea 1983; and Wolfram and Bunzl 1986) dealt with niobium adsorption under conditions corresponding to Tier 2 of the matrix. Distribution coefficients of 5.0×10^1 (Serne and Relyea 1983), 1.00×10^2 (Serne and Relyea 1983) and 1.00×10^2 (Serne and Relyea 1983) were selected for Cells 4, 5, and 6, respectively.

The K_d values chosen for Tier 1 were the same values as listed in Tier 2. The negatively charged solution species should have a greater affinity for soil surfaces that are becoming increasingly protonated at lower pH values. Therefore selecting Tier 1 values that are the same as the Tier 2 values is conservative.

The K_d values in Tier 3 were estimated to be an order of magnitude lower than the values in Tier 2 because of differences in soil surface chemistry (increasing negative charge) and negatively charged aqueous species.

These values are used for the isotopes Nb-93m and Nb-95.

Plutonium

Plutonium exhibits five oxidation states (+3, +4, +5, +6, and +7) in aqueous solutions. The +4 [Pu(IV)] oxidation state is considered the most stable in near-neutral environments, with Pu(VI) (PuO_2^{2+}) the next most stable state (Ames and Rai 1978). The +3 state (Pu^{3+}) is thought to be more stable than the +5 state (PuO_2^+). In oxidizing environments, the +5 and +6 oxidation states predominate. Duursma and Parsi (1974) studied ^{237}Pu adsorption on sediments under both reducing and oxidizing conditions (+3, +4, and +6 valence states) and determined a K_d of approximately 10^4 . Their study was conducted at pH values between 7.8 and 8.0 and found no significant differences in K_d values associated with valence state or redox conditions (Duursma and Parsi 1974). The absence of significant differences in K_d values is probably due to the fact that all systems reached the same final state. However, other researchers (Mo and Lowman 1975) observed approximately order-of-magnitude differences in K_d values measured under oxidizing and reducing conditions. As with neptunium, the reduced forms of plutonium

tended to be less mobile. The values in Table 4.1 represent our best choices of K_d values for plutonium adsorption under oxidizing and reducing conditions.

Nishita et al. (1976) determined plutonium K_d values as a function of pH and found that plutonium was most strongly adsorbed at intermediate pH values (Tier 2) and less strongly adsorbed at either low or high pH values. The K_d values in the literature usually varied by about four orders of magnitude for a given cell of the matrix. However, many of the experiments were conducted under conditions not applicable to the migration of plutonium from a waste site. For example, some of the experiments were conducted on rock, salt, or tuff, or in the presence of seawater. In our K_d selections, we have tried to give more weight to those studies conducted on natural sediments in the presence of river water or groundwater. The references considered in the plutonium K_d evaluation were Ames and McGarrah (1980), Cloninger et al. (1980), Cloninger and Cole (1981), Coles et al. (1980), Fukai et al. (1974), Hajek and Knoll (1966), Hayes et al. (1976), Knoll (1965, 1969), Nishita et al. (1976), Onishi et al. (1981), Pillai and Mathews (1976), Relyea and Serne (1979), Sedlet and Golchert (1977), Serne et al. (1977), Serne and Relyea (1983), Seymour et al. (1979), and Tamura (1972).

These values are used for the isotopes Pu-238, Pu-239, Pu-240, and Pu-241.

Potassium (see Sodium)

Praseodymium (see Lanthanides)

Promethium (see Lanthanides)

Ruthenium

Ruthenium has oxidation states varying from -2 to +7. The +3 and +4 oxidation states are the most important states in aqueous solutions. There was a paucity of data dealing with the adsorptive characteristics of the various oxidation states of ruthenium. Moreover, those references located that did address the various oxidation-state adsorptive capabilities all reported similar values. For these reasons, ruthenium adsorption was treated with a single distribution coefficient matrix.

Rhodes (1957a) measured K_d values between 2.74×10^2 and 7.52×10^2 for ruthenium adsorption onto Hanford subsoils at pH values varying from 6.6 to 8.5. The K_d values obtained were applicable to Cell 4 of the distribution coefficient matrix; the conservative value of 2.74×10^2 was accepted. A K_d value of 3.51×10^2 (Serne et al. 1977) was selected for Cell 5, while a value of 6.91×10^2 (Garder and Skulberg 1964) was placed in Cell 6. Additional values from the literature were consistent with those for Tier 2 of the matrix (Duguid 1976; Duursma and Bosch 1970; Duursma and Eisma 1973; Essington and Nork 1969; Garder and Skulberg 1964; Kepak 1966; and Schell et al. 1979, 1980).

Distribution coefficients of 2.7×10^1 (Rhodes 1957a), 5.0×10^1 (Cloninger and Cole 1981), and 5.0×10^1 (estimate from Cloninger and Cole 1981) were chosen for Cells 7, 8, and 9 of Tier 3 after the relevant literature had been examined. The RuO_4^- species would be predominant in the pH range of 5 to 10.5.

Rhodes (1957a) also reported K_d values at low pH regimes (pH 1.3-4.7) for ruthenium adsorption on Hanford subsoils. The value reported by Rhodes (1957b) was the only value encountered in the literature that was germane to Tier 1 (Cell 1) of the matrix. The K_d value measured at a pH of 2.6 (2.6×10^1) was used in all cells of Tier 1 of the matrix. This value (2.6×10^1), which was pertinent to Cell 1 of the matrix, will be a conservative estimate of the values expected in soils with a greater adsorptive capacity that are represented by Cells 2 and 3.

These values are used for the isotopes Ru-103 and Ru-106.

Samarium (see Lanthanides)

Selenium

Selenium in aqueous solution can exist in a variety of aqueous species and in three oxidation states (-2, +4, and +6). The selenite species (+4) would predominate under intermediate to slightly oxidizing conditions, with selenite (+6) the dominant oxidation state under highly oxidizing conditions. Distribution coefficients were found for the +4 and +6 oxidation states.

Selenium distribution coefficients were reported by Ames and Rai (1978), EPA (1985), Frost and Griffin (1977), Singh et al. (1981), and Serne et al. (1983). The distribution coefficients chosen for selenium(IV) at intermediate and high pH values were based on measurements made by the EPA (1985). The coefficients taken at low pH values were based on the experimental measurements of Serne et al. (1983) and Frost and Griffin (1977). The K_d values for selenium(VI) were based on values measured by EPA (1985).

The selenium values are also used for the isotope Se-79.

Silver

Silver is found exclusively in the +1 oxidation state. The only K_d value obtained was for silver adsorption on a clay under acidic conditions (Serne et al. 1983). The K_d values for adsorption on a loam and sand under acidic conditions were estimated to be one and two orders of magnitude lower, respectively, than adsorption on a clay. The distribution coefficients at intermediate and high pH values were conservatively estimated to be the same as the values at the lower pH values for a similar soil composition.

Sodium

Thallium was grouped with sodium and potassium because the dominant single charge and large size of the Tl^{+1} ion give its compounds properties similar to those of the alkali metals. Sodium and potassium exist only in the +1 oxidation state. Ion exchange data, as opposed to distribution coefficients, are commonly reported for the members of the alkali metals that have smaller dehydrated radii such as potassium and sodium. As we move down the alkali metals and encounter increasing dehydrated radii, the relative ease of replaceability of the ions decreases. Therefore, sodium data should provide conservative estimates of potassium distribution coefficients. Two references (Levy and Feigenbaum 1977; Yadav and Girdhar 1981) provided sufficient information to permit calculation of sodium K_d values.

Distribution coefficients varying from 0.80 to 1.40 were computed from data for sodium adsorption applicable to Cell 6 of the matrix (Levy and Feigenbaum 1977). Values that pertained to Cell 5 ranged from 0.20 to 0.69 (Yadav and Girdhar 1981). The most conservative values were selected for

the matrix. A value of 0.0 was estimated for Cell 4. These same values (the Tier 2 sodium K_d s) were chosen for Tier 2 for potassium and thallium.

The K_d s in Tier 3 for sodium were chosen to be the same as those in Tier 2. The weakly hydrolyzable sodium ion and the increasing negative charge of soil materials at increasing pH values should combine to make these values for Tier 3 conservative. The sodium values of Tier 3 were selected as conservative estimates of potassium and thallium distribution coefficients at the high pH values corresponding to Tier 3 of the potassium and thallium matrices.

Because of increasing protonation of adsorbents and competition from the hydronium ion, values of 0.0 were estimated for Tier 1 for sodium, potassium, and thallium. All three are sensitive to ionic strength, with adsorption generally being inversely proportional to ionic strength.

Values for sodium are also used for sodium hydroxide and the isotope Na-22. The potassium values are also used for potassium hydroxide and the isotope K-40.

Strontium

Strontium is an alkaline earth that is found only in the +2 oxidation state. Strontium tends to form weak complexes with inorganic ligands, and Sr^{2+} is the dominant species over the environmental range of interest. At high pH values, strontium may precipitate as a carbonate, which could limit the strontium concentrations found in solution.

A plethora of data was available on strontium adsorption. The references that were used in evaluating distribution coefficients for strontium included the following: Ames and McGarrah (1980), Baetsle et al. (1964), Baker et al. (1964), Cloninger et al. (1980), Cloninger and Cole (1981), Coles et al. (1980), Duguid (1975, 1976, 1977), Duursma and Bosch (1970), Duursma and Eisma (1973), Essington and Nork (1969), Kawabata (1967), McHenry (1958), Mercer (1966), Relyea and Serne (1979), Rhodes (1957a), Schell et al. (1980), Sedlet and Golchert (1977), and Serne and Relyea (1983). Representative but conservative values that were accepted for Tier 2 were 2.43×10^1

(McHenry 1958), 1.00×10^2 (Duguid 1976), and 1.24×10^2 (Schell et al. 1980) for Cells 4, 5, and 6, respectively.

The values selected for Tier 1 were one order of magnitude lower than the values chosen for Tier 2. This is in agreement with the values reported by Murray and Murray (1973) and Coles et al. (1980). Because of increased protonation of surface sites at low pH values and increased competition from the hydronium ion, one would expect the K_d values to decrease with decreasing pH.

The strontium ion (Sr^{2+}) remains the dominant strontium species at high pH values. The positively charged strontium species, coupled with the increasing tendency towards negatively charged sediment surfaces, should tend to increase the K_d values at high pH values. Essington and Nork (1969) and Prout (1958, 1959) reported K_d values in the high-pH regimes applicable to Cells 7 and 8 of the strontium matrix. The K_d values that applied to Cell 8 (Prout 1958, 1959) were approximately twice as large as the high values reported in Cell 5 of Tier 2. The conservative approach taken in selecting K_d values for Tier 3 was to choose K_d values that were the same as the values in Tier 2. The estimated K_d values are in line with the values from the literature.

These values are also used for the isotopes Sr-89 and Sr-90.

Technetium

The general aqueous chemistry of technetium is fairly well known, resembling the chemistry of rhenium more closely than the chemistry of its other homologue, manganese. Technetium can exist in oxidation states varying from -1 to +7, with the +4 [Tc(IV)] and +7 [Tc(VII)] states being the most stable in natural environments. Boyd (1959), Kotegov et al. (1968), and Laurukhina and Pozdnyakov (1970) state that the +7 state is the most stable oxidation state, while Bondietti (1981) points out that the +4 species becomes more stable in systems not in contact with the atmosphere, such as natural groundwaters. Technetium species in oxidation states lower than +4 rapidly oxidize to the +4 and +7 states, and the +5 and +6 states are unstable and disproportionate to form stable oxidation states (+4 and +7).

The pertechnetate ion (TcO_4^-) is the most stable technetium species in aqueous environments. Where reducing agents, such as organic matter, are present, Tc(VII) may be reduced to Tc(IV). The pertechnetate ion will not readily adsorb and will normally have a low K_d value, while technetium in the +4 oxidation state [Tc(IV)] will adsorb more strongly. Because of the different adsorptive characteristics of Tc(IV) and Tc(VII), separate distribution coefficient matrices have been created for each oxidation state.

Under oxidizing conditions, the pertechnetate species will be predominant and will have, for all practical purposes, a water-coincident mobility. Therefore, K_d values of 0.0 were chosen for Tc(VII) in all cells of the matrix. This conclusion is supported by Serne and Relyea (1983), Cloninger et al. (1980), Ames and McGarrah (1980), Turlotte (1982), and Weed et al. (1980).

Under reducing conditions, K_d values of 3 or 20 were used in all cells of the Tc(IV) matrix. These distribution coefficients were based on values reported by Serne and Relyea (1983), Cloninger and Cole (1981), and Ames and McGarrah (1980). At the high pH values of Tier 3, the pertechnetate ion is expected to be the major technetium species, even under highly reducing conditions, in most environmental settings.

The values for technetium are used for the isotope Tc-99.

Thallium (see Sodium)

Thorium

Thorium is found only in the +4 oxidation state in the environment. The Th^{4+} species would be a major species only under extremely acidic conditions. Thorium hydrolyses readily, and the hydrolysis species are the dominant species over the pH range commonly encountered in the environment.

Thorium adsorption has been found to increase with an increase in pH in some studies. The increased adsorption at higher pH values was probably due to the precipitation of thorium hydroxide or a hydrated thorium oxide. In studies by Rancon (1973), K_d decreased with decreasing pH. The literature evaluated for thorium consisted of studies reported by Cloninger et al.

(1980), Cloninger and Cole (1981), Kurokawa (1971), Nishiwaki et al. (1973), Rancon (1973), and Serne and Relyea (1983).

These values are used for the isotopes Th-227, Th-228, Th-229, Th-230, Th-232, and Th-234.

Tin

The +4 valence state of tin is predominant, although the +2 state also exists. Tin should react similarly to thorium under oxidizing conditions and somewhat analogously to nickel under reducing conditions.

Based on the literature we examined (Cloninger et al. 1980; Cloninger and Cole 1981; Rancon 1973; Serne and Relyea 1983), tin under oxidizing conditions appears to have a K_d approximately an order of magnitude greater than it has under reducing conditions. It is expected that the +4 oxidation state would be more highly retarded relative to the groundwater velocity than the +2 state, because the higher-charged elements tend to be more strongly adsorbed. Values for the +2 state have been selected to describe tin and the isotope Sn-126.

Tritium

Tritium is one of three known isotopes of hydrogen with a half-life of 4.5×10^3 days. The three isotopes have almost identical chemical properties and they are expected to behave similarly in the environment. Several authors (Clayton et al. 1966; Koranda 1965; Rabinowitz 1969; Rabinowitz et al. 1973; Rosenqvist 1963; Stewart 1967) have documented the fixation of tritiated water on clays, such as kaolinite and illite. In addition, tritium can enter into exchange reactions with such species as Al^{3+} . However, the movement of tritium is generally expected to be water coincident. Accordingly, the distribution coefficients of tritium listed in Table 4.1 have all been set to zero.

Uranium

In aqueous solutions, uranium exists in the +3, +4, +5, and +6 oxidation states. Under common environmental conditions, however, the +4 and +6 states are the important ones. Uranium in the +3 [U(III)] state readily oxidizes to the +4 state, and the +5 state disproportionates into the +4 and +6 states.

Uranium in the +4 state tends to form insoluble precipitates (e.g., uraninite) that can maintain uranium concentrations at low levels. Manskaya et al. (1956), Rozhkova et al. (1958), and Starik et al. (1958) observed maxima for uranium adsorption between pH values of 5 and 6. At alkaline pH levels, uranium adsorption is poor in oxidizing conditions. Uranium adsorption has also been correlated with the clay content of soils (Kovalevskii 1967). The most important parameters affecting uranium adsorption and retention in soils are pH and redox potential. Values selected for uranium were developed to account for the effects of redox conditions on uranium adsorption.

Uranium in the +4 oxidation state tends to be less soluble and less mobile than uranium in the +6 oxidation state. The K_d values of the +4 [U(IV)] oxidation state of uranium are taken to be the same as those for Pu(IV). Borovec (1981) found that for adsorption of U(VI), the K_d varied from 5.0×10^1 to 1.0×10^3 along the sequence from kaolinite to illite to montmorillonite.

References from which data were considered for inclusion in the uranium matrix included Ames and McGarrah (1980), Cloninger and Cole (1981), Cloninger et al. (1980), Kurokawa (1971), Rancon (1973), Serne et al. (1977), and Serne and Relyea (1983). The values selected as representative of uranium adsorption are listed in Table 4.1.

These values are used for the isotopes U-233, U-234, U-235, U-236, U-238, and U-239.

Yttrium

Yttrium has a +3 charge and atomic and ionic radii lying close to the lanthanides terbium and dysprosium. Yttrium is also often found associated with the lanthanides in the environment and is expected to behave chemically similarly to the lanthanides.

The only references that reported K_d values for yttrium were Garder and Skulberg (1964) and Gromov et al. (1972). The K_d values corresponded to Tier 2 (Cells 4, 5, and 6) of the yttrium matrix. The K_d values reported for Cells 4 and 5 were measured with seawater as the background electrolyte. The only measurements taken in low electrolyte solutions were consistent with

Cell 6 of the matrix, and these measurements were performed on pure clays. Because of the special conditions under which the yttrium K_d s were measured and the similarity in chemistry between yttrium and the lanthanides, the yttrium K_d values (Table 4.1) were taken to be the same as those of the lanthanides (cerium, europium, praseodymium, promethium, and samarium).

These values are used for the isotopes Y-90 and Y-91.

Zinc

Zinc occurs only in the +2 oxidation state. Nine references dealing with zinc adsorption on soil materials were found (Chester 1965; Duddridge and Wainwright 1981; EPA 1985; Kuo and Mikkelsen 1979; Shukla et al. 1980; Shuman 1975; Sidhu et al. 1977; Sidle and Kardos 1977; and Singh and Sekhon 1977b).

The K_d values finally chosen to represent zinc adsorption at intermediate (Tier 2) and high (Tier 3) pH values were based on values from EPA (1985; Cells 4, 5, and 7), Sidhu et al. (1977; Cell 8) and Shuman (1975; Cells 6 and 9). The K_d values in the low-pH regime were based on studies by Shukla et al. (1980) for zinc adsorption on a loam soil. The published K_d values for a sandy soil at intermediate pH values (Cell 4) varied from 1.27×10^1 to 2.95×10^3 . The lowest value (1.27×10^1) was selected for Cell 4. Cell 5 had K_d values that ranged from 5.06×10^1 to 4.23×10^3 . A representative value of 9.39×10^2 was chosen for Cell 5. This value of 9.39×10^2 is consistent with the K_d value selected for Cell 4. The K_d values in the last cell of Tier 2 (Cell 6) varied from a low value of 1.95×10^2 to a high value of 6.82×10^4 . An intermediate value of 1.46×10^3 (Shuman 1975) was selected because the values tended to cluster toward the higher end. An additional factor was that we wanted to maintain consistency with the values in Cells 4 and 5. The K_d values in the low-pH regime were based on studies by Shukla et al. (1980) for zinc adsorption on a loam soil.

Zirconium

Zirconium exhibits only a +4 oxidation state, although the Zr^{4+} species is a minor species except under extremely acidic conditions. Above a pH of

approximately 6, the negatively charged hydrolysis species $[\text{Zr}(\text{OH})_5^-]$ is the predominant zirconium aqueous species.

The K_d values evaluated for the distribution coefficient matrix came from Arnold and Crouse (1971), Cloninger et al. (1980), Cloninger and Cole (1981), Dlouhy (1967), Prout (1959), Rhodes (1957a), Serne and Relyea (1983), and Sorathes et al. (1960). Rhodes (1957b) found that zirconium K_d values decreased in magnitude as pH increased from 8 to 12. This decrease would be expected, given the negatively charged hydrolysis species and increasingly negative character of the soil charge with increasing pH values. Because of this finding (Rhodes 1957b), and the expected speciation and soil-surface chemistry, the K_d values in Tier 3 were reduced by an order of magnitude from the values in Tier 2. Spitsyn et al. (1958) observed little movement of zirconium through a sandy soil in a field test under both acidic and alkaline conditions. Based on an evaluation of the literature, K_d values of 5.0×10^1 (Cloninger et al. 1980), 5.0×10^2 (Serne and Relyea 1983), and 1.0×10^3 were placed in Cells 4, 5, and 6, respectively, of Tier 2. The K_d values in Tier 3 were chosen to be an order of magnitude lower than the values in Tier 2.

Distribution coefficients selected for Tier 1 were the same as those placed in Tier 2. Only when the pH is less than approximately 4 do positively charged zirconium species start to become predominant in aqueous solutions.

These values are also used for the isotopes Zr-93m and Zr-95.

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APPENDIX A

SUMMARY TABLES OF DATA BASE PARAMETER VALUES

APPENDIX A

SUMMARY TABLES OF DATA BASE PARAMETER VALUES

This appendix presents tables summarizing parameter values in the current version of the MEPAS chemical data base, CHEMLIB. The tables are organized by data category as follows:

Table A.1.	CHEMLIB Pollutant Names and Identification
Table A.2.	Chemical Pollutant Cancer Potency Factors
Table A.3.	Chemical Pollutant Reference Doses
Table A.4.	Environmental Bioaccumulation and Transfer Factors
Table A.5.	Radiological and Environmental Decay Half Times
Table A.6.	Physical and Chemical Parameters
Table A.7.	Radiation Dosimetry Parameters

The tables present the value for each parameter for pertinent constituents. Cancer potency factors (Table A.2) are presented only for carcinogenic chemicals, reference doses (Table A.3) are presented only for non-carcinogens, and radiation dose factors (Table A.7) are presented only for radionuclides.

TABLE A.1. CHEMLIB Pollutant Names and Identification

Short Name	CAS/ID Number	Full Name and Common Synonyms
ACTINIUM-225	AC225	ACTINIUM-225
ACTINIUM-227	AC227	ACTINIUM-227
AMERICIUM-241	AM241	AMERICIUM-241
AMERICIUM-242	AM242	AMERICIUM-242
AMERICIUM-242M	AM242M	AMERICIUM-242M
AMERICIUM-243	AM243	AMERICIUM-243
ANTIMONY-125	SB125	ANTIMONY-125
BERYLLIUM-7	BE7	BERYLLIUM-7
CARBON-14	C14	CARBON-14
CERIUM-144	CE144	CERIUM-144
CESIUM-134	CS134	CESIUM-134
CESIUM-135	CS135	CESIUM-135
CESIUM-137+D	CS137	CESIUM-137+D
COBALT-57	CO57	COBALT-57
COBALT-60	CO60	COBALT-60
CURIUM-242	CM242	CURIUM-242
CURIUM-243	CM243	CURIUM-243
CURIUM-244	CM244	CURIUM-244
CURIUM-245	CM245	CURIUM-245
EUROPIUM-152	EU152	EUROPIUM-152
EUROPIUM-154	EU154	EUROPIUM-154
EUROPIUM-155	EU155	EUROPIUM-155
IODINE-129	I129	IODINE-129
IODINE-131	I131	IODINE-131
IODINE-135	I135	IODINE-135
KRYPTON-85	KR85	KRYPTON-85
LEAD-210	PB210	LEAD-210
LEAD-212	PB212	LEAD-212
MANGANESE-54	MN54	MANGANESE-54
NEPTUNIUM-237	NP237	NEPTUNIUM-237
NICKEL-56	NI56	NICKEL-56
NICKEL-63	NI63	NICKEL-63
NIOBIUM-93M	NB93M	NIOBIUM-93M
NIOBIUM-95	NB95	NIOBIUM-95
PHOSPHORUS-32	P32	PHOSPHORUS-32
PALLADIUM-107	PD107	PALLADIUM-107
PLUTONIUM-238	PU238	PLUTONIUM-238
PLUTONIUM-239	PU239	PLUTONIUM-239
PLUTONIUM-240	PU240	PLUTONIUM-240
PLUTONIUM-241	PU241	PLUTONIUM-241
POLONIUM-210	PO210	POLONIUM-210
POTASSIUM-40	K40	POTASSIUM-40
PROTACTINIUM-231	PA231	PROTACTINIUM-231
PROTACTINIUM-233	PA233	PROTACTINIUM-233
RADIUM-223	RA223	RADIUM-223
RADIUM-225	RA225	RADIUM-225
RADIUM-226	RA226	RADIUM-226
RADON-220+D (MOCK)	RN220	RADON-220+D (MOCK)
RADON-222+D (MOCK)	RN222	RADON-222+D (MOCK)
RUTHENIUM-103	RU103	RUTHENIUM-103
RUTHENIUM-106	RU106	RUTHENIUM-106
SAMARIUM-151	SM151	SAMARIUM-151
SELENIUM-79	SE79	SELENIUM-79
SODIUM-22	NA22	SODIUM-22
SULPHUR-35	S35	SULPHUR-35
STRONTIUM-89	SR89	STRONTIUM-89
STRONTIUM-90	SR90	STRONTIUM-90
TECHNECIUM-99	TC99	TECHNECIUM-99
THORIUM-227	TH227	THORIUM-227
THORIUM-228	TH228	THORIUM-228
THORIUM-229	TH229	THORIUM-229

TABLE A.1. (contd)

Short Name	CAS/ID Number	Full Name and Common Synonyms
THORIUM-230	TH230	THORIUM-230
THORIUM-232	TH232	THORIUM-232
THORIUM-234	TH234	THORIUM-234
TIN-126	SN126	TIN-126
TRITIUM	H3	TRITIUM (as tritiated water, HTO)
URANIUM-233	U233	URANIUM-233
URANIUM-234	U234	URANIUM-234
URANIUM-235	U235	URANIUM-235
URANIUM-236	U236	URANIUM-236
URANIUM-238	U238	URANIUM-238
URANIUM-239	U239	URANIUM-239
YTTRIUM-90	Y90	YTTRIUM-90
ZINC-65	ZN65	ZINC-65
ZIRCONIUM-93	ZR93	Zirconium-93
ACENAPHTHENE	83329	Acenaphthene, 1,2-dihydro-acenaphthylene
ACENAPHTHYLENE	208968	Acenaphthylene, Cyclopenta(de)naphthalene
ACETONE	67641	Acetone, 2-propanone, dimethyl ketone
ACETONITRILE	75058	Acetonitrile, methyl cyanide
ACETOPHENONE	98862	Acetophenone, methyl phenyl ketone
2-ACETYLAMINOFLUORENE	53963	2-Acetylaminofluorene, N-fluoren-2-yl acetamide, 2-FAA
ACROLEIN(PROPENAL)	107028	Acrolein, 2-propenal, Acrylaldehyde
ACRYLONITRILE	107131	Acrylonitrile, Propenenitrile, Vinyl cyanide
ACRYLAMIDE	79061	Acrylamide, 2-Propenamide
ALDRIN	309002	Aldrin, HHDN, Octalene, Aldrex
ALK-ARYL SULFONATES	42615292	Alkyl aryl sulfonate cleaner (as alkyl benzene sulfonate)
ALKOXY-ME-CHOLINE	ALKOXYCL	3-Alkoxy(C12-15)-2-hydroxy-n-propyl trimethyl ammonium chloride
ALLYL ALCOHOL	107186	Allyl alcohol, Propenol, 3-Hydroxypropene
ALUMINUM	7429905	Aluminum
4-AMINOBIIPHENYL	92671	4-Aminobiphenyl, 4-Biphenylamine
AMMONIA	7664417	Ammonia, Ammonium Hydroxide
ANILINE	62533	Aniline, Aminobenzene, Phenylamine
ANTHRACENE	120127	Anthracene, Paranaphthalene
ANTIMONY	7440360	Antimony, Stibium
PCBs (GENERAL)	1336363	Aroclor, PCB (General Classification), Thermal
AROCLOR 1016 (PCB)	12674112	Aroclor 1016, PCB 1016
AROCLOR 1221 (PCB)	1104282	Aroclor 1221, Chlorodiphenyl (21% Cl), PCB 1021
AROCLOR 1232 (PCB)	11141165	Aroclor 1232, Chlorodiphenyl (32% Cl), PCB 1232
ARACLOL 1242 (PCB)	53469219	Aroclor 1242, PCB 1242
AROCLOR 1248 (PBC)	12672296	Aroclor 1248, Chlorodiphenyl (48% Cl), PCB 1248
AROCLOR 1254 (PCB)	11091691	Aroclor 1254, PCB 1254
AROCLOR 1260 (PCB)	11096825	Aroclor 1260, PCB 1260
ARSENIC	7440382	Arsenic
ASBESTOS (CROC)	12001284	Asbestos, Crocidolite, Blue asbestos
ASPHALT	8052424	Asphalt, Road tar, Mineral pitch, Petroleum pitch
BARIUM	7440393	Barium
BENZENE	71432	Benzene, Benzol, Benzolene, Mineral naphtha
BENZIDINE	92875	Benzidine, 4,4'-diaminobiphenyl
BENZO(A)ANTHRACENE	56553	Benz(a)anthracene, 1,2-benzanthracene
BENZO(A)PYRENE	50328	Benzo(a)pyrene, 3,4-benzopyrene, B(a)p
BENZO(B)FLUORANTHENE	205992	Benzo(b)fluoranthene, Benz(e)acephenanthrylene
BENZO(K)FLUORANTHENE	207089	Benzo(k)fluoranthene, 11,12-benzo(k)fluoranthene
BENZOIC ACID	65850	Benzoic acid
P-BENZOQUINONE	106514	P-benzoquinone, 2,5-cyclohexadiene-1,4-diene
BERYLLIUM	7440417	Beryllium, Glucinium
BIS(2-CHLOROETHYL)	111444	Bis(2-chloroethyl ether), Chloroethyl ether, DCEE
BIS(2-CHLOROISOPRO)	108601	Bis(2-chloroisopropyl)ether, Dichlorodiisopropyl ether
BIS(2-ETH-HEXYL)PHTHLT	117817	Bis(2-ethylhexyl phthalate), DEHP, DOP
BORATE (AS NA SALT)	1303964	Borate ion
BORON	744428	Boron (elemental)
BROMODICHLOROMETHAN	75274	Bromodichloromethane, Dichlorobromomethane
BROMOMETHANE	74839	Bromomethane, Methyl bromide, MB, MBX, MEBR

TABLE A.1. (contd)

Short Name	CAS/ID Number	Full Name and Common Synonyms
n-BUTANE	106978	n-Butane
1-BUTANOL	71363	1-Butanol, n-butyl alcohol
2-SEC-BUTYL-4,6-DIN	88857	2-sec-butyl-4,6-dinitrophenol, Dinoseb, DNBP, Spurge
CADMIUM	7440439	Cadmium
CALCIUM HYPOCHLORITE	7778543	Calcium Hypochlorite
CALCIUM OXIDE	1305788	Calcium oxide, Burnt lsme, Quicklime
CARBON DISULFIDE	75150	Carbon disulfide, Carbon bisulfide
CARBON TETRACHLORIDE	56235	Carbon tetrachloride, Freon 10, Tetrachloromethane
CEMENT DUST	CEMENT D	Cement dust
CHLORATE (AS NA SLT)	7775099	Chlorate ion
CHLORDANE	57749	Chlordane, BELT, Ortho-klor, Velsicol 1068
CHLORINE	7782505	Chlorine gas
P-CHLOROANILINE	106478	P-chloroaniline, 1-amino-4-chlorobenzene
CHLOROBENZENE	108907	Chlorobenzene, Phenyl chloride
CHLOROBENZILATE	510156	Chlorobenzilate, 4,4'-dichlorobenzilic acid ethyl ester
2-CHLOR-1,3-BUTADIEN	126998	2-chloro-1,3-butadiene, Chloroprene, Neoprene
CHLORODIBROMOMETHANE	124481	Chlorodibromomethane, Dibromochloromethane
CHLOROETHANE	75003	Chloroethane, Ethyl chloride
CHLOROFORM	67663	Chloroform, Trichloromethane, Freon 20
P-CHLORO-M-CRESOL	59507	P-chloro-m-cresol, 4-chloro-m-cresol
CHLOROMETHANE(METHY)	74873	Chloromethane, Methyl chloride
2-CHLORONAPHTHALENE	91578	2-Chloronaphthalene
2-CHLOROPHENOL	95578	2-Chlorophenol, Phenol
4-CHLORO PH PH ETHER	7005723	4-Chlorophenyl phenyl ether
3-CHLOROPROPENE(ALLY	107051	3-Chloropropene, Chlorallylene
CHROMIUM III	CR-III	Chromium III
CHROMIUM VI	7440473	Chromium VI, Chrome
CHRYSENE	218019	Chrysene, Benz(a)phenanthrene
COAL DUST	COAL DST	Coal dust
COAL TAR	8007452	Coal Tar
COBALT	7440484	Cobalt, metal dust, oxide, chloride, carbonyl
COPPER	7440508	Copper, C.I. pigmentmetal 2
CRUDE OIL	8002059	Crude Oil, Petroleum, Coal Oil, Coal Liquid
CYANIDE ION	57125	Cyanide ion, CN-
CYCLOHEXANE	110827	Cyclohexane, Hexahydrobenzene
CYCLOHEXANONE	108941	Cyclohexanone, Hexanon, Nadone, Sextone
DDD	72548	DDD, Rhothane
DDE	72559	DDE, Dichloroethylene
DDT	50293	DDT, Kopsol, Dicophane
DIAZINON	333415	Diazinon
DIBENZOL(A,H)ANTRAC	53703	Dibenzol(a,h)anthracene, 1,2,5,6-DBA
1,2-DIBROMO-3-CHLOR	96128	1,2-dibrom-3-chlor-propane Fumazone
DIBROMOMETHANE	74953	Dibromomethane, Methylene bromide
1,2 DICHLOROBENZENE	95501	1,2 Dichlorobenzene, Dowtherm E
1,4-DICHLOROBENZENE	106467	1,4-Dichlorobenzene, Paracide, PDB
3,3-DICHLOROBENZIDIN	91941	3,3'-Dichlorobenzidine, 4,4-Diamine
TRANS-1,4-DICHLORO-B	110576	Trans-1,4-dichlorobutene-2, 2-Butylene dichloride
DICHLORODIFLUOROMETH	75718	Dichlorodifluoromethane, Halon
1,1-DICHLOROETHANE	75343	1,1-Dichloroethane, Chlorure
1,2 DICHLOROETHANE	107062	1,2-Dichloroethane, Ethylene dichloride
1,1 DICHLOROETHYLENE	75354	1,1 dichloroethylene, Vinylidene chloride
1,2 DICHLOROETHYLENE	156605	Trans-1,2-Dichloroethylene, Trans-acetylene dichloride
2,4-DICHLOROPHENOL	120832	2,4-Dichlorophenol, DCP, NCI-C55345
2,6-DICHLOROPHENOL	87560	2,6-Dichlorophenol, NCI-C55345
1,2-DICHLOROPROPANE	78875	1,2-Dichloropropane, Propylene dichloride
CIS-1,3-DICHLOROPROP	10061015	Cis-1,3-Dichloropropylene, 1-propene, 1,3-dichloro-(2)-(9Cl)
TRANS-1,3-DICHLOROPR	10061026	Trans-1,3-Dichloropropene, (E)-1,3-dichloropropene
1,3-DICHLOROBENZENE	541731	1,3-Dichlorobenzene
DICOFOL/DTMC/CARBAX	115322	Dicofol, DTMC, Carbax, Kelthane
DIELDRIN	60571	Dieldrin, Octalox, Heod, Quintox
DIESEL FUEL	DIESEL F	Diesel fuel, Fuel Oil, Diesel Oil

TABLE A.1. (contd)

Short Name	CAS/ID Number	Full Name and Common Synonyms
DIETHYL PHTHALATE	84662	Diethyl phthalate, Neantine, Solvanol
P-DIMETHLAMINOAZOBEN	60117	P-Dimethylaminoazobenzene, Dimethyl yellow
3,3'-DIMETHOXYBENZID	119904	3,3'-Dimethoxybenzidine, Diacel navy DC
DIMETHYLAMINE (DMA)	124403	Dimethylamine, DMA
3,3'-DIMETHYLBENZIDE	119937	3,3'-Dimethylbenzidine, o-Tolidine
DIMETHYL ETHER	115106	Dimethyl ether, methyl ether, wood ether
2,4-DIMETHYLPHENOL	105679	2,4-Dimethylphenol, 1-hydroxy-2,4-dimethylbenzene
DIMETHYLPHTHALATE	131113	Dimethyl phthalate, Solvarone
DI-N-BUTYL PHTHALATE	84742	Di-n-butyl Phthalate, Elaol, DBP
M-DINITROBENZENE	99650	m-Dinitrobenzene, Dinitrobenzene
4,6-DINITRO-O-CRESOL	534521	4,6-Dinitro-O-cresolo, Krenite, Lipan
2,4-DINITROPHENOL	51285	2,4-Dinitrophenol, Nitro kleenup, Solfo black B
2,4-DINITROTOLUENE	121142	2,4-Dinitrotoluene, DNT
DMF DI-ME FORMAMIDE	68122	N,N-dimethyl formamide, DMF, NSC5356
2,4-D	94757	2,4-D, Amidox, Estone, Fernesta
DIOCTYL ADIPATE	103231	Diocetyl adipate, BEHA, DOA
DI-N-OCTYLPHTHALATE	117840	Di-n-octylphthalate
DI-N-PROPYLNITROSAMI	621647	Di-n-propylnitrosamine, DPN, NDPA
1,4-DIOXANE	123911	1,4-Dioxane, Glycol ethylene ether
N-PHENYL BENZENAMINE	122394	N-phenyl benzenamine, Diphenylamine, N,N-diphenylamine
1,2-DIPHENYLHYDRAZINE	122667	1,2-Diphenylhydrazine, Hydrazine
DISULFOTON	298044	Disulfoton, Disystax, Frumin al
DIURON	330541	Diuron, Dichlorfenidim, Vonduron
EDTA	60004	EDTA, Dequestrol, Tricon BW
ENDOSULFAN I (ALPHA)	115297A	Endosulfan, Thiomul, Malix
ENDOSULFAN II (BETA)	115297B	Endosulfan, Thiomul, Malix
ENDRIN	72208	Endrin, Hexadrin
ETHANE	74840	Ethane
ETHANOL	64175	Ethanol, Ethyl alcohol
ETHYL ACETATE	141786	Ethyl acetate, Acetoxyethane
ETHYLBENZENE	100414	Ethyl benzene, Phenylethane
ETHYL ETHER	60297	Ethyl ether, Diethyl ether, ethoxyethane
ETHYLENE GLYCOL	107211	Ethylene glycol, 1,2-ethandiol
ETHYL METHACRYLATE	97632	Ethyl methacrylate, Ethyl ester
FLUORANTHENE	206440	Flouranthene, IDRYL
FLUORENE	86737	Fluorene
FLUORIDE	7782414	Fluoride, Fluoro
FREON 113	76131	Freon 113, Ucon 113
FORMALDEHYDE	50000	Formaldehyde, Methanal, Formic aldehyde, Formalin
FUEL OIL #2	FUEL OIL	Fuel oil
FURAN	110009	Furan, furfuran, oxacyclopentadiene
GASOLINE	8006619	Gasoline, Petrol (represented as benzene)
GLYPHOSATE	1071836	Glyphosate, N-(Phosphonomethyl) Glycine, MON0573
BETA - HEEH	319857	Beta-hexachlorocyclohexane, Beta-HCH, Beta-BHC, Beta-Lindane
DELTA-HEEH	319868	Delta-hexachlorocyclohexane, Delta-HCH, Delta-BHC, Delta-lindane
GAMMA-HEEH (LINDANE)	58899	Gamma-hexachlorocyclohexane, Lindane, Gamma-BHC, Gamma-HCH, BHC
HEPTACHLOR	76448	Heptachlor, Rhodiachlor, Drinox
HEPTACHLOR EPOXIDE	1024573	Heptachlor epoxide
HEPTANES	142825	Heptanes, Dipropylmethane
HEXACHLOROBENZENE	118741	Hexachlorobenzene
HEXACHLOROBUTADIENE	87683	Hexachlorobutadiene, HCBd, Dolen-pur
ALPHA-HEXACHLOROCYCL	319846	Alpha-hexachlorocyclohexane, Alpha-lindane
HEXACHLOROCYCLOPENTA	77474	Hexachlorocyclopentadiene, C-56
HEXACHLORODIBENZO-P-	34465468	Hexachlorodibenzo-p-dioxin
HEXACHLORODIBENZOFUR	55684941	Hexachlorodibenzofurans
HEXACHLOROETHANE	67721	Hexachloroethane, Phenohep
HEXACHLOROPHENE	70304	Hexachlorophene
HEXANES	110543	Hexanes
2-HEXANONE ME-BU-KET	591786	Hexanone-2, n-butylmethyl ketone
HMX (H-NO2 TETZOCINE	2691410	1,3,5,7-Tetrazocine, Octahydro-1,3,5,7-tetranitro, Octagen
HYDRAULIC FLUID	HYDR FLU	Hydraulic fluid

TABLE A.1. (contd)

Short Name	CAS/ID Number	Full Name and Common Synonyms
HYDRAZINE	302012	Hydrazine, Diamine
HYDROGEN FLUORIDE	7669393	Hydrogen fluoride, Hydrofluoric acid
HYDROXYQUINOLINE	148243	Hydroxyquinoline, 8-quinolinol
INDENO(1,2,3-cd)PYRE	193395	Indeno (1,2,3-CD)pyrene, IP
IRON	15438310	Iron, Ferrous
ISOBUTANE	75285	Isobutane, 2-Methyl propane, LPG
ISOBUTYL ALCOHOL	78831	Isobutyl alcohol, Isobutanol
ISOPENTANE	78784	Isopentane, 2-Methyl Butane
ISOPHORONE	78591	Isophorone, Isoforon
ISOPROPYL ALCOHOL	67630	Isopropyl alcohol, 2-Propanol, Isopropanol
ISOSAFROLE	120581	Isosafrole, 1,3-benzodioxole, 5-(1-propenyl)
JP4	JP-4	JP-4 Jet Fuel, Aviation Fuel
KEPONE	143500	Kepone, Merex, CIBA 8514
KEROSENE	8008206	Kerosene, Coal oil, Kerosine
LEAD	7439921	Lead, DI, CoI. Pigment metal 4
LEAD OXIDE	1317368	Lead oxide, Massicotite, Litharge
LITHIUM HYDROXIDE	1310652	Lithium hydroxide
LITHIUM ION	7447418	Lithium ion (as lithium chloride)
MAGNESIUM	7786303	Magnesium
MANGANESE	7439965	Manganese
MERCURY	7439976	Mercury, Quicksilver
METHANOL	67561	Methanol, Methyl alcohol, Carbinol
METHAPYRILENE	91805	Methapyrilene, Tenalin, Restryl
METHOXYCHLOR	72435	Methoxychlor, Metox, DMDT
2-METHOXY-1-PROPANO	107982	2-Methoxy-1-propanol, Dowtherm 209
METHYLACRLONITRILE	126987	Methylacrlonitrile, Isopropene cyanide
METHYLCYCLOHEXANE	108872	Methylcyclohexane, Hexahydrotoluene, UN2296
METHYLCYCLOPENTANE	96377	Methylcyclopentane, UN2298
4,4'-METHYLENE-BIS(2	101144	4,4'-Methylenebis (2-chloroaniline), Bis amine, MOCA
METHYLENE CHLORIDE	75092	Methylene chloride, Dichloromethane, DCM, Freon 30
METHYLENE DITHIOCYAN	6317186	Methylene dithiocyanate
METHYL ETHYL KETONE	78933	Methyl ethyl ketone, Meetco, 2-butanone
2-METHYLNAPHTHALENE	91576	Methylnaphthalene, Methylanftalen
4-METHYL-2-PENTANONE	108101	4-Methyl-2-pentanone, Hexone
2-METHYLPHENOL(O-CRE	95487	2-Methylphenol, O-cresylic acid
4-METHYLPHENOL(P-CRE	106445	4-Methylphenol, p-Cresol
2(METHYLTHIO)PROPANE	75661	2-Methyl-2-propanethiol
MINERAL OIL	8012951	Mineral oil, Kaydol, Paroleine
MINERAL SPIRITS	8030306	Mineral spirits, Petroleum spirits, Benzine, Naphtha
MOLYBDENUM	7439987	Molybdenum ion
MOTOR OIL	MOTOR OL	Motor oil
NONANE	111842	Nonane
NAPHTHALENE	91203	Naphthalene, Naphthalin
1,4-NAPHTHOPQUINONE	130154	1,4-Naphthopquinone, USAF CY-10
1-NAPHTHYLAMINE	134327	1-Naphthylamine, Fast garnet base B
2-NAPHTHYLAMINE	91598	2-Naphthylamine, USAF CB-22
NICKEL	7440020	Nickel, Raney alloy
N-DODECANE	112403	N-dodecane, Bihexyl
NITRATE	14797558	Nitrate
NITRIC ACID	7697372	Nitric acid, Aqua fortis
NITROBENZENE	98953	Nitrobenzene, Nitrobenzol (liquid)
NITROGEN DIOXIDE	10102440	Nitrogen dioxide, Nitrito
5-NITRO-O-TOLUIDINE	99558	5-Nitro-o-toluidine, NCL-C01843
4-NITROPHENOL	100027	4-Nitrophenol, Ncl-C55992
N-NITROSODIETHYLAMIN	55185	N-Nitrosodiethylamine, DANA
N-NITROSODIMETHYLAMI	62759	N-Nitrosodimethylamine, DMNA
N-NITROSODI-N-BUTYLA	924163	N-Nitro-di-n-butylamine, DBN
N-NITROSODIPHNYLAMNE	86306	N-Nitrosodiphenylamine, REDAX
N-NITROSODIPROPYLAMI	621649	N-Nitrosodipropylamine, N-nitroso-1-propyl-1-propanamine
N-NITROSOMORPHOLINE	59892	N-Nitrosomorpholine, 4-Nitrosomorpholine, NMOR
N-NITROSOPIPERIDINE	100754	N-Nitrosopiperidine, NPIP

TABLE A.1. (contd)

Short Name	CAS/ID Number	Full Name and Common Synonyms
N-NITROSPYRROLIDINE	930552	N-Nitrosopyrrolidine, NPYR
NO. 6 FUEL	NO. 6 FL	No. 6 fuel
O-NITROANILINE	88747	O-Nitroaniline, Devol orange B
P-NITROANILINE	100016	P-nitroaniline, Paranitroaniline (solid)
OCTANE	111659	Octane
ORTHENE OR ACEPHATE	30560191	Orthene, Acephate, Ortril
PARATHION	56382	Parathion, Pethion, Alleron
PAPER FIBER	PAPFIBER	Paper fiber
PENTACHLOROBENZENE	608935	Pentachlorobenzene, QCB
PENTACHLOROETHANE	76017	Pentachloroethane, Pentalin
PENTACHLORONITROBENZ	82688	Pentachloronitrobenzene, Tritisan
PENTACHLOROPHENOL	87865	Pentachlorophenol, Permite, EP 30
n-PENTANE	109660	n-Pentane
PETN 5ERYTHRITOL-4NO	78115	Initiating explosive pentaerythrite tetranitrate, PETN
PHENACETIN	62442	Phenacetin, Fenia, Kalmin
PHENANTHRENE	85018	Phenanthrene
PHENOL	108952	Phenol, Carboic acid, Ocybenzene
PHOSPHATE ION	7601549	Phosphate ion (as tri-sodium salt)
PICOLINE	109068	Picoline, 2-Picoline, alpha-Picoline, 2-Methylpyridine
POLYACRYLAMIDE	9003058	Polyacrylamide
POLYCHLORINATED FURANS	55684944	Polychlorinated furans
POTASSIUM HYDROXIDE	1310583	Potassium hydroxide, Potash lye
POTASSIUM ION	7447407	Potassium ion (as Potassium chloride)
PROPANE	74986	Propane, Dimethyl methane
PYRENE	129000	Pyrene, Benzo(def)phenanthrene
PYRIDINE	110861	Pyridine, Azine, Azabenzene
RDX 6H-3NO2-TRIAZINE	121824	RDX, Hexahydro-1,3,4-Trinitro-1,3,5-Triazine
RESORCINOL	108463	Resorcinol, m-Hydrophenol
ROZOL/QUICK/MURIOL	3691358	Rozol, Quick, Muriol, Caid, Afnor
SAFROLE	94597	Safrole, Phynol oil, Shikomol
SELENIUM	7782492	Selenium
SILICATE ION	6834920	Silicate ion
SILVER	7440224	Silver
SILVEX	93721	Silvex, Propon, Aqua-vex
SODIUM HYDROXIDE	1310732	Sodium hydroxide, Sodium hydrate, Soda lye
SODIUM ION	7647145	Sodium ion (as sodium chloride)
STRONTIUM ION	10476854	Strontium ion (as strontium chloride)
STYRENE	100425	Styrene, Cinnamene, Styron
STYRENE-BUTADIENE	9003558	Styrene-butadiene co-polymer
SULFATE	12808798	Sulfate ion
SULFURIC ACID	7664939	Sulfuric acid, Dipping acid, Sulphuric acid, Oil of vitriol
TATB 3NH2-3NO2-BNZNE	3058386	TATB 3NH2-3NO2-BNZNE
2,3,7,8TCDD DIOXIN	1746016	2,3,7,8-Tetrachlorodibenzo-p-Dioxin, TCDD
TERSAN 1991	17804352	Tersan 1991, Benlat, MBC
1,2,4,5-TETRACHLOROB	95943	1,2,4,5-Tetrachlorobenzene
1,1,1,2-TETRACHLORO	630206	1,1,1,2-Tetrachloroethane
1,1,2,2-TETRACHLOROET	79345	1,1,2,2-Tetrachloroethane, Cello
2,3,4,6,-TETRACHLORO	58902	2,3,4,6,-Tetrachlorophenol, Dowicide 6
TETRACHLOROETHYLENE	127184	Tetrachloroethylene, Ankilostin, PCE
TETRAETHYLDITHIOPYRO	3689245	Tetraethyl dithio pyrophosphate, Pirofos
TETRAHYDRO FURAN	109999	Tetrahydro furan, Dethylene oxide
THALLIUM	7440280	Thallium, Famor
TIN	7440315	Tin, Zinn
TNT 3NO2-TOLUENE	118967	TNT, Trinitrotoluene (dry)
TOLUENE	108883	Toluene, Toluol
TOLUENE DIISOCYANATE	584849	Toluene diisocyanate, Hylenet
TORDON 22K	2545600	Tordon 22K, 4-amino-3,5,6-trichloro-Picolinic acid K-salt, Picloram
TOXAPHENE	8001352	Toxaphene, Phenacide, Motox
TRIBROMOMETHANE	75252	Tribromomethane, Bromoform
TRIBUTYL PHOSPHATE	126738	Tributyl phosphate, Celluphos 4
1,2,4TRICHLOROBENZNE	120821	1,2,4-Trichlorobenzene, unsym-Trichlorobenzene

TABLE A.1. (contd)

Short Name	CAS/ID Number	Full Name and Common Synonyms
1,1,1-TRICHLOROETHAN	71556	1,1,1-Trichloroethane, Methyl chloroform
1,1,2-TRICHLOROETHAN	79005	1,1,2-Trichloroethane, Vinyl trichloride
TRICHLOROETHYLENE	79016	Trichloroethylene, Vitran, TCE
TRICL-HEPTAF-BUTANE	C4CL3F7	Trichloroheptafluorobutane
TRICHLOROMETHANETHIO	594423	Trichloromethanethiol, Perchloro-methyl mercaptan, Clairsit
TRICHLOROMONOFUOROM	75694	Trichloromonofluoromethane, Arcton 9, Freon 11
2,4,5-TRICHLOROPHENO	95954	2,4,5-Trichlorophenol, Nurelle
2,4,6-TRICHLOROPHENO	88062	2,4,6-Trichlorophenol, Omal
1,2,3TRICHLOROPRPANE	96184	1,2,3-Trichloropropane, NCL-C60220
TRIETHANOLAMINE	102716	Triethanolamine, 2,2',2''-Nitrilotriethanol
TRIETHYLENE GLYCOL	112276	Triethylene Glycol, 2,2'-Ethylenedioxy)diethanol
TRIMETHYLBENZENE	25551137	Trimethylbenzene (mixed isomers)
2,4,6-TRIMETHYLPHENO	527606	2,4,6-Trimethylphenol
TRIS(2,3-DIBROMOPROP	126727	Tris(2,3-Dibromopropyl)phosphate, Flacavon R
UO2F2	13536840	Uranium Oxyfluoride, Uranyl Fluoride
URANIUM	7440611	Uranium, Pyrophoric
VANADIUM	7440622	Vanadium
VELSICOL R OR MDBA	1918009	MDBA, Velsicol compound 'R', Benvel, Dicamba
VAPONITE	62737	Vaponite, Dichlorvos, 2,2-dichlorovinyl dimethyl phosphate
VINYL ACETATE	108051	Vinyl acetate, 1-Acetoxyethylene
VINYL CHLORIDE	75014	Vinyl chloride, Monochloroethylene
XYLENE (MIXED)	1330207	Xylene, Benzene (dimethyl)
m-XYLENE	108383	m-Xylene, 1,3-Dimethylbenzene
o-XYLENE	95476	o-Xylene, 1,2-Dimethylbenzene
P-XYLENE	106423	p-Xylene, 1,4-Dimethylbenzene
ZINC COMPOUNDS	7646857	Zinc compounds
ZIRCONIUM	7440672	Zirconium

TABLE A.2. Chemical Pollutant Cancer Potency Factors

Short Name	CAS/ID Number	Cancer Potency Factors	
		Inhalation (mg/kg/d)-1	Ingestion (mg/kg/d)-1
ACENAPHTHYLENE	208968	6.10E+00	1.15E+01
2-ACETYLAMINOFLUORE	53963	1.70E-02	1.70E-02
ACRYLONITRILE	107131	2.40E-01	2.40E-01
ALDRIN	309002	1.14E+01	1.14E+01
ANILINE	62533	3.02E-02	3.02E-02
ANTHRACENE	120127	6.10E+00	1.15E+01
PCBs (GENERAL)	1336363	4.34E+00	4.34E+00
AROCLOR 1016 (PCB)	12674112	4.34E+00	4.34E+00
AROCLOR 1221 (PCB)	1104282	4.34E+00	4.34E+00
AROCLOR 1232 (PCB)	11141165	4.34E+00	4.34E+00
ARACLO 1242 (PCB)	53469219	4.34E+00	4.34E+00
AROCLOR 1248 (PBC)	12672296	4.34E+00	4.34E+00
AROCLOR 1254 (PCB)	11091691	4.34E+00	4.34E+00
AROCLOR 1260 (PCB)	11096825	4.34E+00	4.34E+00
ARSENIC	7440382	5.00E+01	1.50E+00
BENZENE	71432	2.90E-02	2.90E-02
BENZIDINE	92875	2.34E+02	0.00E+00
BENZO(A)ANTHRACENE	56553	6.10E+00	1.15E+01
BENZO(A)PYRENE	50328	6.10E+00	1.15E+01
BENZO(B)FLUORANTHENE	205992	6.10E+00	1.15E+01
BENZO(K)FLUORANTHENE	207089	6.10E+00	1.15E+01
BERYLLIUM	7440417	4.86E+00	0.00E+00
BIS(2-CHLOROETHYL)	111444	1.10E+00	1.10E+00
BIS(2ET-HEXYL)PHTHLT	117817	6.80E-04	6.80E-04
CADMIUM	7440439	6.10E+00	0.00E+00
CARBON TETRACHLORIDE	56235	1.30E-01	1.30E-01
CHLORDANE	57749	1.60E+00	1.60E+00
CHLOROFORM	67663	8.10E-02	8.10E-02
CHLOROMETHANE(METHY)	74873	1.80E-01	1.80E-01
CHROMIUM VI	7440473	4.10E+01	0.00E+00
CHRYSENE	218019	6.10E+00	1.15E+01
COAL TAR	8007452	1.00E-04	1.00E-04
DDD	72548	2.50E-01	2.50E-01
DDE	72559	3.40E-01	3.40E-01
DDT	50293	3.40E-01	3.40E-01
DIBENZOL(A,H)ANTRAC	53703	6.10E+00	1.15E+01
1,2-DIBROMO-3-CHLOR	96128	6.47E-01	6.47E-01
3,3-DICHLOROBENZIDIN	91941	1.69E+00	1.69E+00
1,1-DICHLOROETHANE	75343	0.00E+00	1.70E+00
1,2 DICHLOROETHANE	107062	9.10E-02	9.10E-02
1,1 DICHLOROETHYLENE	75354	1.16E+00	5.80E-01
1,2 DICHLOROETHYLENE	156605	1.00E+00	1.00E+00
1,2-DICHLOROPROPANE	78875	6.30E-02	6.30E-02
DIELDRIN	60571	1.60E+01	1.60E+01
P-DIMETHYLAMINOAZOBEN	60117	3.30E-01	3.30E-01
3,3'-DIMETHOXYBENZID	119904	3.70E-04	3.70E-04
3,3'-DIMETHYLBENZIDE	119937	6.50E-02	6.50E-02
2,4-DINITROTOLUENE	121142	3.10E-01	3.10E-01
DI-N-PROPYLNITROSAMI	621647	7.00E+00	7.00E+00
1,4-DIOXANE	123911	1.10E-02	1.10E-02
1,2-DIPHENLHYDRAZINE	122667	8.00E-01	8.00E-01
FLUORANTHENE	206440	3.50E-01	0.00E+00
GASOLINE	8006619	3.00E-04	3.00E-04
HEPTACHLOR	76448	4.50E+00	4.50E+00
HEPTACHLOR EPOXIDE	1024573	9.10E+00	9.10E+00
HEXACHLOROBENZENE	118741	1.67E+00	1.67E+00
HEXACHLOROBUTADIENE	87683	7.80E-02	7.80E-02
ALPHA-HEXACHLOROCYCL	319846	6.30E+00	6.30E+00
HEXACHLORODIBENZO-P-	34465468	6.20E+03	6.20E+03
HEXACHLOROETHANE	67721	1.42E-02	1.42E-02

TABLE A.2. (contd)

Short Name	CAS/ID Number	Cancer Potency Factors	
		Inhalation (mg/kg/d)-1	Ingestion (mg/kg/d)-1
HYDRAZINE	302012	1.70E+01	3.00E+00
INDENO(1,2,3-cd)PYRE	193395	6.10E+00	1.15E+01
ISOSAFROLE	120581	2.10E-03	2.10E-03
KEPONE	143500	9.00E+00	9.00E+00
METHAPYRILENE	91805	5.50E-02	5.50E-02
4,4'-METHYLENE-BIS(2	101144	4.40E-02	4.40E-02
METHYLENE CHLORIDE	75092	1.43E-02	7.50E-03
2-METHYLNAPHTHALENE	91576	1.43E-02	1.43E-02
1-NAPHTHYLAMINE	134327	8.50E-03	8.50E-03
2-NAPHTHYLAMINE	91598	2.60E-02	2.60E-02
NICKEL	7440020	8.40E-01	0.00E+00
5-NITRO-O-TOLUIDINE	99558	2.80E-03	2.80E-03
N-NITROSODIETHYLAMIN	55185	1.50E+02	1.50E+02
N-NITROSODIMETHYLAMI	62759	5.10E+01	5.10E+01
N-NITROSODI-N-BUTYL	924163	5.43E+00	5.43E+00
N-NITROSODIPHNYLAMNE	86306	4.90E-03	4.90E-03
N-NITROSODIPROPYLAMI	621649	2.59E+01	2.59E+01
N-NITROSOMORPHOLINE	59892	1.50E+02	1.50E+02
N-NITROSOPIPERIDINE	100754	4.60E-01	4.60E-01
N-NITROSOPYRROLIDINE	930552	2.10E+00	2.10E+00
PARATHION	56382	1.80E-03	1.80E-03
PENTACHLOROETHANE	76017	6.00E-03	6.00E-03
PENTACHLORONITROBENZ	82688	2.60E-01	2.60E-01
PHENANTHRENE	85018	6.10E+00	1.15E+01
SAFROLE	94597	2.50E-02	2.50E-02
STRYENE-BUTADIENE	9003558	6.20E-03	6.20E-03
2,3,7,8TCDD DIOXIN	1746016	1.56E+05	1.56E+05
1,1,1,2-TETRACHLORO	630206	4.70E-03	4.70E-03
1,1,2,2-TETRACHLOROET	79345	2.60E-02	2.60E-02
TETRACHLOROETHYLENE	127184	1.70E-03	5.10E-02
TOXAPHENE	8001352	1.10E+00	1.10E+00
1,1,1-TRICHLOROETHAN	71556	5.70E-02	5.73E-02
1,1,2-TRICHLOROETHAN	79005	5.73E-02	5.73E-02
TRICHLOROETHYLENE	79016	1.30E-02	1.10E-02
2,4,6-TRICHLOROPHENO	88062	1.98E-02	1.98E-02
TRIS(2,3-DIBROMOPROP	126727	2.20E-01	2.20E-01
VINYL CHLORIDE	75014	2.30E+00	2.30E+00

TABLE A.3. Chemical Pollutant Reference Doses

Short Name	CAS/ID Number	Reference Doses	
		Inhalation (mg/kg/d)	Ingestion (mg/kg/d)
ACENAPHTHENE	83329	8.60E-02	8.60E-02
ACETONE	67641	3.00E+00	1.00E-01
ACETONITRILE	75058	3.60E-02	3.60E-02
ACETOPHENONE	98862	4.30E-01	4.30E-01
2-ACETYLAMINOFLUORE	53963	1.00E-01	1.00E-01
ACROLEIN(PROPENAL)	107028	8.00E-02	8.00E-02
ACRYLAMIDE	79061	2.10E-04	6.70E-03
ALDRIN	309002	3.00E-05	3.00E-05
ALK-ARYL SULFONATES	42615292	7.20E-02	7.20E-02
ALKOXY-ME-CHOLINE	ALKOXYCL	5.00E-02	5.00E-02
ALLYL ALCOHOL	107186	5.00E-03	5.00E-03
ALUMINUM	7429905	1.40E-03	1.40E-03
4-AMINOBIHENYL	92671	3.00E-05	3.00E-05
AMMONIA	7664417	1.30E-01	1.30E-01
ANTIMONY	7440360	4.00E-04	4.00E-04
ASBESTOS (CROC)	12001284	4.70E-05	4.70E-05
ASPHALT	8052424	3.50E-02	3.50E-02
BARIUM	7440393	1.40E-04	5.10E-02
BENZIDINE	92875	0.00E+00	1.30E-03
BENZOIC ACID	65850	4.00E+00	4.00E+00
P-BENZOQUINONE	106514	4.30E-03	4.30E-03
BERYLLIUM	7440417	0.00E+00	5.00E-03
BIS(2-CHLOROISOPRO)	108601	1.00E-03	1.00E-03
BIS(2ET-HEXYL)PHTHLT	117817	2.00E-02	2.00E-02
BORATE (AS NA SALT)	1303964	3.50E-02	3.50E-02
BORON	744428	7.00E-03	7.00E-03
BROMODICHLOROMETHAN	75274	6.00E-04	6.00E-04
BROMOMETHANE	74839	4.00E-04	4.00E-04
n-BUTANE	106978	1.33E+01	1.33E+01
1-BUTANOL	71363	1.05E+00	1.05E+00
2-SEC-BUTYL-4,6-DIN	88857	1.30E-03	1.30E-03
CADMIUM	7440439	0.00E+00	5.10E-04
CALCIUM HYPOCHLORITE	7778543	3.40E-02	3.40E-02
CALCIUM OXIDE	1305788	1.40E-02	1.40E-02
CARBON DISULFIDE	75150	1.00E-01	1.00E-01
CARBON TETRACHLORIDE	56235	0.00E+00	7.00E-04
CEMENT DUST	CEMENT D	7.00E-02	7.00E-02
CHLORATE (AS NA SLT)	7775099	4.80E-02	4.80E-02
CHLORDANE	57749	0.00E+00	5.00E-05
CHLORINE	7782505	1.10E-02	1.10E-02
P-CHLOROANILINE	106478	1.50E-01	1.50E-01
CHLOROBENZENE	108907	5.70E-03	2.70E-02
CHLOROBENZILATE	510156	1.30E-01	1.30E-01
2-CHLOR-1,3-BUTADIEN	126998	2.00E-03	2.00E-03
CHLORODIBROMOMETHANE	124481	5.00E-04	5.00E-04
CHLOROETHANE	75003	1.82E+01	1.82E+01
CHLOROFORM	67663	1.00E-02	1.00E-02
P-CHLORO-M-CRESOL	59507	2.70E-02	2.70E-02
CHLOROMETHANE(METHY)	74873	0.00E+00	5.40E-01
2-CHLORONAPHTHALENE	91578	1.00E-02	1.00E-02
2-CHLOROPHENOL	95578	5.00E-03	5.00E-03
4-CHLORO PH PH ETHER	7005723	4.90E-02	4.90E-02
3-CHLOROPROPENE(ALLY	107051	1.60E-03	1.60E-03
CHROMIUM III	CR-III	5.00E-03	1.00E+00
CHROMIUM VI	7440473	0.00E+00	5.00E-03
COAL DUST	COAL DST	1.40E-02	1.40E-02
COBALT	7440484	3.50E-04	8.10E-03
COPPER	7440508	1.00E-02	3.70E-02
CRUDE OIL	8002059	3.60E-01	3.60E-01
CYANIDE ION	57125	2.00E-02	2.00E-02

TABLE A.3. (contd)

Short Name	CAS/ID Number	Reference Doses	
		Inhalation (mg/kg/d)	Ingestion (mg/kg/d)
CYCLOHEXANE	110827	7.35E+00	7.35E+00
CYCLOHEXANONE	108941	5.00E+00	5.00E+00
DDD	72548	5.00E-02	5.00E-02
DDT	50293	5.00E-04	5.00E-04
DIAZINON	333415	7.00E-04	7.00E-04
DIBROMOMETHANE	74953	7.10E-03	7.10E-03
1,2-DICHLOROBENZENE	95501	9.00E-02	9.00E-02
1,4-DICHLOROBENZENE	106467	1.00E-01	1.00E-01
3,3-DICHLOROBENZIDIN	91941	9.00E-02	9.00E-02
TRANS-1,4-DICHLORO-B	110576	9.00E-02	9.00E-02
DICHLORODIFLUOROMETH	75718	2.00E-01	2.00E-01
1,1-DICHLOROETHANE	75343	1.38E-01	1.20E-01
1,1-DICHLOROETHYLENE	75354	9.00E-03	9.00E-03
1,2-DICHLOROETHYLENE	156605	1.00E-02	1.00E-02
2,4-DICHLOROPHENOL	120832	3.00E-03	3.00E-03
2,6-DICHLOROPHENOL	87560	1.00E-01	1.00E-01
1,2-DICHLOROPROPANE	78875	1.40E-02	1.40E-02
CIS-1,3-DICHLOROPROP	10061015	3.00E-04	3.00E-04
TRANS-1,3-DICHLOROPR	10061026	3.00E-04	3.00E-04
1,3-DICHLOROBENZENE	541731	9.00E-02	9.00E-02
DICOFOL/DTMC/CARBAX	115322	4.10E-01	4.10E-01
DIELDRIN	60571	0.00E+00	1.50E-05
DIESEL FUEL	DIESEL F	3.60E-01	3.60E-01
DIETHYL PHTHALATE	84662	8.00E-01	8.00E-01
P-DIMETHYLAMINOAZOBEN	60117	1.30E+01	1.30E+01
DIMETHYLAMINE (DMA)	124403	1.30E-01	1.30E-01
DIMETHYL ETHER	115106	3.10E-01	3.10E-01
2,4-DIMETHYLPHENOL	105679	6.00E-04	6.00E-04
DIMETHYLPHTHALATE	131113	1.00E+01	1.00E+01
DI-N-BUTYL PHTHALATE	84742	1.00E-01	1.00E-01
M-DINITROBENZENE	99650	1.00E-04	1.00E-04
4,6-DINITRO-O-CRESOL	534521	1.00E-03	1.00E-03
2,4-DINITROPHENOL	51285	2.00E-03	2.00E-03
DMF DI-ME FORMAMIDE	68122	1.70E-02	1.70E-02
2,4-D	94757	1.00E-02	1.00E-02
DIOCTYL ADIPATE	103231	3.60E-01	3.60E-01
DI-N-OCTYLPHTHALATE	117840	1.26E+02	1.26E+02
N-PHENYL BENZENAMINE	122394	2.50E-02	2.50E-02
1,2-DIPHENYLHYDRAZINE	122667	0.00E+00	1.26E+02
DISULFOTON	298044	4.00E-05	4.00E-05
DIURON	330541	2.00E-03	2.00E-03
EDTA	60004	1.30E-03	1.30E-03
ENDOSULFAN I (ALPHA)	115297A	5.00E-05	5.00E-05
ENDOSULFAN II (BETA)	115297B	5.00E-05	5.00E-05
ENDRIN	72208	3.00E-04	3.00E-04
ETHANE	74840	5.40E+04	0.00E+00
ETHANOL	64175	1.33E+01	1.33E+01
ETHYL ACETATE	141786	9.00E-01	9.00E-01
ETHYLBENZENE	100414	1.00E-01	1.00E-01
ETHYL ETHER	60297	8.40E+00	8.40E+00
ETHYLENE GLYCOL	107211	2.00E+00	2.00E+00
ETHYL METHACRYLATE	97632	1.00E-01	1.00E-01
FLUORANTHENE	206440	6.10E-04	6.10E-04
FLUORENE	86737	6.00E-02	6.00E-02
FLUORIDE	7782414	6.00E-02	6.00E-02
FREON 113	76131	3.00E+01	3.00E+01
FORMALDEHYDE	50000	2.10E-02	2.10E-02
FUEL OIL #2	FUEL OIL	3.60E-01	3.60E-01
FURAN	110009	1.00E-03	1.00E-03
GLYPHOSATE	1071836	1.00E-01	1.00E-01

TABLE A.3. (contd)

Short Name	CAS/ID Number	Reference Doses	
		Inhalation (mg/kg/d)	Ingestion (mg/kg/d)
BETA - HEEH	319857	3.00E-04	3.00E-04
DELTA-HEEH	319868	2.00E-03	2.00E-03
GAMMA-HEEH (LINDANE)	58899	3.00E-04	3.00E-04
HEPTACHLOR	76448	0.00E+00	5.00E-04
HEPTACHLOR EPOXIDE	1024573	0.00E+00	1.30E-05
HEPTANES	142825	1.12E+01	1.12E+01
HEXACHLOROBENZENE	118741	8.00E-04	8.00E-04
HEXACHLOROBUTADIENE	87683	0.00E+00	2.00E-03
HEXACHLOROCYCLOPENTA	77474	7.00E-03	7.00E-03
HEXACHLORODIBENZO-P-	34465468	7.00E-03	7.00E-03
HEXACHLORODIBENZOFUR	55684941	3.00E-04	3.00E-04
HEXACHLOROETHANE	67721	0.00E+00	1.00E-03
HEXACHLOROPHENE	70304	3.00E-04	3.00E-04
HEXANES	110543	1.26E+00	1.26E+00
2-HEXANONE ME-BU-KET	591786	1.40E-01	1.40E-01
HMX (H-NO2 TETZOCINE	2691410	5.00E-02	5.00E-02
HYDRAULIC FLUID	HYDR FLU	9.00E-01	9.00E-01
HYDROGEN FLUORIDE	7669393	6.00E-02	6.00E-02
HYDROXYQUINOLINE	148243	4.20E-01	4.20E-01
IRON	15438310	8.60E-03	1.30E+00
ISOBUTANE	75285	1.33E+01	1.33E+01
ISOBUTYL ALCOHOL	78831	3.00E-01	3.00E-01
ISOPENTANE	78784	1.26E+02	1.26E+02
ISOPHORONE	78591	1.50E-01	1.50E-01
ISOPROPYL ALCOHOL	67630	6.90E+00	6.90E+00
ISOSAFROLE	120581	0.00E+00	3.00E-01
JP4	JP-4	7.00E-01	7.00E-01
KEROSENE	8008206	7.00E-01	7.00E-01
LEAD	7439921	4.30E-04	1.40E-03
LEAD OXIDE	1317368	4.30E-04	1.40E-03
LITHIUM HYDROXIDE	1310652	1.40E-01	1.40E-01
LITHIUM ION	7447418	6.00E+00	6.00E+00
MAGNESIUM	7786303	7.00E-02	5.00E+01
MANGANESE	7439965	3.00E-04	2.20E-01
MERCURY	7439976	5.10E-05	2.00E-03
METHANOL	67561	5.00E-01	5.00E-01
METHAPYRILENE	91805	2.20E-01	2.20E-01
METHOXYCHLOR	72435	5.00E-02	5.00E-02
2-METHOXY-1-PROPANO	107982	4.90E-01	6.80E-01
METHYLACRLONITRILE	126987	1.00E-04	1.00E-04
METHYLCYCLOHEXANE	108872	1.12E+01	9.00E-02
METHYLCYCLOPENTANE	96377	1.12E+02	9.00E-02
4,4'-METHYLENE-BIS(2	101144	6.80E-01	6.80E-01
METHYLENE CHLORIDE	75092	0.00E+00	6.00E-02
METHYLENE DITHIOCYAN	6317186	6.40E-03	6.40E-03
METHYL ETHYL KETONE	78933	5.00E-02	5.00E-02
2-METHYLNAPHTHALENE	91576	6.00E-02	6.00E-02
4-METHYL-2-PENTANONE	108101	5.00E-02	5.00E-02
2-METHYLPHENOL(O-CRE	95487	1.00E-01	5.00E-02
4-METHYLPHENOL(P-CRE	106445	1.00E-01	5.00E-02
2(METHYLTHIO)PROPANE	75661	5.00E-02	5.00E-02
MINERAL OIL	8012951	9.00E-01	9.00E-01
MINERAL SPIRITS	8030306	3.60E-01	3.60E-01
MOLYBDENIUM	7439987	3.50E-01	3.50E-01
MOTOR OIL	MOTOR OL	9.00E-01	9.00E-01
NONANE	111842	7.35E+01	7.35E+01
NAPHTHALENE	91203	2.57E-01	2.60E-01
1,4-NAPHTHOPQUINONE	130154	4.30E-03	4.30E-03
NICKEL	7440020	0.00E+00	2.00E-02
N-DODECANE	112403	7.30E+00	7.30E+00

TABLE A.3. (contd)

Short Name	CAS/ID Number	Reference Doses	
		Inhalation (mg/kg/d)	Ingestion (mg/kg/d)
NITRATE	14797558	1.00E+00	1.00E+00
NITRIC ACID	7697372	3.50E-02	3.50E-02
NITROBENZENE	98953	5.00E-04	5.00E-04
NITROGEN DIOXIDE	10102440	1.00E+00	1.00E+00
4-NITROPHENOL	100027	7.50E-02	7.50E-02
NO. 6 FUEL	NO. 6 FL	3.60E-01	3.60E-01
O-NITROANILINE	88747	1.00E-02	1.00E-02
P-NITROANILINE	100016	1.00E+00	1.00E+00
OCTANE	111659	1.02E+01	1.02E+01
ORTHENE OR ACEPHATE	30560191	4.00E-03	4.00E-03
PARATHION	56382	5.00E-03	5.00E-03
PAPER FIBER	PAPFIBER	3.50E-02	0.00E+00
PENTACHLOROBENZENE	608935	8.00E-04	8.00E-04
PENTACHLOROETHANE	76017	8.00E-04	8.00E-04
PENTACHLORONITROBENZ	82688	3.00E-03	3.00E-03
PENTACHLOROPHENOL	87865	3.00E-02	3.00E-02
n-PENTANE	109660	1.26E+01	1.26E+01
PETN SERYTHRITOL-4NO	78115	3.00E-03	3.00E-03
PHENACETIN	62442	5.00E+00	5.00E+00
PHENOL	108952	6.00E-01	6.00E-01
PHOSPHATE ION	7601549	7.00E-03	4.60E-01
PICOLINE	109068	3.20E-02	3.20E-02
POLYACRYLAMIDE	9003058	8.40E-02	2.70E-01
POLYCHLORNTED FURANS	55684944	3.00E-04	3.00E-04
POTASSIUM HYDROXIDE	1310583	1.40E-01	1.40E-01
POTASSIUM ION	7447407	5.10E+02	5.10E+02
PROPANE	74986	7.90E+04	0.00E+00
PYRENE	129000	2.00E-03	2.00E-03
PYRIDINE	110861	8.60E-02	8.60E-02
RDX 6H-3NO2-TRIAZINE	121824	3.00E-03	3.00E-03
RESORCINOL	108463	5.70E-01	5.70E-01
ROZOL/QUICK/MURIOL	3691358	7.10E-04	7.10E-04
SAFROLE	94597	2.00E-03	2.00E-03
SELENIUM	7782492	1.00E-03	3.00E-03
SILICATE ION	6834920	7.00E-01	2.00E-01
SILVER	7440224	3.00E-03	3.00E-03
SILVEX	93721	8.00E-03	8.00E-03
SODIUM HYDROXIDE	1310732	1.40E-02	1.40E-02
SODIUM ION	7647145	3.00E+02	3.00E+02
STRONTIUM ION	10476854	1.70E-01	1.70E-01
STYRENE	100425	2.00E-01	2.00E-01
SULFATE	12808798	7.00E-02	7.10E+01
SULFURIC ACID	7664939	7.00E-03	7.00E-03
TATB 3NH2-3NO2-BNZNE	3058386	1.00E-02	1.00E-02
TERSAN 1991	17804352	5.00E-02	5.00E-02
1,2,4,5-TETRACHLOROB	95943	3.00E-04	3.00E-04
1,1,2,2-TETRACHLOROET	79345	0.00E+00	3.00E-02
2,3,4,6,-TETRACHLORO	58902	3.00E-02	3.00E-02
TETRACHLOROETHYLENE	127184	0.00E+00	1.00E-02
TETRAETHYLDITHIOPYRO	3689245	5.00E-04	5.00E-04
TETRAHYDRO FURAN	109999	4.10E+00	4.10E+00
THALLIUM	7440280	4.00E-04	4.00E-04
TIN	7440315	1.40E-02	1.00E-02
TNT 3NO2-TOLUENE	118967	5.00E-04	5.00E-04
TOLUENE	108883	1.50E+00	3.00E-01
TOLUENE DIISOCYANATE	584849	2.80E-04	2.80E-04
TORDON 22K	2545600	7.00E-02	7.00E-02
TRIBROMOMETHANE	75252	2.00E-02	2.00E-02
TRIBUTYL PHOSPHATE	126738	1.75E-02	1.75E-02
1,2,4TRICHLOROBENZNE	120821	2.00E-02	2.00E-02

TABLE A.3. (contd)

Short Name	CAS/ID Number	Reference Doses	
		Inhalation (mg/kg/d)	Ingestion (mg/kg/d)
1,1,1-TRICHLOROETHAN	71556	9.00E-02	9.00E-02
1,1,2-TRICHLOROETHAN	79005	0.00E+00	4.00E-03
TRICL-HEPTAF-BUTANE	C4CL3F7	5.60E-02	5.60E-02
TRICHLOROMETHANETHIO	594423	1.86E+00	1.86E+00
TRICHLOROMONOFUOROM	75694	3.00E-01	3.00E-01
2,4,5-TRICHLOROPHENO	95954	1.00E-01	1.00E-01
1,2,3TRICHLOROPRPANE	96184	6.00E-03	6.00E-03
TRIETHANOLAMINE	102716	2.10E-01	2.10E-01
TRIETHYLENE GLYCOL	112276	4.40E-01	4.40E-01
TRIMETHYLBENZENE	25551137	8.80E-01	8.80E-01
2,4,6-TRIMETHYLPHENO	527606	1.00E-04	1.00E-04
UO2F2	13536840	4.20E-05	4.20E-05
URANIUM	7440611	1.40E-03	1.40E-03
VANADIUM	7440622	2.00E-02	2.00E-02
VELSICOL R OR MDBA	1918009	3.00E-02	3.00E-02
VAPONITE	62737	8.00E-04	8.00E-04
VINYL ACETATE	108051	2.10E-01	2.10E-01
XYLENE (MIXED)	1330207	2.00E+00	2.00E+00
m-XYLENE	108383	2.00E+00	2.00E+00
o-XYLENE	95476	2.00E+00	2.00E+00
P-XYLENE	106423	2.00E+00	2.00E+00
ZINC COMPOUNDS	7646857	3.50E-02	1.10E+00
ZIRCONIUM	7440672	3.50E-02	3.50E-02

TABLE A.4. Environmental Bioaccumulation and Transfer Factors

Short Name	Aquatic Bioaccumulation Factors, 1/kg		Soil to Plant Uptake	Animal Transfer Factors	
	Finfish	Shellfish		Beef Uptake day/kg	Milk Uptake day/l
ACTINIUM-225	2.50E+01	1.00E+03	2.50E-03	5.00E-03	2.50E-06
ACTINIUM-227	2.50E+01	1.00E+03	2.50E-03	5.00E-03	2.50E-06
AMERICIUM-241	2.50E+01	1.00E+03	2.50E-04	5.00E-03	2.50E-06
AMERICIUM-242	2.50E+01	1.00E+03	2.50E-04	5.00E-03	2.50E-06
AMERICIUM-242M	2.50E+01	1.00E+03	2.50E-04	5.00E-03	2.50E-06
AMERICIUM-243	2.50E+01	1.00E+03	2.50E-04	5.00E-03	2.50E-06
ANTIMONY-125	1.00E+00	1.00E+03	1.10E-02	3.00E-03	7.50E-04
BERYLLIUM-7	2.00E+00	1.00E+01	4.70E-04	8.00E-04	2.00E-06
CARBON-14	4.60E+03	9.10E+03	0.00E+00	0.00E+00	0.00E+00
CERIUM-144	1.00E+00	1.00E+03	5.00E-04	1.00E-03	1.00E-05
CESIUM-134	2.00E+03	1.00E+02	2.00E-03	3.00E-02	5.00E-03
CESIUM-135	2.00E+03	1.00E+02	2.00E-03	3.00E-02	5.00E-03
CESIUM-137+D	2.00E+03	1.00E+02	2.00E-03	3.00E-02	5.00E-03
COBALT-57	5.00E+01	2.00E+02	9.40E-03	1.00E-03	5.00E-04
COBALT-60	5.00E+01	2.00E+02	9.40E-03	1.00E-03	5.00E-04
CURIUM-242	2.50E+01	1.00E+03	2.50E-03	5.00E-03	2.50E-06
CURIUM-243	2.50E+01	1.00E+03	2.50E-03	5.00E-03	2.50E-06
CURIUM-244	2.50E+01	1.00E+03	2.50E-03	5.00E-03	2.50E-06
CURIUM-245	2.50E+01	1.00E+03	2.50E-03	5.00E-03	2.50E-06
EUROPIUM-152	2.50E+01	1.00E+03	2.50E-03	5.00E-03	2.50E-06
EUROPIUM-154	2.50E+01	1.00E+03	2.50E-03	5.00E-03	2.50E-06
EUROPIUM-155	2.50E+01	1.00E+03	2.50E-03	5.00E-03	2.50E-06
IODINE-129	1.50E+01	5.00E+00	2.00E-02	2.00E-02	1.00E-02
IODINE-131	1.50E+01	5.00E+00	2.00E-02	2.00E-02	1.00E-02
IODINE-135	4.00E+02	7.50E+01	2.00E-02	2.00E-02	1.00E-02
KRYPTON-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LEAD-210	1.00E+02	1.00E+02	6.80E-02	2.90E-04	1.00E-05
LEAD-212	1.00E+02	1.00E+02	6.80E-02	2.90E-04	1.00E-05
MANGANESE-54	4.00E+02	9.00E+04	3.00E-02	5.00E-03	1.00E-04
NEPTUNIUM-237	1.00E+01	4.00E+02	2.50E-03	5.00E-03	2.50E-06
NICKEL-56	1.00E+02	1.00E+02	1.90E-02	1.00E-03	3.40E-03
NICKEL-63	1.00E+02	1.00E+02	1.90E-02	1.00E-03	3.40E-03
NIOBIUM-93M	3.00E+04	1.00E+02	9.40E-03	5.00E-04	1.20E-03
NIOBIUM-95	3.00E+04	1.00E+02	9.40E-03	5.00E-04	1.20E-03
PHOSPHORUS-32	1.00E+05	2.00E+04	5.00E+01	5.00E-02	1.20E-02
PALLADIUM-107	1.00E+01	3.00E+01	5.00E+00	1.00E-03	5.00E-03
PLUTONIUM-238	3.50E+00	1.00E+02	2.50E-04	5.00E-03	2.50E-08
PLUTONIUM-239	3.50E+00	1.00E+02	2.50E-04	5.00E-03	2.50E-08
PLUTONIUM-240	3.50E+00	1.00E+02	2.50E-04	5.00E-03	2.50E-08
PLUTONIUM-241	3.50E+00	1.00E+02	2.50E-04	5.00E-03	2.50E-08
POLONIUM-210	5.00E+02	2.00E+04	9.00E-03	1.20E-02	1.20E-04
POTASSIUM-40	1.00E+03	8.30E+02	3.70E-01	1.20E-02	1.00E-02
PROTACTINIUM-231	1.10E+01	1.10E+02	2.50E-03	5.00E-03	2.50E-06
PROTACTINIUM-233	1.10E+01	1.10E+02	2.50E-03	5.00E-03	2.50E-06
RADIUM-223	5.00E+01	2.50E+02	1.40E-03	3.40E-02	2.00E-04
RADIUM-225	5.00E+01	2.50E+02	1.40E-03	3.40E-02	2.00E-04
RADIUM-226	5.00E+01	2.50E+02	1.40E-03	3.40E-02	2.00E-04
RADON-220+D (MOCK)	1.00E+02	1.00E+02	6.80E-02	2.90E-04	1.00E-05
RADON-222+D (MOCK)	1.00E+02	1.00E+02	6.80E-02	2.90E-04	1.00E-05
RUTHENIUM-103	1.00E+01	3.00E+02	1.00E-02	1.00E-03	5.00E-07
RUTHENIUM-106	1.00E+01	3.00E+02	1.00E-02	1.00E-03	5.00E-07
SAMARIUM-151	2.50E+01	1.00E+03	2.50E-03	5.00E-03	2.50E-06
SELENIUM-79	1.70E+02	1.70E+02	1.30E+00	1.00E+00	2.30E-02
SODIUM-22	1.00E+02	2.00E+02	5.00E-02	5.00E-02	4.00E-02
SULPHUR-35	7.50E+02	1.00E+02	5.90E-01	1.00E-01	1.80E-02
STRONTIUM-89	3.00E+01	1.00E+02	2.00E-01	3.00E-04	1.50E-03
STRONTIUM-90	3.00E+01	1.00E+02	2.00E-01	3.00E-04	1.50E-03
TECHNETIUM-99	1.50E+01	5.00E+00	2.50E-01	4.00E-01	1.00E-02
THORIUM-227	3.00E+01	5.00E+02	4.20E-03	5.00E-03	2.50E-06
THORIUM-228	3.00E+01	5.00E+02	4.20E-03	5.00E-03	2.50E-06

TABLE A.4. (contd)

Short Name	Aquatic Bioaccumulation Factors, 1/kg		Soil to Plant Uptake	Animal Transfer Factors	
	Finfish	Shellfish		Beef Uptake day/kg	Milk Uptake day/l
THORIUM-229	3.00E+01	5.00E+02	4.20E-03	5.00E-03	2.50E-06
THORIUM-230	3.00E+01	5.00E+02	4.20E-03	5.00E-03	2.50E-06
THORIUM-232	3.00E+01	5.00E+02	4.20E-03	5.00E-03	2.50E-06
THORIUM-234	3.00E+01	5.00E+02	4.20E-03	5.00E-03	2.50E-06
TIN-126	3.00E+03	1.00E+03	2.50E-03	8.00E-02	1.30E-03
TRITIUM	1.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00
URANIUM-233	2.00E+00	6.00E+01	2.50E-03	3.40E-04	2.50E-06
URANIUM-234	2.00E+00	6.00E+01	2.50E-03	5.00E-05	2.50E-06
URANIUM-235	2.00E+00	6.00E+01	2.50E-03	3.40E-04	2.50E-06
URANIUM-236	2.00E+00	6.00E+01	2.50E-03	3.40E-04	2.50E-06
URANIUM-238	2.00E+00	6.00E+01	2.50E-03	3.40E-04	2.50E-06
URANIUM-239	2.00E+00	6.00E+01	2.50E-03	3.40E-04	2.50E-06
YTTRIUM-90	2.50E+01	1.00E+03	2.50E-03	5.00E-03	5.00E-06
ZINC-65	2.00E+03	1.00E+05	4.00E-01	5.00E-02	6.00E-03
ZIRCONIUM-93	3.30E+00	6.70E+00	1.70E-04	5.00E-04	2.50E-06
ACENAPHTHENE	6.46E+02	1.35E+02	4.72E-02	2.51E-04	7.94E-05
ACENAPHTHYLENE	3.01E+02	7.66E+01	7.04E-02	1.26E-04	3.98E-05
ACETONE	3.89E-01	4.57E-02	1.33E+01	1.46E-08	4.61E-09
ACETONITRILE	3.26E-01	3.78E-02	1.52E+01	1.16E-08	3.65E-09
ACETOPHENONE	1.11E+01	1.70E+00	1.03E+00	1.20E-06	3.80E-07
2-ACETYLAMINOFLUORE	1.83E+02	3.48E+01	1.23E-01	4.80E-05	1.52E-05
ACROLEIN(PROPENAL)	3.44E+02	7.26E-02	9.57E+00	2.56E-08	8.10E-09
ACRYLONITRILE	4.80E+01	1.15E-01	6.94E+00	4.47E-08	1.41E-08
ACRYLAMIDE	1.80E-01	1.99E-02	2.39E+01	5.27E-09	1.67E-09
ALDRIN	3.14E+03	1.57E+03	8.36E-03	8.51E-02	2.40E-02
ALK-ARYL SULFONATES	4.16E+04	1.20E+04	1.99E-03	6.03E-02	1.91E-02
ALKOXY-ME-CHOLINE	2.42E+03	5.60E+02	1.73E-02	1.43E-03	4.52E-04
ALLYL ALCOHOL	3.99E-01	4.70E-02	1.30E+01	1.51E-08	4.77E-09
ALUMINUM	1.00E+01	6.30E+01	1.80E-04	1.50E-03	5.00E-04
4-AMINOBIPHENYL	7.64E+01	1.35E+01	2.39E-01	1.51E-05	4.79E-06
AMMONIA	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ANILINE	3.05E+00	4.21E-01	2.77E+00	2.19E-07	6.92E-08
ANTHRACENE	1.42E+03	3.15E+02	2.59E-02	7.08E-04	2.24E-04
ANTIMONY	1.00E+00	1.00E+01	1.10E-02	3.00E-03	7.50E-04
PCBs (GENERAL)	2.30E+04	6.34E+03	3.12E-03	2.76E-02	8.74E-03
AROCLOR 1016 (PCB)	1.70E+04	2.65E+03	5.77E-03	9.55E-03	3.02E-03
AROCLOR 1221 (PCB)	7.42E+02	1.57E+02	4.25E-02	3.01E-04	9.53E-05
AROCLOR 1232 (PCB)	1.60E+02	2.99E+01	1.37E-01	3.99E-05	1.26E-05
AROCLOR 1242 (PCB)	7.84E+02	1.66E+02	4.07E-02	3.24E-04	1.02E-04
AROCLOR 1248 (PBC)	1.40E+04	3.73E+03	4.54E-03	1.44E-02	4.57E-03
AROCLOR 1254 (PCB)	2.30E+04	6.34E+03	3.12E-03	5.25E-02	1.12E-02
AROCLOR 1260 (PCB)	1.60E+05	5.12E+04	7.14E-04	3.54E-01	1.12E-01
ARSENIC	1.00E+00	4.00E+01	1.00E-02	1.50E-03	3.00E-03
ASBESTOS (CROC)	1.00E+00	1.00E+00	0.00E+00	0.00E+00	0.00E+00
ASPHALT	5.13E+04	1.50E+04	1.70E-03	7.94E-02	2.51E-02
BARIUM	4.00E+00	2.00E-01	1.50E-01	1.50E-04	3.50E-04
BENZENE	2.41E+01	3.90E+00	5.76E-01	3.32E-06	1.05E-06
BENZIDINE	1.10E+02	8.31E-01	1.71E+00	5.02E-07	1.59E-07
BENZO(A)ANTHRACENE	1.17E+04	2.76E+03	5.61E-03	1.00E-02	3.16E-03
BENZO(A)PYRENE	2.38E+04	6.57E+03	3.04E-03	2.89E-02	9.13E-03
BENZO(B)FLUORANTHENE	2.38E+04	6.57E+03	3.04E-03	2.89E-02	9.13E-03
BENZO(K)FLUORANTHENE	2.38E+04	6.57E+03	3.04E-03	2.89E-02	9.13E-03
BENZOIC ACID	1.55E+01	2.43E+00	8.04E-01	1.86E-06	5.89E-07
P-BENZOQUINONE	8.34E-01	1.04E-01	7.43E+00	3.97E-08	1.26E-08
BERYLLIUM	1.90E+01	1.00E+01	4.70E-04	8.00E-04	2.00E-06
BIS(2-CHLOROETHYL)	1.10E+01	1.21E+00	1.32E+00	7.94E-07	2.51E-07
BIS(2-CHLOROISOPRO)	2.32E+01	3.75E+00	5.92E-01	3.16E-06	1.00E-06
BIS(2ET-HEXYL)PHTHLT	1.19E+07	5.33E+06	2.69E-05	1.03E+02	3.26E+01
BORATE (AS NA SALT)	2.20E-01	5.00E+01	1.20E-01	8.00E-04	2.70E-03
BORON	2.20E-01	5.00E+01	1.20E-01	8.00E-04	2.70E-03

TABLE A.4. (contd)

Short Name	Aquatic Bioaccumulation Factors, 1/kg		Soil to Plant Uptake	Animal Transfer Factors	
	Finfish	Shellfish		Beef Uptake day/kg	Milk Uptake day/l
BROMODICHLOROMETHAN	2.97E+01	4.89E+00	4.91E-01	4.37E-06	1.38E-06
BROMOMETHANE	4.73E+00	6.74E-01	1.99E+00	3.89E-07	1.23E-07
n-BUTANE	9.25E+01	1.66E+01	2.07E-01	1.95E-05	6.16E-06
1-BUTANOL	2.19E+00	2.94E-01	3.57E+00	1.41E-07	4.46E-08
2-SEC-BUTYL-4,6-DIN	3.56E+02	7.10E+01	7.42E-02	1.15E-04	3.63E-05
CADMIUM	2.00E+02	2.00E+03	5.50E-01	5.50E-04	1.00E-03
CALCIUM HYPOCHLORITE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CALCIUM OXIDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CARBON DISULFIDE	1.95E+01	3.10E+00	6.76E-01	2.51E-06	7.94E-07
CARBON TETRACHLORIDE	1.70E+01	1.04E+01	2.89E-01	1.10E-05	3.46E-06
CEMENT DUST	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHLORATE (AS NA SLT)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CHLORDANE	3.22E+02	5.88E+02	1.67E-02	7.41E-03	3.72E-04
CHLORINE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
P-CHLOROANILINE	1.45E+01	2.25E+00	8.48E-01	1.70E-06	5.37E-07
CHLOROBENZENE	6.45E+02	1.51E+01	2.21E-01	1.74E-05	5.50E-06
CHLOROBENZILATE	1.58E+03	3.53E+02	2.39E-02	8.14E-04	2.57E-04
2-CHLOR-1,3-BUTADIEN	1.33E+01	2.05E+00	9.06E-01	1.51E-06	4.79E-07
CHLORODIBROMOMETHANE	2.28E+01	3.68E+00	6.00E-01	3.09E-06	9.77E-07
CHLOROETHANE	7.19E+00	1.06E+00	1.44E+00	6.76E-07	2.14E-07
CHLOROFORM	1.85E+01	2.93E+00	7.04E-01	2.34E-06	7.41E-07
P-CHLORO-M-CRESOL	1.34E+02	2.47E+01	1.56E-01	3.16E-05	1.00E-05
CHLOROMETHANE(METHY)	3.10E+00	4.28E-01	2.74E+00	2.24E-07	7.08E-08
2-CHLORONAPHTHALENE	6.46E+02	1.35E+02	4.72E-02	2.51E-04	7.94E-05
2-CHLOROPHENOL	6.40E+00	4.35E+00	5.33E-01	3.79E-06	1.20E-06
4-CHLORO PH ETHER	7.42E+02	1.57E+02	4.25E-02	3.01E-04	9.53E-05
3-CHLOROPROPENE(ALLY	2.47E+00	3.36E-01	3.25E+00	1.66E-07	5.25E-08
CHROMIUM III	2.00E+01	2.00E+03	7.50E-03	5.50E-03	1.50E-03
CHROMIUM VI	2.00E+01	2.00E+03	7.50E-03	5.50E-03	1.50E-03
CHRYSENE	1.08E+04	2.81E+03	5.54E-03	1.02E-02	3.23E-03
COAL DUST	5.13E+04	1.50E+04	1.70E-03	7.94E-02	2.51E-02
COAL TAR	5.13E+04	1.50E+04	1.70E-03	7.94E-02	2.51E-02
COBALT	5.00E+01	2.00E+02	9.40E-03	1.00E-03	5.00E-04
COPPER	5.00E+01	4.00E+02	1.30E-01	1.00E-02	7.00E-03
CRUDE OIL	5.05E+02	1.04E+02	5.69E-02	1.82E-04	5.75E-05
CYANIDE ION	3.79E-01	4.44E-02	1.35E+01	1.41E-08	4.45E-09
CYCLOHEXANE	2.42E+02	4.69E+01	9.96E-02	6.91E-05	2.18E-05
CYCLOHEXANONE	2.43E+00	3.29E-01	3.29E+00	1.62E-07	5.13E-08
DDD	2.71E+03	8.53E+03	2.53E-03	1.26E-02	3.02E-03
DDE	8.45E+03	3.86E+04	8.71E-04	4.90E-02	9.55E-03
DDT	2.98E+04	8.39E+03	2.56E-03	2.82E-02	1.07E-02
DIAZINON	4.63E+02	9.43E+01	6.08E-02	1.62E-04	5.13E-05
DIBENZOL(A,H)ANTRAC	1.13E+05	2.81E+03	5.54E-03	1.02E-02	3.23E-03
1,2-DIBROMO-3-CHLOR	3.24E+01	5.36E+00	4.60E-01	4.90E-06	1.55E-06
DIBROMOMETHANE	4.98E+00	7.13E-01	1.91E+00	4.17E-07	1.32E-07
1,2 DICHLOROBENZENE	8.90E+01	6.37E+01	8.02E-02	1.00E-04	3.18E-05
1,4-DICHLOROBENZENE	6.00E+01	6.34E+01	8.04E-02	1.00E-04	3.16E-05
3,3-DICHLOROBENZIDIN	2.69E+02	5.25E+01	9.19E-02	7.94E-05	2.51E-05
TRANS-1,4-DICHLORO-B	3.48E-01	4.05E-02	1.45E+01	1.26E-08	3.97E-09
DICHLORODIFLUOROMETH	2.59E+01	4.21E+00	5.45E-01	3.64E-06	1.15E-06
1,1-DICHLOROETHANE	1.35E+01	2.09E+00	8.94E-01	1.55E-06	4.90E-07
1,2 DICHLOROETHANE	2.00E+00	1.16E+00	1.35E+00	7.59E-07	2.40E-07
1,1 DICHLOROETHYLENE	1.47E+01	2.30E+00	8.36E-01	1.74E-06	5.50E-07
1,2 DICHLOROETHYLENE	1.36E+00	1.77E-01	5.11E+00	7.59E-08	2.40E-08
2,4-DICHLOROPHENOL	3.40E+01	1.69E+01	2.04E-01	1.99E-05	6.31E-06
2,6-DICHLOROPHENOL	3.40E+01	2.39E-01	4.13E+00	1.10E-07	3.47E-08
1,2-DICHLOROPROPANE	1.95E+01	3.10E+00	6.76E-01	2.51E-06	7.94E-07
CIS-1,3-DICHLOROPROP	1.95E+01	3.10E+00	6.76E-01	2.51E-06	7.94E-07
TRANS-1,3-DICHLOROPR	1.95E+01	3.10E+00	6.76E-01	2.51E-06	7.94E-07
1,3-DICHLOROBENZENE	6.60E+01	6.34E+01	8.04E-02	1.00E-04	3.16E-05

TABLE A.4. (contd)

Short Name	Aquatic Bioaccumulation Factors, 1/kg		Soil to Plant Uptake	Animal Transfer Factors	
	Finfish	Shellfish		Beef Uptake day/kg	Milk Uptake day/l
DICOFOL/DTMC/CARBAX	2.35E+04	6.48E+03	3.07E-03	2.84E-02	8.98E-03
DIELDIN	4.87E+03	4.00E+02	9.19E-02	7.94E-03	1.07E-02
DIESEL FUEL	5.05E+02	1.04E+02	5.69E-02	1.82E-04	5.75E-05
DIETHYL PHTHALATE	4.36E+01	7.38E+00	3.67E-01	7.23E-06	2.29E-06
P-DIMETHYLAMINOAZOBEN	3.96E+02	7.96E+01	6.85E-02	1.32E-04	4.17E-05
3,3'-DIMETHOXYBENZID	5.54E+00	8.00E-01	1.76E+00	4.80E-07	1.52E-07
DIMETHYLAMINE (DMA)	3.05E-01	3.51E-02	1.60E+01	1.05E-08	3.34E-09
3,3'-DIMETHYLBENZIDE	2.23E+01	3.58E+00	6.11E-01	2.99E-06	9.45E-07
DIMETHYL ETHER	7.02E-01	8.63E-02	8.47E+00	3.16E-08	1.00E-08
2,4-DIMETHYLPHENOL	1.50E+02	1.43E+01	2.30E-01	1.62E-05	5.13E-06
DIMETHYLPHthalate	5.70E+01	1.35E+00	1.21E+00	9.12E-07	2.88E-07
DI-N-BUTYL PHTHALATE	1.07E+04	2.77E+03	5.60E-03	1.00E-02	3.18E-03
M-DINITROBENZENE	1.00E+01	1.52E+00	1.12E+00	1.05E-06	3.31E-07
4,6-DINITRO-O-CRESOL	6.64E+01	1.16E+01	2.66E-01	1.26E-05	3.98E-06
2,4-DINITROPHENOL	8.12E+00	1.21E+00	1.32E+00	7.94E-07	2.51E-07
2,4-DINITROTOLUENE	1.95E+01	3.10E+00	6.76E-01	2.51E-06	7.94E-07
DMF DI-ME FORMAMIDE	1.02E-01	1.08E-02	3.66E+01	2.51E-09	7.94E-10
2,4-D	8.05E+01	1.43E+01	2.30E-01	4.79E-06	7.59E-06
DIOCTYL ADIPATE	4.93E+05	1.73E+05	3.03E-04	1.56E+00	4.94E-01
DI-N-OCTYLPHthalate	1.87E+07	8.66E+06	1.91E-05	1.86E+02	5.89E+01
DI-N-PROPYLNITROSAMI	8.12E+00	1.21E+00	1.32E+00	7.94E-07	2.51E-07
1,4-DIOXANE	5.98E-01	7.26E-02	9.57E+00	2.56E-08	8.10E-09
N-PHENYL BENZENAMINE	2.69E+02	5.25E+01	9.19E-02	7.94E-05	2.51E-05
1,2-DIPHENYLHYDRAZINE	9.42E+01	1.69E+01	2.04E-01	1.99E-05	6.31E-06
DISULFOTON	6.70E+02	1.40E+02	4.59E-02	2.64E-04	8.34E-05
DIURON	7.90E+01	1.40E+01	2.33E-01	1.58E-05	5.00E-06
EDTA	6.63E-01	8.13E-02	8.84E+00	2.94E-08	9.29E-09
ENDOSULFAN I (ALPHA)	2.94E+02	5.78E+01	8.59E-02	2.19E-04	2.82E-05
ENDOSULFAN II (BETA)	3.32E+02	6.59E+01	7.83E-02	2.19E-04	3.31E-05
ENDRIN	1.48E+03	2.76E+03	5.61E-03	1.20E-02	1.74E-03
ETHANE	1.40E+01	2.17E+00	8.70E-01	1.62E-06	5.13E-07
ETHANOL	3.42E-01	3.98E-02	1.46E+01	1.23E-08	3.89E-09
ETHYL ACETATE	2.11E+00	2.83E-01	3.67E+00	1.35E-07	4.27E-08
ETHYLBENZENE	1.46E+02	2.71E+01	1.46E-01	3.54E-05	1.12E-05
ETHYL ETHER	2.79E+00	3.83E-01	2.96E+00	1.95E-07	6.16E-08
ETHYLENE GLYCOL	2.00E-02	1.87E-03	1.27E+02	2.94E-10	9.29E-11
ETHYL METHACRYLATE	1.76E+01	2.77E+00	7.32E-01	2.19E-06	6.92E-07
FLUORANTHENE	3.12E+03	7.36E+02	1.43E-02	1.99E-03	6.31E-04
FLUORENE	7.13E+02	1.96E+02	3.62E-02	3.97E-04	1.26E-04
FLUORIDE	1.00E+01	1.00E+02	2.00E-02	2.00E-02	7.00E-03
FREON 113	1.90E+02	3.61E+01	1.20E-01	5.02E-05	1.59E-05
FORMALDEHYDE	1.09E+00	1.38E-01	6.08E+00	5.63E-08	1.78E-08
FUEL OIL #2	5.05E+02	1.04E+02	5.69E-02	1.82E-04	5.75E-05
FURAN	6.15E+00	8.95E-01	1.63E+00	5.50E-07	1.74E-07
GASOLINE	2.41E+01	3.90E+00	5.76E-01	3.32E-06	1.05E-06
GLYPHOSATE	3.09E-03	2.49E-04	5.25E+02	2.51E-11	7.94E-12
BETA - HEEH	5.42E+02	1.12E+02	5.39E-02	1.99E-04	6.31E-05
DELTA-HEEH	7.70E+02	1.63E+02	4.13E-02	1.66E-02	2.51E-03
GAMMA-HEEH (LINDANE)	1.80E+02	1.12E+02	5.39E-02	1.66E-02	2.51E-03
HEPTACHLOR	1.30E+03	2.87E+02	2.77E-02	1.55E-02	3.24E-03
HEPTACHLOR EPOXIDE	6.73E+01	1.18E+01	2.64E-01	7.94E-02	3.55E-02
HEPTANES	1.29E+03	2.85E+02	2.79E-02	6.25E-04	1.98E-04
HEXACHLOROBENZENE	5.56E+03	1.37E+03	9.18E-03	4.47E-02	8.51E-03
HEXACHLOROBUTADIENE	2.53E+03	5.88E+02	1.67E-02	1.51E-03	4.79E-04
ALPHA-HEXACHLOROCYCL	5.00E+02	1.12E+02	5.39E-02	1.66E-02	2.51E-03
HEXACHLOROCYCLOPENTA	2.90E+01	1.35E+02	4.72E-02	2.51E-04	7.94E-05
HEXACHLORODIBENZO-P-	7.54E+04	2.28E+04	1.26E-03	1.32E-01	4.17E-02
HEXACHLORODIBENZOFUR	7.26E+04	2.19E+04	1.30E-03	1.26E-01	3.97E-02
HEXACHLOROETHANE	1.84E+03	4.18E+02	2.12E-02	1.00E-03	3.16E-04
HEXACHLOROPHENE	3.17E+05	1.07E+05	4.24E-04	8.72E-01	2.76E-01

TABLE A.4. (contd)

Short Name	Aquatic Bioaccumulation Factors, 1/kg		Soil to Plant Uptake	Animal Transfer Factors	
	Finfish	Shellfish		Beef Uptake day/kg	Milk Uptake day/l
HEXANES	4.84E+02	9.88E+01	5.88E-02	1.72E-04	5.43E-05
2-HEXANONE ME-BU-KET	6.59E+00	9.65E-01	1.54E+00	6.03E-07	1.91E-07
HMX (H-NO ₂ TETZOCINE	1.66E+00	2.18E-01	4.41E+00	9.80E-08	3.10E-08
HYDRAULIC FLUID	1.42E+03	3.15E+02	2.59E-02	7.08E-04	2.24E-04
HYDRAZINE	5.36E-02	5.40E-03	5.99E+01	1.07E-09	3.39E-10
HYDROGEN FLUORIDE	1.00E+01	1.00E+02	2.00E-02	2.00E-02	7.00E-03
HYDROXYQUINOLINE	1.76E+01	2.77E+00	7.32E-01	2.19E-06	6.92E-07
INDENO(1,2,3-cd)PYRE	5.13E+04	1.50E+04	1.70E-03	7.94E-02	2.51E-02
IRON	1.00E+02	3.20E+03	4.00E-03	2.00E-02	2.50E-04
ISOBUTANE	7.37E+01	1.30E+01	2.46E-01	1.44E-05	4.57E-06
ISOBUTYL ALCOHOL	2.23E+00	2.99E-01	3.52E+00	1.44E-07	4.57E-08
ISOPENTANE	1.72E+02	3.24E+01	1.29E-01	4.40E-05	1.39E-05
ISOPHORONE	3.07E+01	7.00E+00	4.78E-01	4.57E-06	1.45E-06
ISOPROPYL ALCOHOL	6.42E-01	7.84E-02	9.07E+00	2.81E-08	8.90E-09
ISOSAFROLE	6.19E+01	1.08E+01	2.81E-01	1.15E-05	3.63E-06
JP4	5.05E+02	1.04E+02	4.00E-02	1.82E-04	5.75E-05
KEPONE	1.95E+01	3.10E+00	6.76E-01	2.51E-06	7.94E-07
KEROSENE	5.05E+02	1.04E+02	5.69E-02	1.82E-04	5.75E-05
LEAD	1.00E+02	1.00E+02	6.80E-02	2.90E-04	1.00E-05
LEAD OXIDE	1.00E+02	1.00E+02	6.80E-02	2.90E-04	1.00E-05
LITHIUM HYDROXIDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LITHIUM ION	5.00E-01	4.00E+01	8.30E-04	1.00E-02	5.00E-02
MAGNESIUM	5.00E+01	1.00E+02	1.30E-01	5.00E-03	1.00E-02
MANGANESE	4.00E+02	9.00E+04	3.00E-02	5.00E-03	1.00E-04
MERCURY	2.00E+05	2.00E+05	3.80E-01	1.00E-01	1.90E-02
METHANOL	1.53E-01	1.67E-02	2.70E+01	4.27E-09	1.35E-09
METHAPYRILENE	8.93E+01	1.60E+01	2.12E-01	1.86E-05	5.89E-06
METHOXYCHLOR	8.30E+03	2.38E+02	3.16E-02	5.02E-04	1.48E-04
2-METHOXY-1-PROPANO	4.30E-01	5.09E-02	1.23E+01	1.66E-08	5.25E-09
METHYLACRLONITRILE	1.52E+00	1.98E-01	4.72E+00	8.72E-08	2.76E-08
METHYLCYCLOHEXANE	5.14E+02	1.06E+02	5.61E-02	1.86E-04	5.89E-05
METHYLCYCLOPENTANE	1.94E+02	3.70E+01	1.18E-01	5.17E-05	1.64E-05
4,4'-METHYLENE-BIS(2	5.81E+02	1.20E+02	5.11E-02	2.19E-04	6.92E-05
METHYLENE CHLORIDE	5.74E+00	8.31E-01	1.71E+00	5.02E-07	1.59E-07
METHYLENE DITHIOCYAN	4.73E-01	5.65E-02	1.14E+01	1.88E-08	5.96E-09
METHYL ETHYL KETONE	9.51E-01	1.20E-01	6.72E+00	4.72E-08	1.49E-08
2-METHYLNAPHTHALENE	5.05E+02	1.04E+02	5.69E-02	1.82E-04	5.75E-05
4-METHYL-2-PENTANONE	2.08E+00	2.78E-01	3.71E+00	1.32E-07	4.17E-08
2-METHYLPHENOL(O-CRE	1.85E+01	2.93E+00	7.04E-01	2.34E-06	7.41E-07
4-METHYLPHENOL(P-CRE	1.72E+01	2.72E+00	7.42E-01	2.14E-06	6.76E-07
2(METHYLTHIO)PROPANE	1.58E+01	2.48E+00	7.93E-01	1.91E-06	6.03E-07
MINERAL OIL	1.42E+03	3.15E+02	2.59E-02	7.08E-04	2.24E-04
MINERAL SPIRITS	2.38E+01	3.85E+00	5.81E-01	3.27E-06	1.03E-06
MOLYBDENUM	1.00E+01	1.00E+01	1.30E-01	1.00E-02	4.00E-03
MOTOR OIL	1.42E+03	3.15E+02	2.59E-02	7.08E-04	2.24E-04
NONANE	8.24E+03	2.10E+03	6.81E-03	7.16E-03	2.26E-03
NAPHTHALENE	1.68E+02	3.16E+01	1.31E-01	4.27E-05	2.00E-04
1,4-NAPHTHOPQUINONE	1.17E+01	1.80E+00	9.94E-01	1.29E-06	4.07E-07
1-NAPHTHYLAMINE	2.20E+01	3.53E+00	6.17E-01	2.94E-06	9.29E-07
2-NAPHTHYLAMINE	2.20E+01	3.53E+00	6.17E-01	2.94E-06	9.29E-07
NICKEL	1.00E+02	1.00E+02	6.00E-02	6.00E-03	1.00E-03
N-DODECANE	1.14E+04	2.98E+03	5.32E-03	1.10E-02	3.47E-03
NITRATE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NITRIC ACID	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NITROBENZENE	1.50E+01	2.34E+00	8.25E-01	1.78E-06	5.62E-07
NITROGEN DIOXIDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5-NITRO-O-TOLUIDINE	1.82E+01	2.88E+00	7.13E-01	2.29E-06	7.24E-07
4-NITROPHENOL	1.26E+02	2.62E+00	7.62E-01	2.04E-06	6.46E-07
N-NITROSODIETHYLAMIN	1.36E+00	1.77E-01	5.11E+00	7.59E-08	2.40E-08
N-NITROSODIMETHYLAMI	8.50E-02	1.98E-02	2.39E+01	5.25E-09	1.66E-09

TABLE A.4. (contd)

Short Name	Aquatic Bioaccumulation Factors, 1/kg		Soil to Plant Uptake	Animal Transfer Factors	
	Finfish	Shellfish		Beef Uptake day/kg	Milk Uptake day/l
N-NITROSODI-N-BUTYLA	1.70E+01	2.67E+00	7.52E-01	2.09E-06	6.61E-07
N-NITROSODIPHNYLAMNE	1.41E+02	2.62E+01	1.50E-01	3.39E-05	1.07E-05
N-NITROSODIPROPYLAMI	7.99E+00	1.19E+00	1.33E+00	7.76E-07	2.45E-07
N-NITROSOMORPHOLINE	2.73E-01	3.12E-02	1.74E+01	9.12E-09	2.88E-09
N-NITROSOPIPERIDINE	2.50E-01	2.84E-02	1.86E+01	8.14E-09	2.57E-09
N-NITROSOPYRROLIDINE	9.21E-02	9.68E-03	3.97E+01	2.19E-09	6.92E-10
NO. 6 FUEL	5.05E+02	1.04E+02	5.69E-02	1.82E-04	5.75E-05
O-NITROANILINE	1.35E+01	2.09E+00	8.94E-01	1.55E-06	4.90E-07
P-NITROANILINE	6.70E+00	9.81E-01	1.52E+00	6.15E-07	1.95E-07
OCTANE	5.08E+03	1.25E+03	9.83E-03	3.79E-03	1.20E-03
ORTHENE OR ACEPHATE	1.32E-01	1.43E-02	3.02E+01	3.52E-09	1.11E-09
PARATHION	4.63E+02	9.43E+01	6.08E-02	1.62E-04	5.13E-05
PAPER FIBER	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENTACHLOROBENZENE	3.40E+03	1.27E+03	9.68E-03	3.89E-03	1.23E-03
PENTACHLOROETHANE	6.70E+01	7.24E+01	7.32E-02	1.18E-04	3.72E-05
PENTACHLORONITROBENZ	8.17E+03	2.08E+03	6.85E-03	7.08E-03	2.24E-03
PENTACHLOROPHENOL	3.72E+03	8.89E+02	1.25E-02	2.51E-03	7.94E-04
n-PENTANE	2.22E+02	4.26E+01	1.06E-01	6.15E-05	1.95E-05
PETN SERYTHRITOL-4NO	1.65E+00	2.17E-01	4.42E+00	9.77E-08	3.09E-08
PHENACETIN	9.20E+00	1.38E+00	1.20E+00	9.34E-07	2.95E-07
PHENANTHRENE	1.44E+03	3.21E+02	2.56E-02	7.23E-04	2.29E-04
PHENOL	7.57E+00	1.12E+00	1.39E+00	7.23E-07	2.29E-07
PHOSPHATE ION	1.00E+05	2.00E+04	5.00E+01	5.00E-02	1.20E-02
PICOLINE	4.11E+00	5.80E-01	2.21E+00	3.24E-07	1.02E-07
POLYACRYLAMIDE	1.12E+02	2.05E+01	1.79E-01	2.51E-05	7.94E-06
POLYCHLORNTED FURANS	7.59E+04	2.30E+04	1.26E-03	1.33E-01	4.21E-02
POTASium HYDROXIDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
POTASSIUM ION	1.00E+03	8.30E+02	3.70E-01	1.20E-02	1.00E-02
PROPANE	3.66E+01	6.12E+00	4.19E-01	5.75E-06	1.82E-06
PYRENE	2.80E+03	1.63E+03	8.15E-03	5.25E-03	1.66E-03
PYRIDINE	1.87E+00	2.48E-01	4.02E+00	1.15E-07	3.63E-08
RDX 6H-3NO2-TRIAZINE	1.83E+02	3.48E+01	1.23E-01	4.80E-05	1.52E-05
RESORCINOL	2.39E+00	3.23E-01	3.34E+00	1.59E-07	5.01E-08
ROZOL/QUICK/MURIOL	8.74E+03	2.23E+03	6.51E-03	7.74E-03	2.45E-03
SAFROLE	4.93E+01	8.44E+00	3.34E-01	8.52E-06	2.69E-06
SELENIUM	1.70E+02	1.70E+02	1.30E+00	1.00E+00	2.30E-02
SILICATE ION	2.50E+00	2.50E+01	1.50E-04	4.00E-05	1.00E-04
SILVER	2.30E+00	7.70E+02	1.50E-01	1.70E-02	2.50E-02
SILVEX	5.71E+02	1.18E+02	5.18E-02	2.14E-04	6.76E-05
SODIUM HYDROXIDE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SODIUM ION	1.00E+02	2.00E+02	5.00E-02	5.00E-02	4.00E-02
STRONTIUM ION	3.00E+01	1.00E+02	2.00E-01	3.00E-04	1.50E-03
STYRENE	1.03E+02	1.86E+01	1.91E-01	2.24E-05	7.08E-06
STRYENE-BUTADIENE	7.37E+02	1.56E+02	4.27E-02	2.99E-04	9.45E-05
SULFATE	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SULFURIC ACID	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TATB 3NH2-3NO2-BNZNE	3.97E+00	5.58E-01	2.27E+00	3.09E-07	9.77E-08
2,3,7,8TCDD DIOXIN	7.54E+04	2.28E+04	1.26E-03	5.50E-02	1.02E-02
TERSAN 1991	3.30E+01	5.48E+00	4.53E-01	5.02E-06	1.59E-06
1,2,4,5-TETRACHLOROB	1.80E+03	4.77E+02	1.93E-02	1.18E-03	3.72E-04
1,1,1,2-TETRACHLORO	1.18E+02	2.16E+01	1.72E-01	2.69E-05	8.50E-06
1,1,2,2-TETRACHLORO	3.85E+01	6.47E+00	4.03E-01	6.15E-06	1.95E-06
2,3,4,6,-TETRACHLORO	7.70E+02	1.63E+02	4.13E-02	3.16E-04	1.00E-04
TETRACHLOROETHYLENE	5.57E+01	9.62E+00	3.04E-01	1.00E-05	3.16E-06
TETRAETHYLDITHIOPYRO	8.34E+02	1.78E+02	3.89E-02	3.52E-04	1.11E-04
TETRAHYDRO FURAN	1.32E+00	1.70E-01	5.25E+00	7.23E-08	2.29E-08
THALLIUM	1.00E+04	1.50E+04	2.50E-01	4.00E-02	2.20E-02
TIN	3.00E+03	1.00E+03	3.00E-02	8.00E-02	1.00E-03
TNT 3NO2-TOLUENE	1.61E+01	2.52E+00	7.83E-01	1.95E-06	6.16E-07
TOLUENE	6.99E+01	1.23E+01	2.56E-01	1.35E-05	4.27E-06

TABLE A.4. (contd)

Short Name	Aquatic Bioaccumulation Factors, 1/kg		Soil to Plant Uptake	Animal Transfer Factors	
	Finfish	Shellfish		Beef Uptake day/kg	Milk Uptake day/l
TOLUENE DIISOCYANATE	3.30E+02	6.55E+01	7.86E-02	1.04E-04	3.29E-05
TORDON 22K	3.64E+01	6.08E+00	4.21E-01	5.70E-06	1.80E-06
TOXAPHENE	1.90E+02	3.61E+01	1.20E-01	1.62E-03	6.31E-04
TRIBROMOMETHANE	3.92E+01	6.60E+00	3.97E-01	6.30E-06	1.99E-06
TRIBUTYL PHOSPHATE	6.34E+02	1.32E+02	4.78E-02	2.45E-04	7.76E-05
1,2,4-TRICHLOROBENZNE	1.09E+03	2.38E+02	3.16E-02	5.02E-04	1.59E-04
1,1,1-TRICHLOROETHAN	9.00E+00	7.97E+00	3.48E-01	7.94E-06	2.51E-06
1,1,2-TRICHLOROETHAN	3.90E+01	7.53E+00	3.62E-01	7.41E-06	2.34E-06
TRICHLOROETHYLENE	3.79E+01	6.36E+00	4.08E-01	6.03E-06	1.91E-06
TRICL-HEPTAF-BUTANE	4.24E+02	8.57E+01	6.50E-02	1.44E-04	4.57E-05
TRICHLOROMETHANETHIO	4.93E+01	8.44E+00	3.34E-01	8.52E-06	2.69E-06
TRICHLOROMONOFUOROM	4.93E+01	8.44E+00	3.34E-01	8.52E-06	2.69E-06
2,4,5-TRICHLOROPHENO	1.90E+03	7.96E+01	6.85E-02	1.32E-04	4.17E-05
2,4,6-TRICHLOROPHENO	2.00E+01	1.06E+02	5.61E-02	1.86E-04	5.89E-05
1,2,3TRICHLOROPRPANE	1.75E+03	3.96E+02	2.21E-02	9.34E-04	2.95E-04
TRIETHANOLAMINE	2.76E-02	2.64E-03	9.94E+01	4.47E-10	1.41E-10
TRIETHYLENE GLYCOL	1.55E-02	1.41E-03	1.54E+02	2.09E-10	6.61E-11
TRIMETHYLBENZENE	2.34E+02	4.52E+01	1.02E-01	6.61E-05	2.09E-05
2,4,6-TRIMETHYLPHENO	2.34E+02	4.52E+01	1.02E-01	6.61E-05	2.09E-05
TRIS(2,3-DIBROMOPROP	2.70E+00	1.69E+02	4.02E-02	3.32E-04	1.05E-04
UO2F2	2.00E+00	6.00E+01	2.50E-03	5.00E-05	2.50E-06
URANIUM	2.00E+00	6.00E+01	2.50E-03	5.00E-05	2.50E-06
VANADIUM	1.00E+01	3.00E+03	5.50E-03	2.50E-03	2.00E-05
VELSICOL R OR MDBA	1.14E+02	2.08E+01	1.77E-01	2.56E-05	8.10E-06
VAPONITE	2.04E+00	2.72E-01	3.77E+00	1.29E-07	4.07E-08
VINYL ACETATE	1.34E+00	1.73E-01	5.18E+00	7.41E-08	2.34E-08
VINYL CHLORIDE	6.59E+00	9.65E-01	1.54E+00	6.03E-07	1.91E-07
XYLENE (MIXED)	1.77E+02	3.34E+01	1.26E-01	4.57E-05	1.45E-05
m-XYLENE	1.77E+02	3.34E+01	1.26E-01	4.57E-05	1.45E-05
o-XYLENE	1.03E+02	1.86E+01	1.91E-01	2.24E-05	7.08E-06
P-XYLENE	1.46E+02	2.71E+01	1.46E-01	3.54E-05	1.12E-05
ZINC COMPOUNDS	2.00E+03	1.00E+04	4.00E-01	5.00E-02	6.00E-03
ZIRCONIUM	3.30E+00	6.70E+00	1.70E-04	5.00E-04	2.50E-06

TABLE A.5. Radiological and Environmental Decay Half Times

Short Name	Environmental Half-Time (days)		
	Air	Water	Soil
ACTINIUM-225	1.00E+01	1.00E+01	1.00E+01
ACTINIUM-227	7.95E+03	7.95E+03	7.95E+03
AMERICIUM-241	1.58E+05	1.58E+05	1.58E+05
AMERICIUM-242	6.70E-01	6.70E-01	6.70E-01
AMERICIUM-242M	5.55E+04	5.55E+04	5.55E+04
AMERICIUM-243	2.70E+06	2.70E+06	2.70E+06
ANTIMONY-125	1.01E+03	1.01E+03	1.01E+03
BERYLLIUM-7	5.33E+01	5.33E+01	5.33E+01
CARBON-14	2.09E+06	2.09E+06	2.09E+06
CERIUM-144	2.84E+02	2.84E+02	2.84E+02
CESIUM-134	7.53E+02	7.53E+02	7.53E+02
CESIUM-135	8.40E+08	8.40E+08	8.40E+08
CESIUM-137+D	1.10E+04	1.10E+04	1.10E+04
COBALT-57	2.70E+02	2.70E+02	2.70E+02
COBALT-60	1.93E+03	1.93E+03	1.93E+03
CURIUM-242	1.63E+02	1.63E+02	1.63E+02
CURIUM-243	1.04E+04	1.04E+04	1.04E+04
CURIUM-244	6.61E+03	6.61E+03	6.61E+03
CURIUM-245	3.10E+06	3.10E+06	3.10E+06
EUROPIUM-152	4.97E+03	4.97E+03	4.97E+03
EUROPIUM-154	3.21E+03	3.21E+03	3.21E+03
EUROPIUM-155	1.81E+03	1.81E+03	1.81E+03
IODINE-129	5.70E+09	5.70E+09	5.70E+09
IODINE-131	8.04E+00	8.04E+00	8.04E+00
IODINE-135	2.80E-01	2.80E-01	2.80E-01
KRYPTON-85	3.92E+03	3.92E+03	3.92E+03
LEAD-210	8.15E+03	8.15E+03	8.15E+03
LEAD-212	4.43E-01	4.43E-01	4.43E-01
MANGANESE-54	3.13E+02	3.13E+02	3.13E+02
NEPTUNIUM-237	7.82E+08	7.82E+08	7.82E+08
NICKEL-56	6.10E+00	6.10E+00	6.10E+00
NICKEL-63	3.51E+04	3.51E+04	3.51E+04
NIOBIUM-93M	4.97E+03	4.97E+03	4.97E+03
NIOBIUM-95	3.52E+01	3.52E+01	3.52E+01
PHOSPHORUS-32	1.43E+01	1.43E+01	1.43E+01
PALLADIUM-107	2.37E+09	2.37E+09	2.37E+09
PLUTONIUM-238	3.21E+04	3.21E+04	3.21E+04
PLUTONIUM-239	8.81E+06	8.81E+06	8.81E+06
PLUTONIUM-240	2.40E+06	2.40E+06	2.40E+06
PLUTONIUM-241	5.26E+03	5.26E+03	5.26E+03
POLONIUM-210	1.38E+02	1.38E+02	1.38E+02
POTASSIUM-40	4.70E+11	4.70E+11	4.70E+11
PROTACTINIUM-231	1.20E+07	1.20E+07	1.20E+07
PROTACTINIUM-233	2.70E+01	2.70E+01	2.70E+01
RADIUM-223	1.14E+01	1.14E+01	1.14E+01
RADIUM-225	1.48E+01	1.48E+01	1.48E+01
RADIUM-226	5.84E+05	5.84E+05	5.84E+05
RADON-220+D (MOCK)	4.43E-01	4.43E-01	4.43E-01
RADON-222+D (MOCK)	8.13E+03	8.13E+03	8.13E+03
RUTHENIUM-103	3.93E+01	3.93E+01	3.93E+01
RUTHENIUM-106	3.68E+02	3.68E+02	3.68E+02
SAMARIUM-151	3.29E+04	3.29E+04	3.29E+04
SELENIUM-79	2.37E+07	2.37E+07	2.37E+07
SODIUM-22	9.50E+02	9.50E+02	9.50E+02
SULPHUR-35	8.74E+01	8.74E+01	8.74E+01
STRONTIUM-89	5.05E+01	5.05E+01	5.05E+01
STRONTIUM-90	1.05E+04	1.05E+04	1.05E+04
TECHNETIUM-99	7.78E+07	7.78E+07	7.78E+07
THORIUM-227	1.87E+01	1.87E+01	1.87E+01
THORIUM-228	6.99E+02	6.99E+02	6.99E+02
THORIUM-229	2.68E+06	2.68E+06	2.68E+06

TABLE A.5. (contd)

Short Name	Environmental Half-Time (days)		
	Air	Water	Soil
THORIUM-230	2.81E+07	2.81E+07	2.81E+07
THORIUM-232	5.15E+12	5.15E+12	5.15E+12
THORIUM-234	2.41E+01	2.41E+01	2.41E+01
TIN-126	3.65E+07	3.65E+07	3.65E+07
TRITIUM	4.49E+03	4.49E+03	4.49E+03
URANIUM-233	5.79E+07	5.79E+07	5.79E+07
URANIUM-234	8.93E+07	8.93E+07	8.93E+07
URANIUM-235	2.57E+11	2.57E+11	2.57E+11
URANIUM-236	8.55E+09	8.55E+09	8.55E+09
URANIUM-238	1.63E+12	1.63E+12	1.63E+12
URANIUM-239	1.63E-02	1.63E-02	1.63E-02
YTTRIUM-90	2.70E+00	2.70E+00	2.70E+00
ZINC-65	2.44E+02	2.44E+02	2.44E+02
ZIRCONIUM-93	5.59E+08	5.59E+08	5.59E+08
ACENAPHTHENE	0.00E+00	0.00E+00	7.04E+05
ACENAPHTHYLENE	0.00E+00	0.00E+00	3.77E+04
ACETONE	0.00E+00	0.00E+00	4.75E+00
ACETONITRILE	0.00E+00	0.00E+00	1.84E+01
ACETOPHENONE	0.00E+00	0.00E+00	1.14E+03
2-ACETYLAMINOFLUORE	0.00E+00	0.00E+00	4.69E+07
ACROLEIN(PROPENAL)	0.00E+00	0.00E+00	5.86E+00
ACRYLONITRILE	0.00E+00	0.00E+00	1.30E+01
ACRYLAMIDE	0.00E+00	0.00E+00	9.33E+01
ALDRIN	0.00E+00	0.00E+00	1.58E+08
ALK-ARYL SULFONATES	0.00E+00	0.00E+00	4.51E+05
ALKOXY-ME-CHOLINE	0.00E+00	0.00E+00	0.00E+00
ALLYL ALCOHOL	0.00E+00	0.00E+00	5.21E+01
ALUMINUM	0.00E+00	0.00E+00	0.00E+00
4-AMINOBIPHENYL	0.00E+00	0.00E+00	1.79E+07
AMMONIA	0.00E+00	0.00E+00	0.00E+00
ANILINE	0.00E+00	0.00E+00	3.95E+03
ANTHRACENE	0.00E+00	0.00E+00	5.47E+06
ANTIMONY	0.00E+00	0.00E+00	0.00E+00
PCBs (GENERAL)	0.00E+00	0.00E+00	1.25E+07
AROCLOR 1016 (PCB)	0.00E+00	0.00E+00	2.51E+06
AROCLOR 1221 (PCB)	0.00E+00	0.00E+00	1.56E+05
AROCLOR 1232 (PCB)	0.00E+00	0.00E+00	2.51E+05
AROCLOR 1242 (PCB)	0.00E+00	0.00E+00	7.67E+05
AROCLOR 1248 (PBC)	0.00E+00	0.00E+00	1.98E+06
AROCLOR 1254 (PCB)	0.00E+00	0.00E+00	4.38E+07
AROCLOR 1260 (PCB)	0.00E+00	0.00E+00	1.49E+08
ARSENIC	0.00E+00	0.00E+00	0.00E+00
ASBESTOS (CROC)	0.00E+00	0.00E+00	0.00E+00
ASPHALT	0.00E+00	0.00E+00	0.00E+00
BARIUM	0.00E+00	0.00E+00	0.00E+00
BENZENE	0.00E+00	0.00E+00	1.28E+01
BENZIDINE	0.00E+00	0.00E+00	2.12E+06
BENZO(A)ANTHRACENE	0.00E+00	0.00E+00	0.00E+00
BENZO(A)PYRENE	0.00E+00	0.00E+00	0.00E+00
BENZO(B)FLUORANTHENE	0.00E+00	0.00E+00	0.00E+00
BENZO(K)FLUORANTHENE	0.00E+00	0.00E+00	0.00E+00
BENZOIC ACID	0.00E+00	0.00E+00	4.56E+05
P-BENZOQUINONE	0.00E+00	0.00E+00	1.29E+04
BERYLLIUM	0.00E+00	0.00E+00	0.00E+00
BIS(2-CHLOROETHYL)	0.00E+00	0.00E+00	1.36E+03
BIS(2-CHLOROISOPRO)	0.00E+00	0.00E+00	1.26E+03
BIS(2ET-HEXYL)PHTHLT	0.00E+00	0.00E+00	0.00E+00
BORATE (AS NA SALT)	0.00E+00	0.00E+00	0.00E+00
BORON	0.00E+00	0.00E+00	0.00E+00
BROMODICHLOROMETHAN	0.00E+00	0.00E+00	1.82E+01
BROMOMETHANE	0.00E+00	0.00E+00	7.78E-01

TABLE A.5. (contd)

Short Name	Environmental Half-Time (days)		
	Air	Water	Soil
n-BUTANE	0.00E+00	0.00E+00	6.64E-01
1-BUTANOL	0.00E+00	0.00E+00	5.18E+01
2-SEC-BUTYL-4,6-DIN	0.00E+00	0.00E+00	0.00E+00
CADMIUM	0.00E+00	0.00E+00	0.00E+00
CALCIUM HYPOCHLORITE	0.00E+00	0.00E+00	0.00E+00
CALCIUM OXIDE	0.00E+00	0.00E+00	0.00E+00
CARBON DISULFIDE	0.00E+00	0.00E+00	3.41E+00
CARBON TETRACHLORIDE	0.00E+00	0.00E+00	1.21E+01
CEMENT DUST	0.00E+00	0.00E+00	0.00E+00
CHLORATE (AS NA SLT)	0.00E+00	0.00E+00	0.00E+00
CHLORDANE	0.00E+00	0.00E+00	3.72E+07
CHLORINE	1.00E+00	1.00E+00	2.18E-01
P-CHLOROANILINE	0.00E+00	0.00E+00	7.51E+04
CHLOROBENZENE	0.00E+00	0.00E+00	9.80E+01
CHLOROBENZILATE	0.00E+00	0.00E+00	0.00E+00
2-CHLOR-1,3-BUTADIEN	0.00E+00	0.00E+00	4.35E+00
CHLORODIBROMOMETHANE	0.00E+00	0.00E+00	6.93E+01
CHLOROETHANE	0.00E+00	0.00E+00	1.05E+00
CHLOROFORM	0.00E+00	0.00E+00	7.54E+00
P-CHLORO-M-CRESOL	0.00E+00	0.00E+00	1.38E+05
CHLOROMETHANE(METHY)	0.00E+00	0.00E+00	3.05E+01
2-CHLORONAPHTHALENE	0.00E+00	0.00E+00	1.62E+04
2-CHLOROPHENOL	0.00E+00	0.00E+00	6.35E+02
4-CHLORO PH PH ETHER	0.00E+00	0.00E+00	3.86E+05
3-CHLOROPROPENE(ALLY	0.00E+00	0.00E+00	3.60E+00
CHROMIUM III	0.00E+00	0.00E+00	0.00E+00
CHROMIUM VI	0.00E+00	0.00E+00	0.00E+00
CHRYSENE	0.00E+00	0.00E+00	0.00E+00
COAL DUST	0.00E+00	0.00E+00	0.00E+00
COAL TAR	0.00E+00	0.00E+00	0.00E+00
COBALT	0.00E+00	0.00E+00	0.00E+00
COPPER	0.00E+00	0.00E+00	0.00E+00
CRUDE OIL	0.00E+00	0.00E+00	2.46E+04
CYANIDE ION	0.00E+00	0.00E+00	0.00E+00
CYCLOHEXANE	0.00E+00	0.00E+00	1.19E+01
CYCLOHEXANONE	0.00E+00	0.00E+00	2.64E+02
DDD	0.00E+00	0.00E+00	0.00E+00
DDE	0.00E+00	0.00E+00	1.49E+08
DDT	0.00E+00	0.00E+00	5.50E+03
DIAZINON	0.00E+00	0.00E+00	4.44E+01
DIBENZOL(A,H)ANTRAC	0.00E+00	0.00E+00	0.00E+00
1,2-DIBROMO-3-CHLOR	0.00E+00	0.00E+00	1.02E+03
DIBROMOMETHANE	0.00E+00	0.00E+00	3.15E+00
1,2 DICHLOROBENZENE	0.00E+00	0.00E+00	1.10E+03
1,4-DICHLOROBENZENE	0.00E+00	0.00E+00	9.30E+02
3,3-DICHLOROBENZIDIN	0.00E+00	0.00E+00	1.01E+08
TRANS-1,4-DICHLORO-B	0.00E+00	0.00E+00	5.65E+01
DICHLORODIFLUOROMETH	0.00E+00	0.00E+00	2.64E-01
1,1-DICHLOROETHANE	0.00E+00	0.00E+00	6.45E+00
1,2 DICHLOROETHANE	0.00E+00	0.00E+00	1.84E+01
1,1 DICHLOROETHYLENE	0.00E+00	0.00E+00	1.96E+00
1,2 DICHLOROETHYLENE	0.00E+00	0.00E+00	3.36E+00
2,4-DICHLOROPHENOL	0.00E+00	0.00E+00	1.83E+04
2,6-DICHLOROPHENOL	0.00E+00	0.00E+00	1.20E+04
1,2-DICHLOROPROPANE	0.00E+00	0.00E+00	2.74E+01
CIS-1,3-DICHLOROPROP	0.00E+00	0.00E+00	3.69E+01
TRANS-1,3-DICHLOROPR	0.00E+00	0.00E+00	3.69E+01
1,3-DICHLOROBENZENE	0.00E+00	0.00E+00	4.83E+02
DICOFOL/DTMC/CARBAX	0.00E+00	0.00E+00	0.00E+00
DIELDRIN	0.00E+00	0.00E+00	0.00E+00
DIESEL FUEL	0.00E+00	0.00E+00	2.46E+04

TABLE A.5. (contd)

Short Name	Environmental Half-Time (days)		
	Air	Water	Soil
DIETHYL PHTHALATE	0.00E+00	0.00E+00	2.94E+05
P-DIMETHYLAMINOAZOBEN	0.00E+00	0.00E+00	0.00E+00
3,3'-DIMETHOXYBENZID	0.00E+00	0.00E+00	0.00E+00
DIMETHYLAMINE (DMA)	0.00E+00	0.00E+00	4.21E-01
3,3'-DIMETHYLBENZIDE	0.00E+00	0.00E+00	0.00E+00
DIMETHYL ETHER	0.00E+00	0.00E+00	3.31E-01
2,4-DIMETHYLPHENOL	0.00E+00	0.00E+00	4.36E+04
DIMETHYLPHTHALATE	0.00E+00	0.00E+00	2.51E+05
DI-N-BUTYL PHTHALATE	0.00E+00	0.00E+00	9.89E+07
M-DINITROBENZENE	0.00E+00	0.00E+00	9.52E+06
4,6-DINITRO-O-CRESOL	0.00E+00	0.00E+00	2.09E+04
2,4-DINITROPHENOL	0.00E+00	0.00E+00	7.12E+07
2,4-DINITROTOLUENE	0.00E+00	0.00E+00	2.08E+05
DMF DI-ME FORMAMIDE	0.00E+00	0.00E+00	4.57E+02
2,4-D	0.00E+00	0.00E+00	2.57E+03
DIOCTYL ADIPATE	0.00E+00	0.00E+00	4.95E+03
DI-N-OCTYLPHTHALATE	0.00E+00	0.00E+00	6.69E+06
DI-N-PROPYLNITROSAMI	0.00E+00	0.00E+00	2.81E+03
1,4-DIOXANE	0.00E+00	0.00E+00	3.00E+01
N-PHENYL BENZENAMINE	0.00E+00	0.00E+00	1.78E+07
1,2-DIPHENLHYDRAZINE	0.00E+00	0.00E+00	4.08E+07
DISULFOTON	0.00E+00	0.00E+00	5.52E+06
DIURON	0.00E+00	0.00E+00	1.42E+03
EDTA	0.00E+00	0.00E+00	0.00E+00
ENDOSULFAN I (ALPHA)	0.00E+00	0.00E+00	9.30E+07
ENDOSULFAN II (BETA)	0.00E+00	0.00E+00	9.30E+07
ENDRIN	0.00E+00	0.00E+00	0.00E+00
ETHANE	0.00E+00	0.00E+00	3.11E-02
ETHANOL	0.00E+00	0.00E+00	2.27E+01
ETHYL ACETATE	0.00E+00	0.00E+00	1.08E+01
ETHYLBENZENE	0.00E+00	0.00E+00	1.66E+02
ETHYL ETHER	0.00E+00	0.00E+00	2.79E+00
ETHYLENE GLYCOL	0.00E+00	0.00E+00	1.96E+04
ETHYL METHACRYLATE	0.00E+00	0.00E+00	9.33E+01
FLUORANTHENE	0.00E+00	0.00E+00	1.04E+08
FLUORENE	0.00E+00	0.00E+00	1.52E+06
FLUORIDE	0.00E+00	0.00E+00	0.00E+00
FREON 113	0.00E+00	0.00E+00	8.74E+00
FORMALDEHYDE	0.00E+00	0.00E+00	4.09E-01
FUEL OIL #2	0.00E+00	0.00E+00	2.46E+04
FURAN	0.00E+00	0.00E+00	2.06E+00
GASOLINE	0.00E+00	0.00E+00	1.28E+01
GLYPHOSATE	0.00E+00	0.00E+00	1.08E+03
BETA - HEEH	0.00E+00	0.00E+00	0.00E+00
DELTA-HEEH	0.00E+00	0.00E+00	5.78E+07
GAMMA-HEEH (LINDANE)	0.00E+00	0.00E+00	6.14E+06
HEPTACHLOR	0.00E+00	0.00E+00	3.14E+06
HEPTACHLOR EPOXIDE	0.00E+00	0.00E+00	3.12E+06
HEPTANES	0.00E+00	0.00E+00	2.27E+01
HEXACHLOROBENZENE	0.00E+00	0.00E+00	9.05E+07
HEXACHLOROBUTADIENE	0.00E+00	0.00E+00	5.00E+02
ALPHA-HEXACHLOROCYCL	0.00E+00	0.00E+00	3.93E+07
HEXACHLOROCYCLOPENTA	0.00E+00	0.00E+00	1.24E+04
HEXACHLORODIBENZO-P-	0.00E+00	0.00E+00	0.00E+00
HEXACHLORODIBENZOFUR	0.00E+00	0.00E+00	0.00E+00
HEXACHLOROETHANE	0.00E+00	0.00E+00	2.54E+03
HEXACHLOROPHENE	0.00E+00	0.00E+00	0.00E+00
HEXANES	0.00E+00	0.00E+00	6.75E+00
2-HEXANONE ME-BU-KET	0.00E+00	0.00E+00	1.18E+03
HMX (H-NO2 TETZOCINE	0.00E+00	0.00E+00	1.17E+06
HYDRAULIC FLUID	0.00E+00	0.00E+00	5.47E+06

TABLE A.5. (contd)

Short Name	Environmental Half-Time (days)		
	Air	Water	Soil
HYDRAZINE	0.00E+00	0.00E+00	8.84E+01
HYDROGEN FLUORIDE	0.00E+00	0.00E+00	0.00E+00
HYDROXYQUINOLINE	0.00E+00	0.00E+00	1.47E+06
INDENO(1,2,3-cd)PYRE	0.00E+00	0.00E+00	0.00E+00
IRON	0.00E+00	0.00E+00	0.00E+00
ISOBUTANE	0.00E+00	0.00E+00	3.85E-01
ISOBUTYL ALCOHOL	0.00E+00	0.00E+00	1.23E+02
ISOPENTANE	0.00E+00	0.00E+00	1.79E+00
ISOPHORONE	0.00E+00	0.00E+00	2.90E+03
ISOPROPYL ALCOHOL	0.00E+00	0.00E+00	2.65E+01
ISOSAFROLE	0.00E+00	0.00E+00	0.00E+00
JP4	0.00E+00	0.00E+00	2.46E+04
KEPONE	0.00E+00	0.00E+00	0.00E+00
KEROSENE	0.00E+00	0.00E+00	2.46E+04
LEAD	0.00E+00	0.00E+00	0.00E+00
LEAD OXIDE	0.00E+00	0.00E+00	0.00E+00
LITHIUM HYDROXIDE	0.00E+00	0.00E+00	0.00E+00
LITHIUM ION	0.00E+00	0.00E+00	0.00E+00
MAGNESIUM	0.00E+00	0.00E+00	0.00E+00
MANGANESE	0.00E+00	0.00E+00	0.00E+00
MERCURY	0.00E+00	0.00E+00	0.00E+00
METHANOL	0.00E+00	0.00E+00	1.07E+01
METHAPYRILENE	0.00E+00	0.00E+00	0.00E+00
METHOXYCHLOR	0.00E+00	0.00E+00	0.00E+00
2-METHOXY-1-PROPANO	0.00E+00	0.00E+00	8.46E+01
METHYLACRLONITRILE	0.00E+00	0.00E+00	1.93E+01
METHYLCYCLOHEXANE	0.00E+00	0.00E+00	2.83E+01
METHYLCYCLOPENTANE	0.00E+00	0.00E+00	1.05E+01
4,4'-METHYLENE-BIS(2	0.00E+00	0.00E+00	0.00E+00
METHYLENE CHLORIDE	0.00E+00	0.00E+00	3.33E+00
METHYLENE DITHIOCYAN	0.00E+00	0.00E+00	1.48E+00
METHYL ETHYL KETONE	0.00E+00	0.00E+00	1.60E+01
2-METHYLNAPHTHALENE	0.00E+00	0.00E+00	2.46E+04
4-METHYL-2-PENTANONE	0.00E+00	0.00E+00	1.95E+02
2-METHYLPHENOL(O-CRE	0.00E+00	0.00E+00	4.83E+03
4-METHYLPHENOL(P-CRE	0.00E+00	0.00E+00	2.89E+04
2(METHYLTHIO)PROPANE	0.00E+00	0.00E+00	3.39E+01
MINERAL OIL	0.00E+00	0.00E+00	5.46E+06
MINERAL SPIRITS	0.00E+00	0.00E+00	1.20E+01
MOLYBDENUM	0.00E+00	0.00E+00	0.00E+00
MOTOR OIL	0.00E+00	0.00E+00	5.47E+06
NONANE	0.00E+00	0.00E+00	1.73E+02
NAPHTHALENE	0.00E+00	0.00E+00	1.29E+04
1,4-NAPHTHOPQUINONE	0.00E+00	0.00E+00	3.04E+01
1-NAPHTHYLAMINE	0.00E+00	0.00E+00	1.70E+07
2-NAPHTHYLAMINE	0.00E+00	0.00E+00	4.32E+06
NICKEL	0.00E+00	0.00E+00	0.00E+00
N-DODECANE	0.00E+00	0.00E+00	3.58E+03
NITRATE	0.00E+00	0.00E+00	0.00E+00
NITRIC ACID	0.00E+00	0.00E+00	0.00E+00
NITROBENZENE	0.00E+00	0.00E+00	7.55E+03
NITROGEN DIOXIDE	0.00E+00	0.00E+00	0.00E+00
5-NITRO-O-TOLUIDINE	0.00E+00	0.00E+00	1.31E+05
4-NITROPHENOL	0.00E+00	0.00E+00	5.05E+02
N-NITROSODIETHYLAMIN	0.00E+00	0.00E+00	2.34E+02
N-NITROSODIMETHYLAMI	0.00E+00	0.00E+00	1.52E+02
N-NITROSODI-N-BUTYLA	0.00E+00	0.00E+00	6.18E+00
N-NITROSODIPHNYLAMNE	0.00E+00	0.00E+00	1.05E+04
N-NITROSODIPROPYLAMI	0.00E+00	0.00E+00	2.81E+03
N-NITROSOMORPHOLINE	0.00E+00	0.00E+00	7.68E-01
N-NITROSOPIPERIDINE	0.00E+00	0.00E+00	8.19E+03

TABLE A.5. (contd)

Short Name	Environmental Half-Time (days)		
	Air	Water	Soil
N-NITROSOPYRROLIDINE	0.00E+00	0.00E+00	1.07E+04
NO. 6 FUEL	0.00E+00	0.00E+00	2.46E+04
O-NITROANILINE	0.00E+00	0.00E+00	1.11E+04
P-NITROANILINE	0.00E+00	0.00E+00	7.41E+05
OCTANE	0.00E+00	0.00E+00	6.71E+01
ORTHENE OR ACEPHATE	0.00E+00	0.00E+00	1.06E+03
PARATHION	0.00E+00	0.00E+00	2.60E+07
PAPER FIBER	0.00E+00	0.00E+00	0.00E+00
PENTACHLOROBENZENE	0.00E+00	0.00E+00	1.53E+05
PENTACHLOROETHANE	0.00E+00	0.00E+00	3.07E+02
PENTACHLORONITROBENZ	0.00E+00	0.00E+00	8.68E+06
PENTACHLOROPHENOL	0.00E+00	0.00E+00	9.07E+06
n-PENTANE	0.00E+00	0.00E+00	2.44E+00
PETN SERYTHRITOL-4NO	0.00E+00	0.00E+00	1.16E+06
PHENACETIN	0.00E+00	0.00E+00	3.36E+02
PHENANTHRENE	0.00E+00	0.00E+00	1.57E+06
PHENOL	0.00E+00	0.00E+00	3.47E+03
PHOSPHATE ION	0.00E+00	0.00E+00	0.00E+00
PICOLINE	0.00E+00	0.00E+00	1.48E+02
POLYACRYLAMIDE	0.00E+00	0.00E+00	8.02E+05
POLYCHLORNTED FURANS	0.00E+00	0.00E+00	0.00E+00
POTASium HYDROXIDE	0.00E+00	0.00E+00	0.00E+00
POTASSIUM ION	0.00E+00	0.00E+00	0.00E+00
PROPANE	0.00E+00	0.00E+00	1.76E-01
PYRENE	0.00E+00	0.00E+00	0.00E+00
PYRIDINE	0.00E+00	0.00E+00	6.09E+01
RDX 6H-3NO2-TRIAZINE	0.00E+00	0.00E+00	2.52E+06
RESORCINOL	0.00E+00	0.00E+00	1.68E+03
ROZOL/QUICK/MURIOL	0.00E+00	0.00E+00	0.00E+00
SAFROLE	0.00E+00	0.00E+00	1.19E+06
SELENIUM	0.00E+00	0.00E+00	0.00E+00
SILICATE ION	0.00E+00	0.00E+00	0.00E+00
SILVER	0.00E+00	0.00E+00	0.00E+00
SILVEX	0.00E+00	0.00E+00	0.00E+00
SODIUM HYDROXIDE	0.00E+00	0.00E+00	0.00E+00
SODIUM ION	0.00E+00	0.00E+00	0.00E+00
STRONTIUM ION	0.00E+00	0.00E+00	0.00E+00
STYRENE	0.00E+00	0.00E+00	1.16E+01
STRYENE-BUTADIENE	0.00E+00	0.00E+00	9.14E+04
SULFATE	0.00E+00	0.00E+00	0.00E+00
SULFURIC ACID	0.00E+00	0.00E+00	0.00E+00
TATB 3NH2-3NO2-BN2NE	0.00E+00	0.00E+00	0.00E+00
2,3,7,8TCDD DIOXIN	0.00E+00	0.00E+00	0.00E+00
TERSAN 1991	0.00E+00	0.00E+00	4.55E+03
1,2,4,5-TETRACHLOROB	0.00E+00	0.00E+00	2.07E+04
1,1,1,2-TETRACHLOROE	0.00E+00	0.00E+00	2.15E+02
1,1,2,2-TETRACHLOROET	0.00E+00	0.00E+00	2.15E+02
2,3,4,6,-TETRACHLORO	0.00E+00	0.00E+00	1.12E+06
TETRACHLOROETHYLENE	0.00E+00	0.00E+00	6.05E+01
TETRAETHYLDITHIOPYRO	0.00E+00	0.00E+00	5.69E+06
TETRAHYDRO FURAN	0.00E+00	0.00E+00	3.38E+00
THALLIUM	0.00E+00	0.00E+00	0.00E+00
TIN	0.00E+00	0.00E+00	0.00E+00
TNT 3NO2-TOLUENE	0.00E+00	0.00E+00	0.00E+00
TOLUENE	0.00E+00	0.00E+00	4.23E+01
TOLUENE DIISOCYANATE	0.00E+00	0.00E+00	1.57E+00
TORDON 22K	0.00E+00	0.00E+00	0.00E+00
TOXAPHENE	0.00E+00	0.00E+00	2.32E+03
TRIBROMOMETHANE	0.00E+00	0.00E+00	2.01E+02
TRIBUTYL PHOSPHATE	0.00E+00	0.00E+00	6.65E+01
1,2,4TRICHLOROBENZNE	0.00E+00	0.00E+00	3.66E+03

TABLE A.5. (contd)

Short Name	Environmental Half-Time (days)		
	Air	Water	Soil
1,1,1-TRICHLOROETHAN	0.00E+00	0.00E+00	9.10E+00
1,1,2-TRICHLOROETHAN	0.00E+00	0.00E+00	3.72E+01
TRICHLOROETHYLENE	0.00E+00	0.00E+00	1.94E+01
TRICL-HEPTAF-BUTANE	0.00E+00	0.00E+00	2.30E+01
TRICHLOROMETHANETHIO	0.00E+00	0.00E+00	2.76E+02
TRICHLOROMONOFUOROM	0.00E+00	0.00E+00	1.67E+00
2,4,5-TRICHLOROPHENO	0.00E+00	0.00E+00	1.05E+03
2,4,6-TRICHLOROPHENO	0.00E+00	0.00E+00	8.73E+04
1,2,3TRICHLOROPRPANE	0.00E+00	0.00E+00	1.90E+02
TRIETHANOLAMINE	0.00E+00	0.00E+00	0.00E+00
TRIETHYLENE GLYCOL	0.00E+00	0.00E+00	1.27E+06
TRIMETHYLBENZENE	0.00E+00	0.00E+00	8.36E+02
2,4,6-TRIMETHYLPHENO	0.00E+00	0.00E+00	6.92E+04
TRIS(2,3-DIBROMOPROP	0.00E+00	0.00E+00	4.48E+06
UO2F2	0.00E+00	0.00E+00	0.00E+00
URANIUM	0.00E+00	0.00E+00	0.00E+00
VANADIUM	0.00E+00	0.00E+00	0.00E+00
VELSICOL R OR MDBA	0.00E+00	0.00E+00	5.00E+01
VAPONITE	0.00E+00	0.00E+00	1.03E+04
VINYL ACETATE	0.00E+00	0.00E+00	1.45E+01
VINYL CHLORIDE	0.00E+00	0.00E+00	4.76E-01
XYLENE (MIXED)	0.00E+00	0.00E+00	1.16E+02
m-XYLENE	0.00E+00	0.00E+00	1.16E+02
o-XYLENE	0.00E+00	0.00E+00	1.16E+02
p-XYLENE	0.00E+00	0.00E+00	1.16E+02
ZINC COMPOUNDS	0.00E+00	0.00E+00	0.00E+00
ZIRCONIUM	0.00E+00	0.00E+00	0.00E+00

TABLE A.6. Physical and Chemical Parameters

Short Name	Molecular Weight	Vapor Pressure mm Hg	Water Solubility mg/L	Adsorption Coefficient Koc	Octanol/Water Coefficient Kow	Henrys Law Constant atm-m ³ /mole
ACTINIUM-225	225.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ACTINIUM-227	227.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AMERICIUM-241	241.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AMERICIUM-242	242.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AMERICIUM-242M	242.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
AMERICIUM-243	243.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ANTIMONY-125	125.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BERYLLIUM-7	7.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CARBON-14	14.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CERIUM-144	144.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CESIUM-134	134.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CESIUM-135	135.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CESIUM-137+D	137.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COBALT-57	57.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COBALT-60	60.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CURIUM-242	242.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CURIUM-243	243.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CURIUM-244	244.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CURIUM-245	245.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EUROPIUM-152	152.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EUROPIUM-154	154.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
EUROPIUM-155	155.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IODINE-129	129.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IODINE-131	131.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
IODINE-135	135.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
KRYPTON-85	85.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD-210	210.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD-212	212.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE-54	54.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NEPTUNIUM-237	237.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NICKEL-56	56.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NICKEL-63	63.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NIOBIUM-93M	93.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NIOBIUM-95	95.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PHOSPHORUS-32	32.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PALLADIUM-107	107.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PLUTONIUM-238	238.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PLUTONIUM-239	239.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PLUTONIUM-240	240.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PLUTONIUM-241	241.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
POLONIUM-210	210.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
POTASSIUM-40	40.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PROTACTINIUM-231	231.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PROTACTINIUM-233	233.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RADIUM-223	223.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RADIUM-225	225.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RADIUM-226	226.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RADON-220+D (MOCK)	220.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RADON-222+D (MOCK)	222.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RUTHENIUM-103	103.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
RUTHENIUM-106	106.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SAMARIUM-151	151.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SELENIUM-79	79.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SODIUM-22	22.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SULPHUR-35	35.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
STRONTIUM-89	89.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
STRONTIUM-90	90.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TECHNETIUM-99	99.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
THORIUM-227	227.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

TABLE A.6. (contd)

Short Name	Molecular Weight	Vapor Pressure mm Hg	Water Solubility mg/L	Adsorption Coefficient Koc	Octanol/Water Coefficient Kow	Henry's Law Constant atm-m ³ /mole
THORIUM-228	228.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
THORIUM-229	229.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
THORIUM-230	230.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
THORIUM-232	232.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
THORIUM-234	234.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TIN-126	126.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TRITIUM	20.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
URANIUM-233	233.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
URANIUM-234	234.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
URANIUM-235	235.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
URANIUM-236	236.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
URANIUM-238	238.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
URANIUM-239	239.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
YTTRIUM-90	90.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ZINC-65	65.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ZIRCONIUM-93	93.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ACENAPHTHENE	154.00	1.6E-03	3.4E+00	4.6E+03	1.0E+04	9.2E-05
ACENAPHTHYLENE	152.00	2.9E-02	3.9E+00	2.5E+03	5.0E+03	1.5E-03
ACETONE	58.00	2.7E+02	1.0E+06	2.2E+00	5.8E-01	2.1E-05
ACETONITRILE	41.00	7.4E+01	1.0E+06	2.2E+00	4.6E-01	4.0E-06
ACETOPHENONE	120.10	1.0E+00	5.5E+03	2.3E+01	4.8E+01	3.2E-05
2-ACETYLAMINOFLUORE	223.00	2.2E-05	6.5E+00	1.6E+03	1.9E+03	1.1E-06
ACROLEIN(PROPENAL)	56.10	2.2E+02	2.1E+05	4.9E-01	1.0E+00	5.7E-05
ACRYLONITRILE	53.00	1.0E+02	7.9E+04	8.5E-01	1.8E+00	8.8E-05
ACRYLAMIDE	71.09	1.3E+01	6.7E+05	1.3E-01	2.1E-01	2.0E-06
ALDRIN	365.00	6.0E-06	1.8E-01	9.6E+04	2.0E+05	1.6E-05
ALK-ARYL SULFONATES	326.50	2.1E-03	2.6E-02	1.5E+06	2.4E+06	4.0E-02
ALKOXY-ME-CHOLINE	356.48	4.4E-07	2.4E+00	3.5E+04	5.7E+04	7.9E-08
ALLYL ALCOHOL	58.00	2.5E+01	5.1E+05	3.2E+00	6.0E-01	3.7E-06
ALUMINUM	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
4-AMINOBIIPHENYL	169.23	6.0E-05	8.4E+02	1.1E+02	6.0E+02	1.6E-08
AMMONIA	17.00	0.0E+00	1.0E+06	1.3E+00	0.0E+00	0.0E+00
ANILINE	93.10	3.0E-01	3.4E+04	1.4E+01	8.7E+00	1.1E-06
ANTHRACENE	178.00	2.0E-04	4.5E-02	1.4E+04	2.8E+04	1.0E-03
ANTIMONY	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PCBs (GENERAL)	328.00	7.7E-05	3.1E-02	5.3E+05	1.1E+06	1.1E-03
AROCLOR 1016 (PCB)	257.90	4.0E-04	4.2E-01	1.8E+05	3.8E+05	3.3E-04
AROCLOR 1221 (PCB)	200.70	6.7E-03	4.0E+01	5.8E+03	1.2E+04	1.7E-04
AROCLOR 1232 (PCB)	232.20	4.1E-03	4.1E+02	7.7E+02	1.6E+03	1.1E-05
ARAOLOR 1242 (PCB)	266.50	1.3E-03	2.3E-01	6.3E+03	1.3E+04	2.0E-03
AROCLOR 1248 (PBC)	299.50	4.9E-04	5.4E-02	2.8E+05	5.8E+05	3.6E-03
AROCLOR 1254 (PCB)	328.40	2.2E-05	4.3E-02	5.3E+05	1.1E+06	1.9E-04
AROCLOR 1260 (PCB)	375.70	6.3E-06	1.4E-02	6.7E+06	1.4E+07	1.7E-04
ARSENIC	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ASBESTOS (CROC)	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ASPHALT	276.00	1.0E-10	5.3E-04	1.6E+06	3.2E+06	6.9E-08
BARIUM	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BENZENE	78.00	9.5E+01	1.8E+03	8.3E+01	1.3E+02	5.6E-03
BENZIDINE	184.24	5.0E-04	4.0E+02	1.1E+01	2.0E+01	3.0E-07
BENZO(A)ANTHRACENE	228.00	2.2E-08	5.7E-03	1.4E+06	4.0E+05	1.2E-06
BENZO(A)PYRENE	252.00	5.6E-09	3.8E-03	5.5E+06	1.2E+06	1.5E-06
BENZO(B)FLUORANTHENE	252.00	5.0E-07	1.4E-02	5.5E+05	1.2E+06	1.2E-05
BENZO(K)FLUORANTHENE	252.00	5.1E-07	4.3E-03	5.5E+05	1.2E+06	3.9E-05
BENZOIC ACID	122.13	2.5E-03	3.4E+03	4.6E+01	7.4E+01	1.3E-07
P-BENZOQUINONE	108.09	9.0E-02	1.5E+04	9.8E-01	1.6E+00	1.5E-06
BERYLLIUM	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BIS(2-CHLOROETHYL)	143.02	7.1E-01	1.0E+04	1.4E+01	3.2E+01	1.3E-05
BIS(2-CHLOROISOPRO)	171.00	8.5E-01	1.7E+03	6.1E+01	1.3E+02	1.1E-04
BIS(2ET-HEXYL)PHTHLT	391.00	2.0E-07	4.0E-01	8.7E+04	4.1E+09	4.4E-07

TABLE A.6. (contd)

Short Name	Molecular Weight	Vapor Pressure mm Hg	Water Solubility mg/L	Adsorption Coefficient Koc	Octanol/Water Coefficient Kow	Henry's Law Constant atm-m ³ /mole
BORATE (AS NA SALT)	42.80	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BORON	10.80	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
BROMODICHLOROMETHAN	163.80	5.9E+01	5.0E+01	1.1E+02	1.7E+02	3.2E-01
BROMOMETHANE	94.94	1.5E+03	9.0E+02	9.6E+00	1.6E+01	1.2E-01
n-BUTANE	58.14	1.9E+03	4.8E+01	4.8E+02	7.8E+02	4.5E-01
1-BUTANOL	74.12	2.4E+01	7.9E+04	4.7E+00	5.6E+00	4.8E-06
2-SEC-BUTYL-4,6-DIN	240.22	1.2E-10	1.7E+00	3.0E+03	4.6E+03	2.4E-11
CADMIUM	112.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CALCIUM HYPOCHLORITE	197.03	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CALCIUM OXIDE	56.08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CARBON DISULFIDE	76.14	3.6E+02	2.9E+03	5.4E+01	1.0E+02	1.2E-02
CARBON TETRACHLORIDE	154.00	9.0E+01	7.6E+02	1.1E+02	4.4E+02	2.4E-02
CEMENT DUST	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CHLORATE (AS NA SLT)	83.45	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CHLORDANE	409.80	2.5E-05	6.0E-03	9.5E+03	6.0E+04	1.9E-03
CHLORINE	71.00	5.7E+03	0.0E+00	0.0E+00	0.0E+00	0.0E+00
P-CHLOROANILINE	127.57	1.5E-02	2.6E+03	4.2E+01	6.8E+01	9.7E-07
CHLOROBENZENE	112.56	1.2E+01	4.7E+02	3.3E+02	6.9E+02	3.7E-03
CHLOROBENZILATE	325.00	1.2E-06	2.2E+01	8.0E+02	3.2E+04	2.3E-08
2-CHLOR-1,3-BUTADIEN	88.54	2.8E+02	4.3E+03	3.7E+01	6.0E+01	8.2E-03
CHLORODIBROMOMETHANE	208.29	1.5E+01	4.5E+03	7.6E+01	1.2E+02	1.0E-03
CHLOROETHANE	64.52	1.2E+03	5.7E+03	1.7E+01	2.7E+01	1.5E-02
CHLOROFORM	119.00	1.5E+02	8.2E+03	3.1E+01	9.3E+01	2.9E-03
P-CHLORO-M-CRESOL	142.59	8.0E-03	3.9E+03	7.8E+02	1.3E+03	4.3E-07
CHLOROMETHANE(METHY)	50.49	4.3E+01	6.5E+03	3.5E+01	8.9E+00	4.4E-02
2-CHLORONAPHTHALENE	162.20	6.7E-02	6.7E+00	4.8E+03	1.0E+04	5.4E-04
2-CHLOROPHENOL	128.56	1.8E+00	2.9E+04	7.3E+01	1.5E+02	1.0E-05
4-CHLORO PH PH ETHER	204.66	2.7E-03	3.0E+00	7.4E+03	1.2E+04	2.7E-04
3-CHLOROPROPENE(ALLY	76.53	3.4E+02	1.0E+02	4.0E+00	6.6E+00	3.4E-01
CHROMIUM III	52.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CHROMIUM VI	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CHRYSENE	228.30	6.3E-09	2.0E-03	2.0E+05	4.1E+05	9.5E-07
COAL DUST	276.00	1.0E-10	5.3E-04	1.6E+06	3.2E+06	6.9E-08
COAL TAR	276.00	1.0E-10	5.3E-04	1.6E+06	3.2E+06	6.9E-08
COBALT	58.93	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
COPPER	63.55	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
CRUDE OIL	142.20	4.5E-02	3.2E+01	4.5E+03	7.2E+03	2.9E-04
CYANIDE ION	26.00	6.2E+02	1.0E+06	0.0E+00	5.6E-01	1.9E+03
CYCLOHEXANE	84.18	1.0E+02	4.9E+01	1.7E+03	2.8E+03	2.5E-01
CYCLOHEXANONE	98.16	4.5E+00	5.0E+04	4.0E+00	6.5E+00	1.3E-05
DDD	320.00	1.9E-06	1.0E-01	7.7E+05	1.6E+06	8.0E-06
DDE	318.00	6.5E-06	4.0E-02	4.4E+06	1.0E+07	6.8E-05
DDT	354.49	5.5E-06	5.0E-03	2.4E+05	1.6E+06	5.1E-04
DIAZINON	304.38	2.2E+01	7.8E+01	4.0E+03	6.5E+03	1.3E-01
DIBENZOL(A,H)ANTRAC	278.00	1.0E-10	1.4E-02	3.3E+06	4.1E+05	2.6E-09
1,2-DIBROMO-3-CHLOR	236.00	1.0E+00	1.0E+03	9.8E+01	2.0E+02	3.1E-04
DIBROMOMETHANE	173.86	3.4E+02	3.6E+04	1.0E+01	1.7E+01	2.4E-03
1,2-DICHLOROBENZENE	147.01	1.0E+00	1.0E+02	1.7E+03	4.0E+03	1.9E-03
1,4-DICHLOROBENZENE	147.01	1.2E+00	7.9E+01	1.7E+03	4.0E+03	2.9E-03
3,3-DICHLOROBENZIDIN	253.13	1.0E-05	4.0E+00	1.6E+03	3.2E+03	8.3E-07
TRANS-1,4-DICHLORO-B	125.00	2.0E+01	6.9E+03	3.3E+01	5.0E-01	1.0E-04
DICHLORODIFLUOROMETH	120.92	4.3E+03	2.8E+02	5.8E+01	1.5E+02	1.0E-04
1,1-DICHLOROETHANE	98.96	1.8E+02	5.5E+03	3.0E+01	6.2E+01	4.3E-03
1,2-DICHLOROETHANE	98.96	6.4E+01	8.5E+03	1.4E+01	3.0E+01	9.8E-04
1,1-DICHLOROETHYLENE	96.94	6.0E+02	2.3E+03	6.5E+01	6.9E+01	3.4E-02
1,2-DICHLOROETHYLENE	96.94	3.2E+02	6.3E+03	5.9E+01	3.0E+00	6.6E-03
2,4-DICHLOROPHENOL	163.00	5.9E-02	4.6E+03	3.8E+02	7.9E+02	2.8E-06
2,6-DICHLOROPHENOL	163.00	9.0E-02	3.2E+02	2.7E+02	4.4E+00	6.6E-05
1,2-DICHLOROPROPANE	112.99	4.2E+01	2.7E+03	5.1E+01	1.0E+02	2.3E-03

TABLE A.6. (contd)

Short Name	Molecular Weight	Vapor Pressure mm Hg	Water Solubility mg/L	Adsorption Coefficient Koc	Octanol/Water Coefficient Kow	Henry's Law Constant atm-m ³ /mole
CIS-1,3-DICHLOROPROP	110.97	3.1E+01	8.5E+03	2.5E+01	1.0E+02	1.3E-03
TRANS-1,3-DICHLOROPROP	110.97	3.1E+01	8.5E+03	2.5E+01	1.0E+02	1.3E-03
1,3-DICHLOROBENZENE	147.01	2.3E+00	1.2E+02	1.7E+03	4.0E+03	3.6E-03
DICOFOL/DTMC/CARBAX	370.49	9.3E-11	1.7E-02	7.0E+05	1.1E+06	3.0E-09
DIELDRI	380.95	1.8E-07	1.9E-01	1.7E+03	3.2E+03	4.6E-07
DIESEL FUEL	142.20	4.5E-02	3.2E+01	4.5E+03	7.2E+03	2.9E-04
DIETHYL PHTHALATE	222.20	3.5E-03	6.8E+02	6.9E+01	2.9E+02	2.0E-08
P-DIMETHYLAMINOAZOBEN	225.00	3.3E-07	1.4E+01	1.0E+03	5.3E+03	7.2E-09
3,3'-DIMETHOXYBENZID	244.00	2.1E-07	2.1E+03	1.2E+01	1.9E+01	3.5E-11
DIMETHYLAMINE (DMA)	45.08	3.2E+03	3.2E+05	2.6E-01	4.2E-01	1.5E-04
3,3'-DIMETHYLBENZIDE	212.00	1.5E-07	1.9E+02	1.4E+02	1.2E+02	2.4E-10
DIMETHYL ETHER	46.08	4.0E+03	1.0E+05	7.8E-01	1.3E+00	4.9E-04
2,4-DIMETHYLPHENOL	122.16	2.6E-02	5.9E+02	9.6E+01	6.5E+02	1.8E-05
DIMETHYLPHTHALATE	194.18	4.2E-03	2.1E+03	1.7E+01	3.6E+01	1.1E-06
DI-N-BUTYL PHTHALATE	278.00	1.0E-05	1.3E+01	1.7E+05	4.0E+05	2.8E-07
M-DINITROBENZENE	168.11	1.1E-04	4.7E+02	1.9E+01	4.2E+01	5.8E-08
4,6-DINITRO-O-CRESOL	198.03	5.0E-02	2.9E+02	2.4E+02	5.0E+02	4.5E-05
2,4-DINITROPHENOL	184.11	1.5E-05	5.6E+03	1.7E+01	3.2E+01	6.5E-10
2,4-DINITROTOLUENE	182.14	5.1E-03	2.4E+02	4.5E+01	1.0E+02	5.1E-06
DMF DI-ME FORMAMIDE	73.10	2.7E+00	6.9E+05	6.0E-02	1.0E-01	3.8E-07
2,4-D	221.00	4.0E-01	6.2E+02	2.0E+01	6.5E+02	1.9E-04
DIOCTYL ADIPATE	370.64	1.9E-01	3.2E-03	3.8E+07	6.2E+07	0.0E+00
DI-N-OCTYLPHTHALATE	391.00	1.4E-04	3.4E-01	3.6E+09	7.4E+09	5.5E-06
DI-N-PROPYLNITROSAMI	130.20	4.0E-01	9.9E+03	1.5E+01	3.2E+01	6.9E-06
1,4-DIOXANE	88.00	4.0E+01	4.3E+05	3.5E+00	1.0E+00	1.1E-05
N-PHENYL BENZENAMINE	169.23	6.0E-05	4.0E+01	2.0E+03	3.2E+03	3.7E-07
1,2-DIPHENYLHYDRAZINE	184.24	2.6E-05	1.8E+03	4.2E+02	7.9E+02	3.4E-09
DISULFOTON	274.00	1.8E-04	2.5E+01	2.1E+03	1.1E+04	2.6E-06
DIURON	233.10	7.2E-01	4.2E+01	3.6E+02	6.3E+02	1.6E-09
EDTA	292.25	1.4E-08	6.1E+04	7.3E-01	1.2E+00	8.8E-14
ENDOSULFAN I (ALPHA)	406.90	1.0E-05	6.0E-01	9.6E-03	3.6E+03	1.0E-05
ENDOSULFAN II (BETA)	406.90	1.0E-05	6.0E-01	9.6E-03	4.2E+03	1.9E-05
ENDRI	380.90	2.7E-07	2.0E-01	1.1E+04	4.0E+05	1.0E-06
ETHANE	30.08	4.6E+04	6.0E+01	4.0E+01	6.5E+01	7.5E-01
ETHANOL	46.07	5.9E+01	2.8E+05	3.0E-01	4.9E-01	1.2E-05
ETHYL ACETATE	88.12	1.1E+02	7.8E+04	3.3E+00	5.4E+00	1.8E-04
ETHYLBENZENE	106.17	7.0E+00	1.5E+02	1.1E+03	1.4E+03	6.4E-03
ETHYL ETHER	74.14	4.4E+02	6.5E+04	4.8E+00	7.8E+00	9.0E-04
ETHYLENE GLYCOL	62.07	6.5E-02	5.8E+05	2.7E-02	1.2E-02	1.0E-08
ETHYL METHACRYLATE	114.15	1.2E+01	3.7E+03	5.4E+01	8.7E+01	5.5E-04
FLUORANTHENE	202.26	1.0E-05	2.6E-01	3.8E+04	7.9E+04	1.0E-05
FLUORENE	166.00	7.1E-04	2.0E+00	7.3E+03	1.6E+04	6.4E-05
FLUORIDE	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
FREON 113	187.38	1.2E+02	1.8E+02	1.2E+03	2.0E+03	1.8E-01
FORMALDEHYDE	30.03	3.5E+03	3.7E+04	1.4E+00	2.2E+00	3.7E-03
FUEL OIL #2	142.20	4.5E-02	3.2E+01	4.5E+03	7.2E+03	2.9E-04
FURAN	68.08	6.1E+02	1.0E+04	1.4E+01	2.2E+01	6.1E-03
GASOLINE	78.00	9.5E+01	1.8E+03	8.3E+01	1.3E+02	5.6E-03
GLYPHOSATE	169.09	1.0E+00	1.0E+05	5.3E-04	1.0E-03	1.5E-06
BETA - HEEH	290.93	2.8E-07	2.4E-01	3.8E+03	7.9E+03	4.5E-07
DELTA-HEEH	290.83	1.7E-05	3.1E+01	6.6E+03	1.3E+04	2.1E-07
GAMMA-HEEH (LINDANE)	290.83	1.6E-04	7.8E+00	1.1E+03	7.9E+03	7.8E-06
HEPTACHLOR	373.50	3.0E-04	5.6E-02	6.0E+03	2.5E+04	2.9E-03
HEPTACHLOR EPOXIDE	389.20	3.0E-04	3.5E-01	2.2E+02	5.1E+02	4.4E-04
HEPTANES	100.23	5.2E+01	5.6E+00	1.5E+04	2.5E+04	1.6E+00
HEXACHLOROBENZENE	284.79	1.1E-05	6.0E-03	3.9E+03	1.7E+05	6.8E-04
HEXACHLOROBUTADIENE	260.76	2.0E+00	1.5E-01	2.9E+04	6.0E+04	4.6E-04
ALPHA-HEXACHLOROCYCL	290.83	2.5E-05	1.6E+00	3.8E+03	7.9E+03	5.9E-06
HEXACHLOROCYCLOPENTA	272.80	8.0E-02	1.3E+00	3.6E+03	1.0E+04	2.7E-02

TABLE A.6. (contd)

Short Name	Molecular Weight	Vapor Pressure mm Hg	Water Solubility mg/L	Adsorption Coefficient Koc	Octanol/Water Coefficient Kow	Henrys Law Constant atm-m ³ /mole
HEXACHLORODIBENZO-P-	390.86	1.7E-06	2.0E-04	3.3E+06	5.3E+06	3.6E-03
HEXACHLORODIBENZOFUR	362.00	1.7E-06	2.0E-04	3.3E+06	5.0E+06	3.6E-03
HEXACHLOROETHANE	236.74	4.0E-01	5.0E+01	2.0E+04	4.0E+04	2.5E-03
HEXACHLOROPHENE	406.91	5.6E-13	4.0E-04	2.1E+07	3.5E+07	8.3E-10
HEXANES	86.20	1.8E+02	1.9E+01	4.6E+03	6.8E+03	1.6E+00
2-HEXANONE ME-BU-KET	100.16	1.0E+00	1.4E+04	1.5E+01	2.4E+01	1.1E-05
HMX (H-NO ₂ TETZOCINE	296.20	8.4E-04	2.6E+00	2.4E+00	3.9E+00	3.5E-06
HYDRAULIC FLUID	178.00	2.0E-04	4.5E-02	1.4E+04	2.8E+04	1.0E-03
HYDRAZINE	32.05	1.6E+01	1.0E+06	1.4E+00	4.3E-02	6.5E-09
HYDROGEN FLUORIDE	20.01	0.0E+00	0.0E+00	0.0E+00	1.0E+01	0.0E+00
HYDROXYQUINOLINE	145.17	7.5E-04	3.9E-02	5.4E+01	8.7E+01	4.0E-07
INDENO(1,2,3-cd)PYRE	276.00	1.0E-10	5.3E-04	1.6E+06	3.2E+06	6.9E-08
IRON	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ISOBUTANE	58.14	3.3E+03	2.2E+02	3.6E+02	5.8E+02	3.2E-01
ISOBUTYL ALCOHOL	74.12	1.0E+01	8.9E+04	3.5E+00	5.8E+00	1.0E-05
ISOPENTANE	72.17	6.9E+02	4.8E+01	7.9E+02	1.8E+03	2.0E+00
ISOPHORONE	138.20	3.8E-01	1.2E+04	8.7E+01	1.8E+02	5.8E-06
ISOPROPYL ALCOHOL	60.11	4.8E+01	1.5E+05	6.9E-01	1.1E+00	2.8E-05
ISOSAFROLE	162.19	1.6E-08	1.1E+03	9.3E+01	4.6E+02	3.3E-12
JP4	142.20	4.5E-02	3.2E+01	4.5E+03	7.2E+03	2.9E-04
KEPONE	491.00	3.0E-07	9.9E-03	5.5E+04	1.0E+02	4.9E-11
KEROSENE	142.20	4.5E-02	3.2E+01	4.5E+03	7.2E+03	2.9E-04
LEAD	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LEAD OXIDE	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LITHIUM HYDROXIDE	23.95	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
LITHIUM ION	6.94	0.0E+00	7.0E+04	0.0E+00	0.0E+00	0.0E+00
MAGNESIUM	24.30	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MANGANESE	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
MERCURY	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
METHANOL	32.04	1.3E+02	3.0E+05	1.0E-01	1.7E-01	2.0E-05
METHAPYRILENE	261.39	1.5E-07	3.6E+01	4.6E+02	7.4E+02	1.6E-09
METHOXYCHLOR	345.65	5.0E-09	1.0E-01	4.2E+04	2.0E+04	2.5E-08
2-METHOXY-1-PROPANO	90.12	1.4E+01	3.9E+05	4.1E-01	6.6E-01	4.7E-06
METHYLACRLONITRILE	67.09	6.5E+01	2.5E+04	2.1E+00	3.5E+00	2.3E-04
METHYLCYCLOHEXANE	98.21	4.2E+01	2.1E+01	4.6E+03	7.4E+03	3.1E-01
METHYLCYCLOPENTANE	84.18	1.2E+02	7.7E+01	1.3E+03	2.1E+03	1.8E-01
4,4'-METHYLENE-BIS(2	267.16	1.3E-08	7.4E+00	5.3E+03	8.7E+03	6.7E-10
METHYLENE CHLORIDE	84.93	3.6E+02	2.0E+04	8.8E+00	2.0E+01	2.0E-03
METHYLENE DITHIOCYAN	130.19	7.6E+02	4.9E+05	4.6E-01	7.5E-01	2.9E-04
METHYL ETHYL KETONE	72.12	7.8E+01	2.7E+05	4.5E+00	1.9E+00	2.7E-05
2-METHYLNAPHTHALENE	142.20	4.5E-02	3.2E+01	4.5E+03	7.2E+03	2.9E-04
4-METHYL-2-PENTANONE	100.16	6.0E+00	1.9E+04	1.9E+01	5.3E+00	4.2E-05
2-METHYLPHENOL(O-CRE	108.15	2.4E-01	3.1E+04	1.5E+01	9.3E+01	1.1E-06
4-METHYLPHENOL(P-CRE	108.15	4.0E-02	2.4E+04	1.7E+01	8.5E+01	2.4E-07
2(METHYLTHIO)PROPANE	90.19	3.5E+01	3.4E+03	4.7E+01	7.6E+01	1.4E-03
MINERAL OIL	178.00	2.0E-04	4.5E-02	1.4E+04	2.8E+04	1.0E-03
MINERAL SPIRITS	120.00	9.5E+01	1.8E+03	8.3E+01	1.3E+02	5.6E-03
MOLYBDENUM	95.94	0.0E+00	2.0E+03	0.0E+00	0.0E+00	0.0E+00
MOTOR OIL	178.00	2.0E-04	4.5E-02	1.4E+04	2.8E+04	1.0E-03
NONANE	128.29	6.5E+00	4.7E-01	1.8E+05	2.9E+05	3.5E+00
NAPHTHALENE	128.16	8.7E-02	3.2E+01	9.4E+02	1.7E+03	4.6E-04
1,4-NAPHTHOPQUINONE	158.15	3.6E+01	3.5E+03	3.2E+01	5.1E+01	2.4E-03
1-NAPHTHYLAMINE	143.19	6.5E-05	2.4E+03	6.1E+01	1.2E+02	5.2E-09
2-NAPHTHYLAMINE	143.19	2.6E-04	5.9E+02	1.3E+02	1.2E+02	8.2E-08
NICKEL	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
N-DODECANE	170.34	3.0E-01	3.7E-03	2.7E+05	4.4E+05	1.8E+01
NITRATE	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NITRIC ACID	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
NITROBENZENE	123.11	1.5E-01	1.9E+03	3.6E+01	7.1E+01	4.6E-04

TABLE A.6. (contd)

Short Name	Molecular Weight	Vapor Pressure mm Hg	Water Solubility mg/L	Adsorption Coefficient Koc	Octanol/Water Coefficient Kow	Henry's Law Constant atm-m ³ /mole
NITROGEN DIOXIDE	46.01	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
5-NITRO-O-TOLUIDINE	152.15	8.4E-03	4.7E+03	5.6E+01	9.1E+01	3.9E-07
4-NITROPHENOL	139.11	2.2E+00	1.6E+04	5.0E+01	8.1E+01	3.0E-04
N-NITROSDIETHYLAMIN	102.14	5.0E+00	9.3E+04	1.9E+00	3.0E+00	7.9E-06
N-NITROSDIMETHYLAMI	74.08	8.1E+00	1.0E+06	1.0E-01	2.1E-01	7.9E-07
N-NITROSDI-N-BUTYLA	158.24	1.8E+02	5.4E+03	5.1E+01	8.3E+01	7.5E-03
N-NITROSDIPHNYLAMNE	198.20	1.0E-01	4.0E+01	6.5E+02	1.4E+03	6.6E-04
N-NITROSDIPROPYLAMI	130.20	4.0E-01	9.9E+03	1.5E+01	3.1E+01	6.3E-06
N-NITROSDIMORPHOLINE	116.12	1.5E+03	9.4E+05	2.2E-01	3.6E-01	2.7E-04
N-NITROSDIPERIDINE	114.15	1.4E-01	1.9E+06	1.5E+00	3.2E-01	1.1E-08
N-NITROSDIPYRROLIDINE	100.00	1.1E-01	7.0E+06	8.0E-01	8.7E-02	2.1E-09
NO. 6 FUEL	142.20	4.5E-02	3.2E+01	4.5E+03	7.2E+03	2.9E-04
O-NITROANILINE	138.12	1.0E-01	8.9E+02	4.4E+01	6.2E+01	2.3E-05
P-NITROANILINE	138.12	1.5E-03	8.0E+02	1.5E+01	2.5E+01	3.8E-07
OCTANE	114.23	1.7E+01	1.1E+00	9.3E+04	1.5E+05	3.5E+00
ORTHENE OR ACEPHATE	183.16	1.0E+00	1.0E+05	5.3E-02	1.4E-01	1.5E-06
PARATHION	291.27	3.8E-05	1.2E+01	4.0E+03	6.5E+03	1.2E-06
PAPER FIBER	.00	0.0E+00	0.0E+00	1.0E+05	0.0E+00	0.0E+00
PENTACHLOROBENZENE	250.14	6.6E-03	1.4E-01	9.1E+04	1.6E+05	1.8E-02
PENTACHLOROETHANE	202.30	3.4E+00	7.4E+01	2.9E+03	4.7E+03	1.3E-02
PENTACHLORONITROBENZ	295.34	1.1E-04	7.1E-02	1.9E+04	2.8E+05	6.2E-04
PENTACHLOROPHENOL	266.00	1.1E-04	1.4E+01	5.3E+04	1.0E+05	2.8E-06
n-PENTANE	72.17	5.1E+02	4.8E+01	1.5E+03	2.5E+03	1.5E+00
PETN SERYTHRITOL-4NO	316.10	8.4E-04	9.9E+01	2.4E+00	3.9E+00	3.5E-06
PHENACETIN	179.22	3.2E+00	7.6E+02	2.3E+01	3.7E+01	1.1E-03
PHENANTHRENE	178.00	6.8E-04	1.3E+00	1.4E+04	2.9E+04	1.6E-04
PHENOL	94.11	3.4E-01	9.3E+04	1.4E+01	2.9E+01	4.5E-07
PHOSPHATE ION	94.97	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
PICOLINE	93.12	8.0E+00	2.6E+04	7.9E+00	1.3E+01	4.2E-05
POLYACRYLAMIDE	1000.00	1.0E-03	1.0E+00	1.0E+03	1.0E+03	1.0E-04
POLYCHLORNTED FURANS	322.00	1.7E-06	2.0E-04	3.3E+06	5.3E+06	3.6E-03
POTASSIUM HYDROXIDE	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
POTASSIUM ION	39.10	0.0E+00	3.5E+04	0.0E+00	0.0E+00	0.0E+00
PROPANE	44.11	7.6E+03	3.9E+02	1.4E+02	2.3E+02	1.2E-01
PYRENE	202.26	2.5E-06	1.3E-01	3.8E+04	2.1E+05	5.0E-06
PYRIDINE	79.10	2.0E+01	1.0E+06	2.8E+00	4.6E+00	2.3E-06
RDX 6H-3NO2-TRIAZINE	222.12	4.1E-04	3.8E+01	1.0E+03	1.9E+03	8.3E-06
RESORCINOL	110.11	6.9E-01	2.3E+06	3.9E+00	6.3E+00	4.8E-08
ROZOL/QUICK/MURIOL	374.83	9.6E-14	4.7E-02	1.9E+05	3.1E+05	1.1E-12
SAFROLE	162.19	9.1E-04	1.5E+03	7.8E+01	3.4E+02	1.3E-07
SELENIUM	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SILICATE ION	92.10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SILVER	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SILVEX	269.50	9.2E-07	4.3E+03	5.3E+03	8.5E+03	8.4E-11
SODIUM HYDROXIDE	.00	0.0E+00	4.2E+04	0.0E+00	0.0E+00	0.0E+00
SODIUM ION	22.99	0.0E+00	3.6E+04	0.0E+00	0.0E+00	0.0E+00
STRONTIUM ION	87.62	0.0E+00	5.4E+05	0.0E+00	0.0E+00	0.0E+00
STYRENE	104.16	1.0E+02	3.2E+02	5.5E+02	8.9E+02	4.7E-03
STYRENE-BUTADIENE	158.11	1.2E-02	6.6E+00	7.3E+03	1.2E+04	4.1E-04
SULFATE	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
SULFURIC ACID	98.08	0.0E+00	1.0E+06	0.0E+00	0.0E+00	0.0E+00
TATB 3NH2-3NO2-BNZNE	258.15	7.4E-15	2.6E+02	7.5E+00	1.2E+01	9.1E-18
2,3,7,8TCDD DIOXIN	322.00	1.7E-06	2.0E-04	3.3E+06	5.3E+06	3.6E-03
TERSAN 1991	290.36	2.2E-01	1.4E-01	1.2E+02	2.0E+02	8.4E-05
1,2,4,5-TETRACHLOROB	215.90	5.0E-02	6.0E+00	1.6E+03	4.7E+04	2.4E-03
1,1,1,2-TETRACHLORO	167.85	5.0E+00	2.9E+03	6.7E+02	1.1E+03	4.9E-04
1,1,2,2-TETRACHLOROET	167.85	5.0E+00	2.9E+03	1.2E+02	2.5E+02	3.8E-04
2,3,4,6,-TETRACHLORO	231.89	9.1E-04	1.0E+03	1.7E+04	1.3E+04	3.1E-07
TETRACHLOROETHYLENE	165.85	1.8E+01	1.5E+02	3.6E+02	4.0E+02	2.6E-02

TABLE A.6. (contd)

Short Name	Molecular Weight	Vapor Pressure mm Hg	Water Solubility mg/L	Adsorption Coefficient Koc	Octanol/Water Coefficient Kow	Henry's Law Constant atm-m ³ /mole
TETRAETHYLDITHIOPYRO	322.34	1.7E-04	6.6E-01	5.5E+03	1.4E+04	1.8E-06
TETRAHYDRO FURAN	72.11	3.7E+02	6.9E+04	1.8E+00	2.9E+00	5.1E-04
THALLIUM	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TIN	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TNT 3NO2-TOLUENE	227.13	9.0E-08	4.8E+02	1.8E+01	7.8E+01	1.4E-04
TOLUENE	92.15	2.8E+01	5.4E+02	3.0E+02	5.4E+02	6.4E-03
TOLUENE DIISOCYANATE	174.18	6.8E+02	1.2E+02	2.6E+03	4.1E+03	3.6E+00
TORDON 22K	280.56	1.5E-06	1.6E+03	1.4E+02	2.3E+02	3.2E-10
TOXAPHENE	414.00	4.0E-01	5.0E-01	9.6E+02	2.0E+03	4.4E-01
TRIBROMOMETHANE	252.75	5.0E+00	3.0E+03	1.2E+02	2.5E+02	5.5E-04
TRIBUTYL PHOSPHATE	266.32	1.5E+01	2.8E+02	6.0E+03	9.8E+03	1.9E-02
1,2,4-TRICHLOROBENZENE	181.45	2.9E-01	3.0E+01	9.2E+03	2.0E+04	2.3E-03
1,1,1-TRICHLOROETHAN	133.41	1.2E+02	1.5E+03	1.5E+02	3.2E+02	1.4E-02
1,1,2-TRICHLOROETHAN	133.41	3.0E+01	4.5E+03	5.6E+01	3.0E+02	1.2E-03
TRICHLOROETHYLENE	131.29	5.8E+01	1.1E+03	1.3E+02	2.4E+02	9.1E-03
TRICL-HEPTAF-BUTANE	287.39	4.3E+01	8.4E+01	3.6E+03	5.8E+03	2.1E-01
TRICHLOROMETHANETHIO	151.44	4.0E+00	1.1E+03	2.1E+02	3.4E+02	8.1E-04
TRICHLOROMONOFUOROM	137.40	6.7E+02	1.1E+03	1.6E+02	3.4E+02	1.1E-01
2,4,5-TRICHLOROPHENO	197.44	1.0E+00	1.2E+03	8.9E+01	5.3E+03	2.2E-04
2,4,6-TRICHLOROPHENO	197.44	1.2E-02	8.0E+02	2.0E+03	7.4E+03	3.9E-06
1,2,3-TRICHLOROPRANE	147.43	5.8E+00	4.0E+03	6.3E+01	3.7E+04	3.1E-04
TRIETHANOLAMINE	149.22	2.4E-06	1.4E+06	1.1E-02	1.8E-02	3.8E-13
TRIETHYLENE GLYCOL	150.18	8.7E-04	1.4E+06	5.1E-03	8.3E-03	1.3E-10
TRIMETHYLBENZENE	120.21	1.4E+00	6.4E+01	1.6E+03	2.6E+03	3.7E-01
2,4,6-TRIMETHYLPHENO	136.20	1.6E-02	9.5E+01	1.6E+03	2.6E+03	3.3E-05
TRIS(2,3-DIBROMOPROP	697.93	1.9E-04	1.2E+02	8.1E+03	1.3E+04	1.5E-06
UO2F2	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
URANIUM	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
VANADIUM	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
VELSICOL R OR MDBA	221.04	0.0E+00	7.9E+04	1.6E+02	1.0E+03	6.8E-04
VAPONITE	220.98	1.0E-01	1.7E+05	3.2E+00	5.1E+00	0.0E+00
VINYL ACETATE	86.10	8.3E+01	2.5E+04	1.7E+01	3.0E+00	3.8E-04
VINYL CHLORIDE	62.50	2.7E+03	2.7E+03	5.7E+01	2.4E+01	8.2E-02
XYLENE (MIXED)	106.17	1.0E+01	2.0E+02	2.4E+02	1.8E+03	7.0E-03
m-XYLENE	106.17	1.0E+01	1.3E+02	3.0E+02	1.8E+03	1.1E-02
o-XYLENE	106.17	1.0E+01	1.8E+02	2.6E+02	8.9E+02	8.0E-03
p-XYLENE	106.17	1.0E+01	2.0E+02	2.4E+02	1.4E+03	7.4E-03
ZINC COMPOUNDS	65.38	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
ZIRCONIUM	.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

TABLE A.7. Radiation Dosimetry Parameters

Short Name	Ingestion Dose Factor rem/pCi	Inhalation Dose Factor rem/pCi	Air Submersion (rem/h)/ (pCi/m ³)	Ground Exposure (rem/h)/ (pCi/m ²)	Water Immersion (rem/h)/ (pCi/l)
ACTINIUM-225	1.1E-07	1.1E-05	7.9E-12	1.9E-13	1.8E-11
ACTINIUM-227	1.4E-05	6.7E-03	7.3E-14	2.5E-15	1.7E-13
AMERICIUM-241	2.2E-06	5.2E-04	1.1E-11	3.5E-13	2.7E-11
AMERICIUM-242	1.3E-09	6.0E-08	9.0E-12	2.7E-13	2.0E-11
AMERICIUM-242M	2.1E-06	5.1E-04	2.8E-13	3.4E-14	7.0E-13
AMERICIUM-243	2.2E-06	5.2E-04	2.9E-11	7.6E-13	7.1E-11
ANTIMONY-125	2.8E-09	1.2E-08	2.5E-10	5.2E-12	5.4E-10
BERYLLIUM-7	1.3E-10	3.2E-10	2.9E-11	6.0E-13	6.3E-11
CARBON-14	2.1E-09	2.1E-09	3.3E-14	0.0E+00	3.5E-14
CERIUM-144	2.1E-08	3.7E-07	1.1E-11	2.5E-13	2.4E-11
CESIUM-134	7.4E-08	4.7E-08	9.3E-10	1.8E-11	2.0E-09
CESIUM-135	7.1E-09	4.5E-09	7.9E-14	0.0E+00	8.3E-14
CESIUM-137+D	5.0E-08	3.2E-08	3.4E-10	6.8E-12	6.9E-10
COBALT-57	1.2E-09	9.1E-09	7.3E-11	1.7E-12	1.7E-10
COBALT-60	2.7E-08	2.2E-07	1.5E-09	2.6E-11	3.3E-09
CURIUM-242	6.9E-08	1.8E-05	6.0E-14	1.2E-14	1.5E-13
CURIUM-243	1.5E-06	3.6E-04	7.4E-11	1.7E-12	1.7E-10
CURIUM-244	1.2E-06	2.8E-04	5.1E-14	1.0E-14	1.3E-13
CURIUM-245	2.3E-06	5.5E-04	4.1E-11	9.9E-13	9.4E-11
EUROPIUM-152	6.5E-09	2.2E-07	6.8E-10	1.3E-11	1.5E-09
EUROPIUM-154	9.6E-09	2.9E-07	7.5E-10	1.4E-11	1.6E-09
EUROPIUM-155	1.5E-09	4.1E-08	5.5E-11	8.3E-13	7.8E-11
IODINE-129	2.8E-07	1.7E-07	4.9E-12	2.6E-13	1.5E-11
IODINE-131	5.3E-08	3.3E-08	2.2E-10	4.7E-12	4.8E-10
IODINE-135	2.2E-09	1.2E-09	9.7E-10	1.7E-11	2.1E-09
KRYPTON-85	1.0E-25	0.0E+00	3.1E-12	1.9E-13	4.9E-12
LEAD-210	5.4E-06	1.4E-05	7.8E-13	3.6E-14	2.0E-12
LEAD-212	4.5E-08	1.7E-07	8.6E-11	1.9E-12	1.9E-10
MANGANESE-54	2.8E-09	6.7E-09	5.1E-10	9.7E-12	1.1E-09
NEPTUNIUM-237	4.0E-05	5.0E-04	1.3E-11	3.8E-13	3.1E-11
NICKEL-56	3.9E-09	4.1E-09	1.0E-09	2.0E-11	2.2E-09
NICKEL-63	5.8E-10	6.3E-09	0.0E+00	0.0E+00	0.0E+00
NIOBIUM-93M	5.2E-10	2.9E-08	8.2E-14	1.2E-14	2.1E-13
NIOBIUM-95	2.6E-09	5.8E-09	4.6E-10	9.0E-12	9.9E-10
PHOSPHORUS-32	8.8E-09	1.5E-08	6.0E-12	8.1E-13	6.3E-12
PALLADIUM-107	1.5E-10	1.3E-08	0.0E+00	0.0E+00	0.0E+00
PLUTONIUM-238	3.8E-07	4.6E-04	5.4E-14	1.1E-14	1.4E-13
PLUTONIUM-239	4.4E-07	5.2E-04	4.8E-14	4.6E-15	1.1E-13
PLUTONIUM-240	4.4E-07	5.2E-04	5.3E-14	1.0E-14	1.3E-13
PLUTONIUM-241	8.7E-09	1.0E-05	1.6E-14	3.7E-16	3.5E-14
POLONIUM-210	1.9E-06	9.4E-06	5.2E-15	1.0E-16	1.1E-14
POTASSIUM-40	1.9E-08	1.2E-08	9.8E-11	2.1E-12	2.1E-10
PROTACTINIUM-231	1.1E-05	1.3E-03	1.7E-11	4.2E-13	3.9E-11
PROTACTINIUM-233	3.6E-09	9.5E-09	1.2E-10	2.7E-12	2.7E-10
RADIUM-223	6.6E-07	7.8E-06	7.8E-11	1.8E-12	1.8E-10
RADIUM-225	3.8E-07	7.8E-06	4.3E-12	1.8E-13	1.0E-11
RADIUM-226	1.1E-06	7.9E-06	1.5E-09	1.3E-11	3.3E-09
RADON-220+D (MOCK)	6.9E-11	2.8E-10	3.9E-12	6.5E-14	8.5E-12
RADON-222+D (MOCK)	3.4E-09	2.1E-08	1.1E-09	2.0E-11	2.4E-09
RUTHENIUM-103	3.1E-09	8.9E-09	2.8E-10	5.8E-12	6.1E-10
RUTHENIUM-106	2.7E-08	4.4E-07	1.4E-10	4.2E-12	2.8E-10
SAMARIUM-151	3.9E-10	3.0E-08	5.5E-16	6.3E-17	1.4E-15
SELENIUM-79	8.7E-09	9.8E-09	4.5E-14	0.0E+00	4.7E-14
SODIUM-22	1.2E-08	7.7E-09	1.3E-09	2.4E-11	2.8E-09
SULPHUR-35	7.3E-10	2.5E-09	4.1E-14	0.0E+00	4.3E-14
STRONTIUM-89	9.2E-09	4.1E-08	5.1E-12	6.8E-13	5.5E-12
STRONTIUM-90	1.4E-07	1.3E-06	1.3E-12	6.7E-14	1.3E-12
TECHNETIUM-99	1.5E-09	8.3E-09	2.6E-13	7.2E-18	2.7E-13
THORIUM-227	3.8E-08	1.6E-05	6.0E-11	1.5E-12	1.3E-10

TABLE A.7. (contd)

Short Name	Ingestion Dose Factor rem/pCi	Inhalation Dose Factor rem/pCi	Air Submersion (rem/h)/ (pCi/m ³)	Ground Exposure (rem/h)/ (pCi/m ²)	Water Immersion (rem/h)/ (pCi/L)
THORIUM-228	4.0E-07	3.4E-04	1.1E-12	3.3E-14	2.6E-12
THORIUM-229	3.5E-06	2.2E-03	5.0E-11	1.2E-12	1.2E-10
THORIUM-230	5.5E-07	3.2E-04	2.3E-13	1.1E-14	5.4E-13
THORIUM-232	2.8E-06	1.6E-03	1.1E-13	8.1E-15	2.7E-13
THORIUM-234	1.4E-08	3.5E-08	4.5E-12	1.2E-13	1.1E-11
TIN-126	1.9E-08	9.9E-08	2.8E-11	7.1E-13	6.7E-11
TRITIUM	6.3E-11	6.3E-11	0.0E+00	0.0E+00	0.0E+00
URANIUM-233	2.9E-07	1.3E-04	1.4E-13	6.0E-15	3.2E-13
URANIUM-234	2.8E-07	1.3E-04	9.1E-14	9.9E-15	2.2E-13
URANIUM-235	2.7E-07	1.2E-04	8.9E-11	2.0E-12	3.0E-10
URANIUM-236	2.7E-07	1.3E-04	7.2E-14	9.0E-15	1.8E-13
URANIUM-238	2.6E-07	1.2E-04	6.2E-14	8.0E-15	1.5E-13
URANIUM-239	7.7E-11	3.7E-11	3.0E-11	1.0E-12	6.6E-11
YTTRIUM-90	1.1E-08	8.4E-09	8.4E-12	1.2E-12	9.0E-12
ZINC-65	1.4E-08	2.0E-08	3.5E-10	6.3E-12	7.6E-10

APPENDIX B

DATA SOURCES

APPENDIX B

DATA SOURCES

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