**Stable Isotope Customer List
and Summary of Shipments—FY 1978**

W. C. Davis

OAK RIDGE NATIONAL LABORATORY
OPERATED BY UNION CARBIDE CORPORATION • FOR THE DEPARTMENT OF ENERGY

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CHEMICAL TECHNOLOGY DIVISION

STABLE ISOTOPE CUSTOMER LIST
AND SUMMARY OF SHIPMENTS — FY 1978

Compiled by
W. C. Davis

Date Published - May 1979

NOTICE This document contains information of a preliminary nature.
It is subject to revision or correction and therefore does not represent a
final report.

OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37830
operated by
UNION CARBIDE CORPORATION
for the
DEPARTMENT OF ENERGY

NOTICE
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STABLE ISOTOPE CUSTOMER LIST
AND SUMMARY OF SHIPMENTS - FY 1978

W. C. Davis

INTRODUCTION

This compilation is published as an aid to those concerned with the separation and sale of stable isotopes. The information is divided into four sections:

1. alphabetical list of domestic and foreign customers, showing the stable isotopes purchased during the fiscal year;
2. alphabetical list of isotopes, cross-referenced to customer numbers and divided into domestic and foreign categories;
3. alphabetical list of states and countries, cross-referenced to customer numbers and indicating geographical concentrations of isotope users; and
4. tabulation of the shipments, quantities, and dollars for domestic, foreign, and project categories for each isotope.

Other reports published in this series are:

ORNL/TM-1928	ORNL/TM-3543
ORNL/TM-2038	ORNL/TM-3987
ORNL/TM-2401	ORNL/TM-5089
ORNL/TM-2747	ORNL/TM-5853
ORNL/TM-3146	ORNL/TM-6241

We wish to thank S. E. Curtis of the Business Systems Department of the ORGDP Computing Technology Center for his assistance in developing the tabulations.

I. ALPHABETICAL LIST OF CUSTOMERS, WITH CONTACTS AND ISOTOPES PURCHASED

A. DOMESTIC

- 1 Abilene Christian College
Box 8208
Abilene, Texas

50Cr, 92Mo, 100Mo
- 2 Aerojet Nuclear Company
550 Second Street
P. O. Box 1845
Idaho Falls, Idaho 83401

138Ce, 155Gd, SS
- 3 Alaska, University of
College, Alaska 99735

11B, 29Si, 30Si
- 4 Aldrich Chemical Company, Inc.
940 West St. Paul Avenue
Milwaukee, Wisconsin 53233

7Li
- 5 Argonne National Laboratory
9700 South Cass Avenue
Argonne, Illinois 60439

10B, 138Ba, 40Ca, 42Ca, 44Ca, 106Cd,
110Cd, 111Cd, 50Cr, 65Cu, 54Fe,
57Fe, 100Hf, 6Li, 7Li, 24Mg, 25Mg,
26Mg, 94Mo, 96Mo, 98Mo, 100Mo,
142Nd, 143Nd, 146Nd, 150Nd, 58Ni,
60Ni, 62Ni, 64Ni, 206Pb, 154Sm,
116Sn, 120Sn, 124Sn, SS, Tgs. 48Ti,
50Ti, 66Zn, 68Zn, 70Zn
- 6 Arizona State University
Tempe, Arizona 85281

7Li
- 7 Arizona, University of
Post Office Drawer 4100
Tucson, Arizona 85721

81Br, 54Fe, 158Gd, 152Sm
- 8 Atomergic Chemetals Corporation
100 Fairchild Avenue
Plainville, N. Y. 11803

194Pt
- 9 Ball Aerospace Systems Division
Boulder Industrial Park
Boulder, Colorado 80306

40K
- 10 Baltimore Gas and Electric Company
Post Office Box 1472
Baltimore, Maryland 21200

7Li
- 11 Barringer Research Inc.
6869 South Emporia Street
Englewood, Colorado 80110

6Li, 7Li
- 12 Bartol Research Corporation
Swarthmore, Pennsylvania 19081

144Sm, SS
- 13 Battelle Memorial Institute
505 King Highway
Columbus, Ohio 43201

10B, 138Ba, 81Br, 110Cd, 142Ce, 53Cr,
201Hg, 62Ni, 206Pb, 33S, 123Sb, 77Se,
126Te, 203Tl, 50V, 183W, 47Zn
- 14 Bell Telephone Laboratories
Murray Hill, New Jersey 07571

61Ni, 77Se, 119Sn, SS, 180W
- 15 Bendix Research Laboratories
20800 Civic Center Drive
Southfield, Michigan 48075

85Rb, 87Rb
- 16 Brookhaven National Laboratory
Upton, Long Island, New York 11573

107Ag, 138Ba, 40Ca, 48Ca, 106Cd,
50Cr, 52Cr, 160Dy, 161Dy, 172Er,
166Er, 168Er, 170Er, 54Fe, 58Fe,
158Gd, 159Gd, 76Ge, 6Li, 26Mg,
58Ni, 60Ni, 62Ni, 64Ni, 208Pb,
108Pd, 110Pd, 194Pt, 195Pt, 196Pt,
70Se, 80Se, 30Si, 144Sm, 147Sm,
149Sm, 152Sm, 112Sn, 114Sn, 117Sn,
118Sn, 119Sn, SS, 125Te, 182W, 171Yb
- 17 Brooklyn College
Bedford Avenue and Avenue H
Brooklyn, New York 11210

25Mg, 29Si, 30Si
- 18 California Institute of Technology
1201 E. California Boulevard
Pasadena, California 91109

40Ca, 53Cr, 161Dy, 164Er, 57Fe,
190Os, 105Pd, SS
- 19 California State College
5151 State College Drive
Los Angeles, California 90032

142Ce, 161Dy, 167Er, 153Eu, 155Gd,
145Nd, 149Sm, 171Yb
- 20 California, University of
400 Sproul Hall
Berkeley, California 94720

65Cu, 58Fe, 70Zn
- 21 California, University of
Davis, California 95616

44Ca, 57Fe, 77Se, SS, 203Tl, 205Tl
- 22 California, University of
Post Office Box 109
La Jolla, California 92037

87Rb

- 23 California, University of
405 Hilgard Avenue
Los Angeles, California 90024

25Mg, 92Mo, 206Pb, SS, Tgs
- 24 California, University of
Santa Barbara, California 93106

57Fe
- 25 California, University of
Lawrence Berkeley Laboratory
Berkeley, California 94701

114Cd, 41K, 6Li, 7Li, 150Nd, SS,
Tgs, 172Yb, 90Zr
- 26 California, University of
Lawrence Livermore Laboratory
Box 808
Livermore, California 94550

10B, 40Ca, 42Ca, 44Ca, 48Ca, 204Hg,
7Li, 176Lu, 142Nd, 146Nd, 148Nd,
85Rb, 87Rb, 76Se, 80Se, 82Se,
144Sm, 148Sm, 150Sm, 154Sm, 84Sr,
86Sr, 87Sr, 88Sr, SS, Tgs, 90Zr
- 27 California, University of
Los Alamos Scientific Laboratory
Post Office Box 1663
Los Alamos, New Mexico 87544

107Ag, 40Ca, 48Ca, 106Cd, 108Cd,
110Cd, 111Cd, 112Cd, 113Cd, 114Cd, 116Cd,
142Ce, 50Cr, 52Cr, 53Cr, 54Cr, 151Eu,
153Eu, 54Fe, 200Hg, 202Hg, 204Hg,
6Li, 7Li, 176Lu, 24Mg, 26Mg, 98Mo,
186Os, 187Os, 188Os, 190Os, 192Os,
208Pb, 106Pd, 108Pd, 110Pd, 194Pt,
196Pt, 198Pt, 85Rb, 87Rb, 100Ru,
101Ru, 104Ru, 82Se, 150Sm, 152Sm,
154Sm, 87Sr, SS, 122Te, 124Te, 126Te,
128Te, 130Te, Tgs, 168Yb, 174Yb,
66Zn, 68Zn
- 28 Carnegie Institution of Washington
Washington, D. C. 20008

10B, 11B
- 29 Carnegie-Mellon University
5000 Forbes
Pittsburgh, Pennsylvania 15213

164Dy, 70Ge, 92Mo, 96Mo, 100Mo,
76Se, 144Sm, 154Sm, 118Sn, SS, 130Te,
Tgs, 184W, 90Zr
- 30 Carpenter Technology Corporation
P. O. Box 662
Reading, Pennsylvania 19603

10B, 11B
- 31 Catholic University of America
104 McCort-Ward Hall
Washington, D. C. 20017

Tgs
- 32 Chicago, University of
1160 East 55th Street
Chicago, Illinois 60615

35Cl
- 33 Colorado School of Mines
Post Office Box 112
Golden, Colorado 80402

142Ce, 161Dy, 167Er, 153Eu, 155Gd,
138La, 145Nd, 149Sm, 171Yb
- 34 Colorado, University of
Boulder, Colorado 80302

112Cd, 113Cd, 114Cd, 26Mg, 100Mc,
110Pd, 85Rb, 87Rb, 100Ru, 116Sn,
119Sn, 120Sn, 122Sn, 124Sn, 86Sr,
88Sr, SS, Tgs, 203Tl, 205Tl
- 35 Commercial Testing and Engineering Company
Instrumental Analysis Division
14335 West 44th Avenue
Golden, Colorado 80401

53Cr, 76Ge, 62Ni, 207Pb, 34S, 30Si,
125Te, 67Zn
- 36 Connecticut, University of
Physical Sciences Bldg.
Storrs, Connecticut 06268

56Fe, SS
- 37 Cornell University
Ithaca, New York 14850

63Cu, 26Mg
- 38 Cyclotron Corporation
950 Gilman Street
Berkeley, California 94710

Tgs
- 39 Denver, University of
University Park
Denver, Colorado 80210

63Cu
- 40 Dresser Atlas
Division of Dresser Industries, Inc.
P. O. Box 1407
Houston, Texas 77001

10B
- 41 Duke University
Durham, North Carolina 27706

52Cr, 54Cr, 56Fe, 58Fe, 70Ge, 72Ge,
SS, Tgs
- 42 Eastman Kodak Company
Kodak Park Works
Rochester, New York 14650

79Br, 81Br, 102Ru
- 43 Efratom California, Inc.
3303 Harbor Blvd.
Costa Mesa, California 92626

87Rb

- 44 Emory University
Atlanta, Georgia 30322
 ^{110}Cd , ^{60}Zn
- 45 Florida Atlantic University
Boca Raton
Florida 33431
 ^{50}Ni , ^{60}Ni
- 46 Florida Power and Light Company
P. O. Box 950
Miami, Florida 33101
 ^7Li
- 47 Florida State University
Tallahassee, Florida 32306
 ^{10}B , ^{11}B , ^{177}Hf , ^{50}Ni , ^{20}Si , ^{29}Si ,
 ^{64}Zn , ^{66}Zn , ^{68}Zn , ^{90}Zr
- 48 Florida Technological University
P. O. Box 26000
Orlando, Florida 32816
 ^{110}Cd , ^{53}Cr , ^{65}Cu , ^{59}Fe , ^{20}Hg ,
 ^{207}Pb , ^{123}Sb , ^{116}Sn , ^{66}Zn
- 49 GTE Sylvania
100 Endicott Street
Danvers, Massachusetts 01923
 ^{196}Hg
- 50 Georgetown University
3800 Reservoir Road, N.W.
Washington, D. C. 20007
 ^{95}Mo
- 51 Georgia Institute of Technology
225 North Avenue, N.W.
Atlanta, Georgia 30332
 ^{198}Pt
- 52 Georgia State College
33 Gilmer Street, S. W.
Atlanta, Georgia 30303
 ^{110}Cd
- 53 Harry S. Truman Memorial Veterans Hospital
Chief Supply Service
800 Stadium Road
Columbia, Missouri 65201
 ^{112}Sn , ^{55}SS , ^{76}Ge
- 54 Harshaw Chemical Company
Division of Kewanee Oil Company
6801 Cochran Road
Solon, Ohio 44139
 ^6Li
- 55 Harvard University
Cambridge, Massachusetts 02138
 ^{135}Ba , ^6Li , ^{119}Sn , ^{55}SS
- 56 Herbert Lehman College of the City University
of New York
Bedford Park Boulevard West
Bronx, New York 10466
 ^{57}Fe
- 57 Hewlett Packard Company
1501 Page Mill Road
Palo Alto, California 94304
 ^{85}Rb , ^{87}Rb
- 58 Houston, University of
Cullen Boulevard
Houston, Texas 77004
 ^{99}Ru
- 59 Howard University
2401 6th Street
Washington, D. C. 20001
 ^{64}Zn , ^{67}Zn
- 60 ICN-NBCo
26201 Miles Road
Cleveland, Ohio 44126
 ^{130}Ba , ^{76}Se , ^{203}Tl
- 61 Illinois, University of
203 Administration Building E
Urbana, Illinois 61803
 ^{92}Mo , ^{33}S , ^{34}S , ^{67}Zn
- 62 Indiana University
Bloomington, Indiana 47401
 ^{166}Er , ^7Li , ^{208}Pb , ^{154}Sm , ^{116}Sn ,
 ^{119}Sn , ^{120}Sn , ^{55}SS , ^{76}Ge , ^{203}Tl , ^{205}Tl ,
 ^{172}Yb , ^{90}Zr
- 63 Indiana and Michigan Power Company
Donald C. Cook Nuclear Plant
P. O. Box 458
Bridgman, Michigan 48106
 ^7Li
- 64 International Business Machines Corp.
Post Office Box 218
Yorktown Heights, New York 10556
 ^{57}Fe , ^6Li
- 65 Iowa State University
Ames, Iowa 50010
 ^{130}Ba , ^{132}Ba , ^{170}Er , ^{76}Ge , ^{204}Hg ,
 ^{60}Ni , ^{170}Yb , ^{90}Zr
- 66 Isotope Products Laboratories
404 South Luke Street
Burbank, California 91502
 ^{10}B , ^{53}Cr , ^{57}Fe , ^{61}Ni
- 67 Ithaca College
Ithaca, New York 14850
 ^{57}Fe

68 Jet Propulsion Laboratory
4800 Oak Row Drive
Pasadena, California 91103

⁶Li

69 KDR Isotopes
56 Rogers Street
Cambridge, Massachusetts 02141

⁴¹K

70 Kansas State University
Manhattan, Kansas 66502

²⁸Si

71 Kansas, University of
Lawrence, Kansas 66044

¹⁴²Ce, ¹⁶¹Dy, ¹⁶⁷Er, ¹³⁸La, ¹⁷⁶Lu,
¹⁴⁵Nd, ¹⁴⁹Sm, ¹⁷¹Yb

72 Kentucky, University of
Lexington, Kentucky 40506

¹⁴⁶Nd, ²⁰⁸Pb, ¹⁹⁴Pt, ¹⁹⁸Pt, ¹⁴⁸Sm,
¹⁵⁰Sm, ¹⁵²Sm, ¹²⁴Sn, SS, ¹²³Te, Tgs,
¹⁷⁴Yb

73 MDH Industries, Inc.
426 W. Duarte Road
Monrovia, California 91016

⁶Li

74 Marquette University
1120 W. Michigan Street
Milwaukee, Wisconsin 53233

⁶²Ni, ⁸⁰Se

75 Maryland, University of
College Park, Maryland 20742

¹⁰⁶Cd, ⁶Li

76 Massachusetts Institute of Technology
Box 69
Cambridge, Massachusetts 02139

¹⁰B, ⁴⁰Ca, ¹⁵⁸Dy, ⁵⁸Fe, ⁷⁰Ge, ⁴¹K,
⁶Li, ⁷Li, ¹⁴⁶Nd, ¹⁵⁰Nd, ¹⁹⁸Pt,
⁸⁷Rb, ¹²²Sn, ⁸⁷Sr, SS, ¹²⁴Te, ¹²⁸Te,
¹³⁰Te, Tgs, ¹⁷⁴Yb, ⁶⁴Zn, ⁷⁰Zn

77 Massachusetts, University of
Amherst, Massachusetts 01002

¹⁷⁴Yb

78 Medgar Evers College
Division of Natural Science
1150 Carroll Street
Brooklyn, New York 11225

⁵³Cr

79 Medi-Physics, Inc.
5855 Christie Avenue
Emeryville, California 94608

¹²⁴Te, ⁶⁸Zn

80 Michigan State University
East Lansing, Michigan 48823

¹³⁰Ba, ¹⁰⁶Cd, ¹¹¹Cd, ¹⁶⁶Er, ¹⁵⁴Gd,
¹⁵⁶Gd, ⁹²Mo, ¹⁸⁸Os, ¹⁹⁰Os, ¹⁹²Cs,
¹⁴⁴Sm, ¹¹²Sn, SS, Tgs, ¹⁸⁶W, ¹⁶⁸Yb

81 Michigan, University of
Ann Arbor, Michigan 48104

¹³⁰Ba, ¹⁴⁰Ce, ¹⁴²Ce, ¹⁵²Gd, ²⁴Mg, ²⁶Mg,
¹⁴⁴Nd, ¹⁴⁶Nd, ¹⁴⁸Nd, ¹⁵⁰Nd, ³²S, ³⁴S,
²⁸Si, ¹⁵⁰Sm, ¹²²Sn, ¹²⁴Sn, ¹²²Te, ⁹²Zr

82 MicroMatter Company
197 - 34th Avenue East
Seattle, Washington 98102

¹⁰⁶Cd, ¹¹⁰Cd, ¹⁶⁷Er, ¹⁷⁰Er, ⁹⁴Mo,
²⁰⁷Pb, ¹⁰⁴Pd, ¹¹⁰Sn

83 Microfoils
P. O. Box 283
Argonne, Illinois 60439

¹⁸⁰Hf, ⁹²Mo, ⁹⁶Mo, ⁹⁸Mo, ⁶⁴Ni,
²⁰⁸Pb, ¹⁰⁴Pd, ¹⁰⁶Pd, ¹⁰⁸Pd, ¹¹⁰Pd,
¹⁹⁴Pt, ¹⁹⁶Pt, ¹⁹⁸Pt, ¹¹⁶Sn, ¹¹⁸Sn,
¹²⁰Sn, ¹²²Sn, ¹²⁴Sn, ⁶⁶Zn, ⁶⁸Zn

84 Mill-Power Supply Company
P. O. Box 1339
Charlotte, North Carolina 28201

⁷Li

85 Minnesota, University of
402 Morrill Hall
Minneapolis, Minnesota 55455

¹⁰B, ¹³⁴Ba, ⁷²Ge, ¹¹⁵In, ²⁶Mg, ²⁸Si,
¹⁴⁴Sm, ¹¹⁶Sn, ¹¹⁸Sn, ¹²⁰Sn, Tgs, ⁹⁸Ti,
⁹⁹Ti

86 Missouri, University of
Columbia, Missouri 65201

¹⁵²Sm

87 Montefiore Hospital
E. 210th Street and Bainbridge Avenue
Bronx, New York 10467

¹³⁶Ba, ¹³⁷Ba, ⁴²Ca, ⁴⁴Ca, ⁶⁵Cu, ⁸⁷Rb,
⁸⁷Sr, ⁶⁸Zn

88 Mount Sinai Medical Center
4300 Alton Road
Miami Beach, Florida 33139

²⁰³Tl, ⁶⁸Zn

89 National Bureau of Standards
Connecticut Avenue and Van Ness Street, N.W.
Washington, D. C. 20234

¹⁰B, ¹¹B, ¹¹²Cd, ¹¹⁴Cd, ⁵⁴Fe, ⁵⁶Fe,
²⁰⁴Hg, ⁶Li, ⁷Li, ²⁴Mg, ⁶¹Ni, ³⁰Si,
SS, Tgs, ¹⁶⁸Yb, ⁶⁴Zn

90 New American's Mt. Zion
2025 E. 7th Avenue
Port Angeles, Washington 98362

⁴⁸Ca, ⁶Li

- 91 New England Nuclear Corporation
575 Albany Street
Boston, Massachusetts 02118

107Ag, 79Br, 81Br, 140Ce, 50Cr,
58Fe, 155Gd, 91K, 108Pd, 100Hu,
102Ru, 86Sr, SS, 125Te, 128Te, 203Tl,
184W, 186W, 188Yb
- 92 New Mexico State University
Las Cruces, New Mexico 88003

92Mo, Tgs
- 93 New York University
Washington Square
New York, New York 10016

203Tl
- 94 New York, State University of
1400 Washington Avenue
Albany, New York 12203

50Cr, 52Cr, 32S, 34S
- 95 New York, State University of
3435 Main Street
Buffalo, New York 14214

142Ce, 63Cu
- 96 New York, State University of
Research Foundation
Stony Brook, New York 11750

136Ba, 50Cr, 56Fe, 190Hu, 6Li,
100Mo, 142Nd, 104Pd, 110Pd, 144Sm
- 97 North Carolina, University of
Chapel Hill, North Carolina 27514

151Eu, 25Mg
- 98 Northern States Power Company
414 Nicolet Mall
Minneapolis, Minnesota 55401

7Li
- 99 Northrop Corporation
Electro-Mechanical Division
500 E. Granddethorne Avenue
Anaheim, California 92801

6Li
- 100 Northrop Services Inc.
Singleton Building, P.O. Box 12313
Highway 70A
Research Triangle Park, North Carolina 27709

65Cu, 57Fe, 117Sn
- 101 Northwestern University
619 Clark Street
Evanston, Illinois 60201

42Ca, 113Cd, 65Cu, 6Li, 34S, SS, Tgs
- 102 Notre Dame, University of
Notre Dame, Indiana 46556

140Ce, 142Ce, 170Er, 147Sm, 186W
- 103 Ohio State University
190 North Oval Drive
Columbus, Ohio 43210

6Li, Tgs
- 104 Ohio University
Athens, Ohio 45701

50Ni, 60Ni, SS, Tgs
- 105 Oregon State University
Corvallis, Oregon 97330

110Cd, 30Si, 130Te
- 106 Orgmet, Inc.
Route 111
East Hampstead, New Hampshire 03826

6Li
- 107 Pacific Northwest Laboratory
Richland, Washington 99352

95Mo, 146Nd, 96Ru
- 108 Pennsylvania State University
University Park, Pennsylvania 16802

50Cr, 56Fe
- 109 Pennsylvania, University of
3025 Walnut Street
Philadelphia, Pennsylvania 19104

30Si, SS
- 110 Pittsburgh, University of
Pittsburgh, Pennsylvania 15213

29Si, 30Si, Tgs, 46Ti, 48Ti, 50Ti,
182W
- 111 Polar Resources Company
1070 Silver Street
Elko, Nevada 89801

6Li
- 112 Portland General Electric Company
621 S.W. Alder Street
Portland, Oregon 97265

7Li
- 113 Princeton University
James Forrestal Campus
Princeton, New Jersey 08540

108, 63Cu, 65Cu, 170Er, 57Fe,
158Gd, 76Ge, 208Pb, 34S, 174Yb,
176Yb
- 114 Purdue University
Pharmacy Annex
Lafayette, Indiana 47907

113Cd, 202Hg, 25Mg, 188Os

- 115 Radio Corporation of America
New Holland Pike
Lancaster, Pennsylvania 17604
 ^{114}Cd , SS
- 116 Reed College
3203 S. E. Woodstock Boulevard
Portland, Oregon 97202
 ^{76}Ge , ^{76}Se
- 117 Rensselaer Polytechnic Institute
110 8th Street
Troy, New York 12181
 ^{10}B , ^{95}Mo , SS, ^{92}Zr
- 118 Rhode Island, University of
Narragansett Marine Laboratory
Kingston, Rhode Island 02881
 ^{136}Ba , ^{91}K , ^{87}Rb , ^{149}Sm
- 119 Rochester, University of
575 Elmwood Avenue
Rochester, New York 14627
 ^{130}Ba , ^{135}Ba , ^{137}Ba , ^{57}Fe , ^6Li ,
 ^{26}Mg , ^{58}Ni , ^{60}Ni , ^{62}Ni , ^{64}Ni ,
 ^{190}Os , ^{192}Os , ^{110}Pd , ^{104}Ru , ^{76}Se ,
 ^{30}Si , ^{116}Sn , ^{46}Ti
- 120 Rockwell International
Atomica International Division
Rocky Flats Plant
P. O. Box 538
Golden, Colorado 80401
 ^6Li , ^7Li
- 121 Rockwell International
Autonetics
Anaheim, California 92803
SS, ^{60}Zn , ^{68}Zn
- 122 Rutgers, The State University
New Brunswick, New Jersey 08903
 ^{53}Cr , ^{54}Fe , ^{57}Fe , ^{200}Hg , ^{108}Pd ,
 ^{108}I , ^{119}Sn , ^{120}Te , ^{122}Te , ^{124}Te
- 123 Sacramento Municipal Utility District
6201 S. Street
P. O. Box 15830
Sacramento, California 95824
 ^7Li
- 124 Sandia Corporation
Post Office Box 5800
Albuquerque, New Mexico 87115
 ^{10}B , ^6Li , ^{92}Mo , Tgs
- 125 Singer Company
70 New Dutch Lane
Fairfield, New Jersey 07006
 ^{199}Hg , ^{201}Hg , ^{202}Hg , ^{204}Hg
- 126 Smithsonian Institution
10th Street and Constitution Avenue N. W.
Washington, D. C. 20560
Tgs
- 127 Solenoid International
Box 330
St. Anthony, Idaho 83445
 ^6Li , ^7Li
- 128 South Carolina, University of
Columbia, South Carolina 29208
 ^{113}Cd , ^{76}Ge , ^{77}Se
- 129 Spire Corporation
Patriots Park
Bedford, Massachusetts 01730
 ^{76}Se
- 130 Stanford University
P. O. Box 4409
Stanford, California 94305
 ^{13}C , ^6Li , ^7Li , ^{24}Mg , ^{106}Pd , SS, Tgs,
 ^{90}Zr
- 131 Stevens Institute of Technology
Castle Point Station
Hoboken, New Jersey 07030
 ^{57}Fe , ^{118}Sn
- 132 Teknis Corp.
93 South Street
Plainsville, Massachusetts 02762
 ^{87}Rb , ^{86}Sr
- 133 Teledyne Isotopes
123 Woodland Avenue
Westwood, New Jersey 07675
 ^6Li
- 134 Tennessee Valley Authority
Division of Purchasing
Chattanooga, Tennessee 37401
 ^7Li
- 135 Tennessee, University of
Knoxville, Tennessee 37916
 ^{156}Gd , ^{70}Ge , ^{72}Ge , ^{74}Ge , Tgs
- 136 Texas A and M University
Post Office Box 44
College Station, Texas 77843
 ^{42}Ca , ^{44}Ca , ^{50}Cr , ^{53}Cr , ^{24}Mg , ^{26}Mg ,
 ^{150}Nd , ^{58}Ni , ^{208}Pb , ^{32}S , ^{121}Sb ,
 ^{123}Sb , ^{147}Sm , ^{154}Sm , ^{120}Te , Tgs
- 137 Texas, University of
Austin, Texas 78712
 ^{208}Pb , ^{128}Te , ^{66}Zn

- 138 Toledo Edison Company and
Cleveland Electric Illuminating Company
5501 North State Route No. 2
Oak Harbor, Ohio 43445

7Li
- 139 Toledo, University of
280 West Bancroft Street
Toledo, Ohio 43606

7Li
- 140 Tulane University
New Orleans, Louisiana 70118

82Se
- 141 U. S. Energy Research and Development Administration
Purchasing Office
4800 Forbes Avenue
Pittsburgh, Pennsylvania 15213

10B, 63Cu, 65Cu, 57Fe, 62Ni, 78Se,
90Ti, 203Tl
- 142 Union Carbide Corporation
Sterling Forest Research Center
Post Office Box 324
Tuxedo, New York 10987

122Te
- 143 Union Carbide Corporation, Nuclear Division
Oak Ridge Gaseous Diffusion Plant
Post Office Box P
Oak Ridge, Tennessee 37830

37Cl
- 144 Union Carbide Corporation, Nuclear Division
Oak Ridge National Laboratory
Post Office Box X
Oak Ridge, Tennessee 37030

10B, 11B, 135Ba, 138Ba, 40Ca, 111Cd,
114Cd, 116Cd, 37Cl, 53Cr, 65Cu, 54Fe,
57Fe, 58Fe, 71Ga, 152Gd, 74Ge,
76Ge, 6Li, 7Li, 176Lu, 25Mg, 26Mg,
93Mo, 97Mo, 98Mo, 100Mo, 142Nd,
144Nd, 150Nd, 58Ni, 60Ni, 61Ni,
64Ni, 100Os, 187Os, 188Os, 204Pb,
208Pb, 105Pd, 106Pd, 110Pd, 194Pt,
195Pt, 99Ru, 74Se, 76Se, 77Se,
78Se, 144Sm, 152Sm, 154Sm, 116Sn,
118Sn, 120Sn, 122Sn, 84Sr, 86Sr,
87Sr, SS, 122Te, 125Te, 126Te, 130Te,
Tgs, 48Ti, 48Ti, 180W, 168Yb, 174Yb,
176Yb, 67Zn, 94Zr
- 145 Union Carbide Corporation, Nuclear Division
Y-12 Plant
Post Office Box Y
Oak Ridge, Tennessee 37830

10B, 57Fe, 29Si, Tgs, 47Ti, 186W
- 146 Union College
Schenectady, New York 12308

92Mo, 94Mo, 95Mo, 96Mo, 97Mo,
98Mo, 100Mo
- 147 United States Department of Agriculture
Research Service
P. O. Box 53326
New Orleans, Louisiana 70150

57Fe, 58Fe
- 148 United States Department of Interior
Geology Survey
Bldg. 21, Denver Federal Center
Denver, Colorado 80225

208Pb, SS
- 149 United States Geological Survey
Financial Management
National Center, Room 1447-A
12201 Sunrise Valley Drive
Reston, Virginia 22052

10B, 11B, 6Li, 7Li
- 150 United States National Aeronautics and Space Adm.
Lewis Research Center
21000 Brockpark Road
Cleveland, Ohio 44135

7Li
- 151 United States National Aeronautics and Space Adm.
Ames Research Center
Moffett Field, California 94035

40Ca
- 152 United States Public Health Service
National Institutes of Health, Isotope Laboratory
Building 21
Bethesda, Maryland 20014

44Ca, 46Ca, 63Cu
- 153 University of Chicago
Office of the Comptroller
1525 E. Hyde Park Boulevard
Chicago, Illinois 60615

35Cl, 140Nd, 152Sm, 176Yb
- 154 University of Connecticut
Health Center
Farmington, Connecticut 06032

110Cd, 64Ca, 154Gd, 155Gd, 156Gd,
160Gd, 70Ge, 144Sm
- 155 University of Maryland
Baltimore County Campus
5401 Wilkins Drive
Baltimore, Maryland 21228

57Fe
- 156 University of San Francisco
Golden Gate and Parker Avenues
San Francisco, California 94117

10B, Tgs
- 157 University of Texas
P.O. Box 686
Richardson, Texas 75080

42Ca, 44Ca

158 Utah, University of
Purchasing Department
Salt Lake City, Utah 84112

¹⁰⁸B, ¹¹⁸B, ⁶³Cu, ⁶Li

159 Vanderbilt University
Business Managers Office
Nashville, Tennessee 37203

⁶³Cu, ¹⁷⁶Hf

160 Various Miscellaneous Billings
Domestic

¹⁰⁸B, ¹¹⁸B

161 Veterans Administration Hospital
4101 Woolworth Avenue
Omaha, Nebraska 68105

⁶⁸Zn

162 Virginia, University of
Charlottesville, Virginia 22903

¹⁰⁸B, ⁴⁸Ca, ⁶⁵Cu, ⁵⁴Fe, ⁶²Ni, ²⁰⁶Pb,
²⁰⁷Pb, ²⁰⁸Pb, SS, Tgs, ²⁰⁵Tl, ⁶⁴Zn

163 Washington State University
Comptroller's Office
Pullman, Washington 99163

Tgs

164 Washington, University of
400 Administration Building
Seattle, Washington 98105

³⁵Cl, ²⁰⁸Pb, ²⁰⁹Pb, ⁷⁶Se, ⁶⁴Zn

165 West Virginia University
Administration Building
Morgantown, West Virginia 26506

⁵⁷Fe

166 Westinghouse Electric Corporation
Bettis Atomic Power Laboratory
Post Office Box 79
West Mifflin, Pennsylvania 15122

¹⁰⁸B, ³⁷Cl, ¹⁷⁶Hf

167 Westinghouse Electric Corporation
Post Office Box 284
Elmira, New York 14902

⁶Li, ⁷Li

168 Westinghouse Electric Corporation
Atomic Power Divisions
P. O. Box 355
Pittsburgh, Pennsylvania 15230

¹⁰⁸B, Tgs

169 Westinghouse Hanford Company
P. O. Box 1570
Richland, Washington 99352

Tgs

170 Wisconsin, University of
750 University Avenue
Madison, Wisconsin 53706

¹³⁸Ba, ⁵⁰Cr, ⁵⁷Fe, ²⁵Mg, ⁹⁵Mo,
¹⁰⁰Mo

171 Wisconsin-Michigan Power Company
F. O. Box 1007
Appleton, Wisconsin 54911

⁷Li

172 Wright State University
7751 Colonel Glenn Highway
Dayton, Ohio 45431

⁵⁰Cr

173 Xerox
3333 Coyote Hill Road
Palo Alto, California 94304

⁶Li

174 Yale University
20 Ashmun Street
New Haven, Connecticut 06520

¹⁰⁹Ag, ¹¹¹Cd, ¹¹³Cd, ¹¹⁶Cd, ¹⁶⁷Er,
¹⁷⁰Er, ⁵⁸Ni, ⁶⁰Ni, ³⁰Si, ¹¹⁸Sn

B. FOREIGN

AUSTRALIA

175 Australian Atomic Energy Commission
Lucas Heights
Sydney, Australia

⁸⁸Sr, SS, ¹⁷⁰Yb

176 Australian National University
F. O. Box 4
Canberra, A. C. T., Australia

⁴⁸Ca, ¹⁶¹Dy, ¹⁶²Dy, ¹⁶³Dy, ¹⁶⁴Dy,
¹⁶⁶Er, ¹⁶⁷Er, ¹⁶⁸Er, ¹⁷⁰Er, ¹⁵⁸Gd,
⁶Li, ²⁴Mg, ²⁰⁸Pb, ²⁸Si, ¹²²Sn, ¹²⁴Te,
¹²⁶Te, ¹²⁸Te, ¹³⁰Te

177 Commonwealth Scientific and Ind. Res. Organization
Division of Applied Physics
University Grounds, City Road, Chippendale N.

Sydney, N. S. W., Australia

¹⁴⁵Nd, ¹⁴⁹Sm

178 Embassy of Australia
1601 Massachusetts Avenue, N.W.
Washington, D.C. 20036

⁵⁴Fe

179 La Trobe University
Bundoora, Victoria
Australia 3083

⁹⁵Mo, ⁹⁸Mo, ⁸⁵Rb, SS

180 Melbourne, University of
Parkville N.2, Melbourne
Victoria, Australia

40Ca, 20Mg, 60Ni, 190Pt, 30Si, SS,
Tgs

181 Monash University
Wellington Road
Clayton, Victoria, Australia

57Fe, 150Sm

182 The University of Wollongong
Purchasing Department
Northfield Avenue
Wollongong, N.S.W. 2500
Australia

65Cu, 50Fe, 57Fe, 62Ni, 60Zn,
67Zn

183 Western Australian Institute of Technology
Hawman Road
Bentley South 6102
Western Australia

100Pd, 100Pd, 122Te, 120Te, 120Te

AUSTRIA

184 International Atomic Energy Agency
Kaerntnerring 11-13
A-1010 Vienna, Austria

6Li, 7Li, 90Ru, Tgs

BELGIUM

185 Centre d'Etude de l'Energie Nucleaire
144 Avenue Plasky
Brussels 4, Belgium

Tgs

186 European Atomic Energy Commission
Central Bureau for Nuclear Measurements
Geel, Belgium

10B, 53Cr, 50Ni, SS, Tgs

187 IRE, Institut National des Radioelements
Avenue Eugene Plasky, 144
1040 Brussels, Belgium

60Ru, 60Sr, SS

188 Katolieke Universiteit Leuven
Department Natuurkunde
Institut Voor Kern-en Stralingsfysika
Celestijnenlaan 200 D
B-3000 Heverlee, Belgium

155Gd, Tgs

189 Universite de Louvain
Institut de Physique Corpusculaire
Chemin du Cyclotron, 2
B-1348 Louvain-la-Neuve
Belgium

155Gd, 116Sn, Tgs

BRAZIL

190 Comissao Nacional de Energia Nuclear
Rua General Severiano
90-Botafogo
Rio de Janeiro, Brazil

100Mo

191 Governo Federal, Conselho Nacional de Pesquisas
Instituto de Energia Atomsica
Caixa Postal 11049
Sao Paulo 9, S. P. A., Brazil

100Ru

CANADA

192 Atomic Energy of Canada Limited
P. O. Box 6300
Postal Station J
Ottawa, Canada

50Cr, 50Fe, 190Hg, SS

193 Atomic Energy of Canada Limited
Chalk River, Ontario, Canada

10B, 130Ba, 130Ba, 110Cd, 07Cl, 101Dy,
160Dy, 170Er, 70Ge, 70Ge, 202Hg,
200Hg, 6Li, 7Li, 20Mg, 90Mo, 90Mo,
90Mo, 143Nd, 140Nd, 160Nd, 200Pt,
80Se, 30Si, 100Sm, 100Sm, 150Sm,
120Sn, 122Sn, 120Sn, SS, 122Te, 120Te,
120Te, 130Te, Tgs

194 Atomic Energy of Canada Limited
Whiteshell Nuclear Research Establishment
Finawa, Manitoba, Canada

11B

195 British Columbia, University of
Vancouver 8, B.C., Canada

110Cd

196 Canada Agriculture
Research Station
P.O. Box 1000
Agassiz-B.C. V0M 1A0
Canada

63Cu, 65Cu

197 Carleton University
Ottawa, Ontario, Canada

143Nd, 140Sm

198 Dalhousie University
Halifax, Nova Scotia
Canada

10B

199 Laval, Universite de
Case Postale 2208
Pavillon Vachon
Quebec 10, P.Q., Canada

70Ge, 60Zn

- 200 Manitoba, University of
Winnipeg, Manitoba, Canada
 ^{40}Ca , ^{42}Ca , ^{44}Ca , ^{26}Mg , Tgs, ^{66}Ti ,
 ^{68}Ti , ^{50}Ti
- 201 McGill University
Montreal 2, P.Q., Canada
 ^{130}Ba , ^{63}Cu , ^{65}Cu , ^{160}Dy , ^{164}Er ,
 ^{154}Gd , ^{92}Mo , ^{96}Ru , ^{124}Sn , ^{170}Yb
- 202 McMaster University
Hamilton, Ontario, Canada
 ^{135}Ba , ^{44}Ca , ^{46}Ca , ^{50}Cr , ^{161}Dy ,
 ^{162}Dy , ^{57}Fe , ^{58}Fe , ^{160}Gd , ^{73}Ge ,
 ^{6}Li , ^{95}Mo , ^{58}Ni , ^{61}Ni , ^{206}Pb ,
 ^{77}Se , ^{144}Sm , ^{154}Sm , SS, ^{126}Te , ^{128}Te ,
Tgs, ^{67}Ti , ^{68}Ti , ^{69}Ti , ^{172}Yb , ^{173}Yb ,
 ^{66}Zn , ^{67}Zn , ^{68}Zn
- 203 McMaster University Medical Center
Forsythe Avenue
Hamilton, Ontario, Canada
 ^{151}Eu , ^{58}Fe , ^{190}Cs
- 204 Merck, Sharp and Dhome
Canada Limited
16711 Trans Canada Highway
Kirkland, Quebec, Canada
 ^{10}B , ^{29}Si
- 205 Montreal, Universite de
Montreal, Canada
 ^{70}Ge , ^{72}Ge , ^{74}Ge , ^{76}Ge , ^{6}Li , ^{92}Mo ,
 ^{96}Mo , ^{98}Mo , ^{100}Mo , ^{96}Ru , ^{99}Ru ,
SS, Tgs
- 206 National Research Council
Montreal Road Laboratories
Ottawa, Ontario, Canada
 ^{111}Cd , ^{35}Cl , ^{52}Cr , ^{53}Cr , ^{65}Cu , ^{61}Ni ,
 ^{62}Ni , ^{207}Pb , ^{33}S , ^{123}Sb , ^{78}Se , ^{82}Se ,
 ^{117}Sn , ^{125}Te , ^{67}Zn
- 207 Queens University
Kingston, Ontario, Canada
 ^{40}Ca , ^{48}Ca , ^{50}Cr , ^{52}Cr , ^{164}Dy ,
 ^{160}Gd , ^{73}Ge , ^{150}Nd , ^{208}Pb , ^{28}Si ,
 ^{154}Sm , ^{66}Ti , ^{50}Ti
- 208 Saint Francis Xavier University
Antigonish, Nova Scotia, Canada
 ^{87}Rb
- 209 Scintrex, Ltd.
222 Snidercroft Road
Concord, Ontario, Canada
 ^{206}Pb , ^{207}Pb , ^{208}Pb , Tgs
- 210 Simon Fraser University
Burnaby 2, B. C., Canada
 ^{128}Te , ^{66}Zn
- 211 Toronto, University of
Toronto, Ontario, Canada
 ^{42}Ca , ^{44}Ca , ^{39}K , ^{26}Mg , ^{150}Nd , ^{28}Si ,
 ^{29}Si , ^{148}Sm , ^{67}Ti
- 212 University of Alberta
Edmonton, Alberta, Canada T6G2H1
 ^{81}Br , ^{6}Li , ^{87}Rb
- 213 University of Calgary
2920-24th Avenue Northwest
Calgary, Alberta, Canada T2N 1N4
 ^{156}Gd , ^{157}Gd , ^{158}Gd
- 214 Windsor, University of
Windsor, Ontario, Canada
 ^{109}Ag , ^{63}Cu , ^{78}Se , ^{80}Se , ^{82}Se
- DENMARK
- 215 Atomic Energy Commission
Research Establishment Risø
Isotope Division
Roskilde, Denmark
 ^{46}Ca , ^{35}Cl , ^{54}Fe
- 216 Denmark Technical, University of
Lyngby, Denmark
 ^{33}S
- 217 Haldor Topsøe A/S
Nymollevvej 55, 2800 Lyngby
Denmark
 ^{57}Fe
- 218 Københavns Universitet
Blegdamsvej 17
København Ø, Denmark
 ^{62}Ni
- 219 Københavns Universitet
Riso Fr.
Roskilde, Denmark
 ^{44}Ca , ^{48}Ca , ^{52}Cr , ^{54}Cr , ^{170}Er , ^{70}Ge ,
 ^{76}Ge , ^{100}Mo , ^{64}Ni , ^{208}Pb , ^{108}Pd ,
 ^{110}Pd , ^{119}Sn , Tgs, ^{66}Ti , ^{68}Ti , ^{50}Ti
- 220 University of Copenhagen
Rådmandsgade 71, DK 2200
Copenhagen N, Denmark
 ^{58}Ni , ^{62}Ni
- ENGLAND
- 221 Eirbeck College
Malet Street
London WC1E 7HX, England
 ^{111}Cd , ^{113}Cd , ^{195}Pt
- 222 Birmingham, University of
Edgbaston, Birmingham 15, England
 ^{53}Cr , ^{69}Ga , ^{71}Ga , ^{39}K , ^{90}Zr , ^{92}Zr

223 Central Electricity Generating Board
Research Division
Berkeley Nuclear Laboratories
Berkeley, Glos., England

^{58}Ni , ^{60}Ni , SS, Tgs

224 Derby Luminescents Ltd.
Levy West Division
Millmarsh Lane, Ermsdown
Enfield, Middx. EN3 7QW
England

^6Li , ^7Li

225 Liverpool, University of
Liverpool 3, England

^{43}Ca

226 London, University of
Strand, London W.C.2., England

^{44}Ca , Tgs

227 Manchester University
Manchester 13, England

^{136}Ba , ^{140}Ca , ^{151}Eu , ^{207}Pb , ^{208}Pb ,
 ^{88}Sr , ^{90}Ti

228 Oxford, University of
Nuclear Physics Laboratory
21 Banbury Road
Oxford, England

^{10}B , ^{11}B , ^{185}Re , ^{87}Sr

229 Radiochemical Centre
White Lion Road
Amersham, Bucks, England

^{40}Ca , ^{44}Ca , ^{46}Ca , ^{114}Cd , ^{50}Cr , ^{58}Fe ,
 ^{196}Hg , ^{146}Nd , ^{62}Ni , ^{88}Sr , SS, ^{122}Te ,
 ^{160}Yb

230 Rubber and Plastic Research
Association of Great Britain
Shawbury
Shrewsbury, Salop SY4 4NR
England

^{33}S

231 United Kingdom Treasury and Supply Delegation
26 Broadway
New York, New York 10004

^{11}B , ^{35}Cl , ^{37}Cl , ^{50}Cr , ^{164}Er , ^{57}Fe ,
 ^{160}Gd , ^{196}Hg , ^6Li , ^7Li , ^{98}Mo ,
 ^{144}Nd , ^{146}Nd , ^{62}Ni , ^{208}Pb , ^{209}Pb ,
 ^{99}Ru , ^{140}Sm , ^{149}Sm , ^{110}Sn , ^{119}Sn ,
 ^{120}Sn , ^{124}Sn , ^{171}Yb , ^{173}Yb

232 Western Australia, Government of
Western Australia House
115 Strand
London WC2, England

^{10}B

FINLAND

233 Helsinki, University of
Helsinki, Finland

^{46}Ti

234 Valtion Hankintakeskus
P. O. Box 134
Helsinki 53
Finland

^{10}B , ^{140}Ce , ^{142}Ce , ^{73}Ge , ^{76}Ge , ^{76}Ge ,
 ^{150}Nd

FRANCE

235 CEA
Department des Radioelements
B. P. No. 2
51190 Gif Sur Yvette, France

^{135}Ba , ^{137}Ba , ^{90}Ca , ^{44}Ca , ^{110}Cd , ^{113}Cd ,
 ^{50}Cr , ^{160}Er , ^{157}Gd , ^{175}Lu , ^{176}Lu ,
 ^{24}Mg , ^{25}Mg , ^{26}Mg , ^{60}Ni , ^{204}Pb , ^{208}Pb ,
 ^{104}Pd , ^{110}Pd , ^{194}Pt , ^{196}Pt , ^{198}Pt ,
 ^{32}S , ^{28}Si , ^{144}Sm , ^{148}Sm , ^{150}Sm , ^{152}Sm ,
 ^{154}Sm , ^{112}Sn , ^{114}Sn , SS, ^{124}Te , Tgs,
 ^{46}Ti , ^{48}Ti , ^{49}Ti , ^{64}Zn , ^{66}Zn , ^{90}Zr

236 CRN, Labo PAPA
B. P. 20/CRC
67 Strasbourg 3, France

^{134}Ba , ^{136}Ba , ^{160}Dy , ^{170}Hf , ^{179}Hf ,
Tgs, ^{48}Ti , ^{180}W

237 Institut Max von Laue-Paul Langevin
Cedex 156
38 Grenoble-Gare, France

^{113}Cd , ^{167}Er , ^{154}Gd , ^{207}Pb

238 Institut de Physique Nucleaire de Lyon
43 Boulevard du 11 Novembre 1918
69 Villeurbanne, France

^{92}Mo , ^{98}Mo , Tgs

239 Laboratoire de Geologie Mediterraneenne
Faculte des Sciences
34 Montpellier, France

^{43}Ca , ^{48}Ca

GERMANY

240 American Hoechst Corporation
P. O. Box 2500
Somerville, New Jersey 08876

^{50}Cr , ^{58}Fe , ^{196}Hg , SS, ^{160}Yb

241 Bonn, Universitat
Nussallee 12-14
53 Bonn, Germany

^{190}Hg , ^{200}Hg , ^{180}Os , ^{187}Os , ^{190}Os ,
 ^{192}Os , ^{110}Pd

242 Buchler and Company
Frankfurter Str. 294
Braunschweig, Germany

^{10}B , ^{79}Br , ^{81}Br , ^{46}Ca , ^{35}Cl , ^{37}Cl ,
 ^{41}K , ^6Li , ^{176}Lu , ^{198}Pt , Tgs, ^{171}Yb

- 243 Bundesanstalt, Physikalisch-Technische
Bundesallee 100
Braunschweig, Germany
 ^{113}Cd
- 244 Darmstadt, Technischen Hochschule
61 Darmstadt, Germany
 ^{138}Ba , ^{40}Ca , ^{140}Ce , ^{142}Nd , Tgs
- 245 Deutsches Krebsforschungszentrum
Berliner Str. 21
6900 Heidelberg, Germany
SS, ^{124}Te
- 246 Erlangen-Nürnberg, University
Gluckstr.
852 Erlangen, West Germany
 ^{142}Nd , ^{30}Si , SS
- 247 Freiburg/Brsq., Universität
7800 Freiburg/Brsq., Germany
 ^{37}Cl , SS
- 248 Freie Universität
1 Berlin 33, Germany
 ^{134}Ba , ^{135}Ba , ^{136}Ba , ^{204}Hg , ^{190}Os ,
 ^{108}Pd , ^{196}Pt , ^{82}Se , SS, ^{124}Te ,
 ^{126}Te , Tgs
- 249 Freie und Hansestadt Hamburg
2 Hamburg-Bahrenfeld, Germany
 ^{155}Gd , ^{156}Gd , Tgs
- 250 Gesellschaft für Kernforschung mbH
Institute für Angewandte Reaktor Physik
Weberstrasse 5
75 Karlsruhe
West Germany
 ^{130}Ba , ^{42}Ca , ^{44}Ca , ^{50}Cr , ^{52}Cr , ^{151}Eu ,
 ^6Li , ^7Li , SS, ^{124}Te , Tgs, ^{46}Ti ,
 ^{48}Ti , ^{184}W , ^{170}Yb , ^{64}Zn
- 251 Gesellschaft für Schwerionenforschung mbH
TargetLabor
Postfach 541
D-6100 Darmstadt, West Germany
 ^{40}Ca , ^{116}Cd , ^{54}Cr , ^{166}Er , ^{76}Ge ,
 ^{92}Mo , ^{94}Mo , ^{95}Mo , ^{96}Mo , ^{97}Mo ,
 ^{98}Mo , ^{100}Mo , ^{64}Ni , ^{208}Pb , ^{206}Pb ,
 ^{207}Pb , ^{208}Pb , ^{102}Pd , ^{104}Pd , ^{106}Pd ,
 ^{108}Pd , ^{99}Ru , ^{100}Ru , ^{102}Ru , ^{144}Sm ,
 ^{150}Sm , SS, Tgs, ^{49}Ti , ^{50}Ti
- 252 Giessen, Universität
6300 Giessen, Germany
 ^{114}Cd , ^{199}Hg , ^{200}Hg , ^{204}Hg , ^{92}Mo ,
 ^{60}Ni , ^{86}Sr , ^{88}Sr , ^{182}W , ^{184}W ,
 ^{186}W
- 253 Göttingen, Universität
34 Göttingen, Germany
 ^{144}Sm
- 254 Hahn-Meitner-Institut
für Kernforschung Berlin, Sektion Kernphysik
Berlin, Germany
 ^{107}Ag , ^{109}Ag , ^{134}Ba , ^{79}Br , ^{81}Br ,
 ^{106}Cd , ^{112}Cd , ^{114}Cd , ^{116}Cd , ^{71}Ga ,
 ^{76}Ge , ^{198}Hg , ^{200}Hg , ^{201}Hg , ^{202}Hg ,
 ^{204}Hg , ^6Li , ^{26}Mg , ^{98}Mo , ^{100}Mo ,
 ^{62}Ni , ^{64}Ni , ^{188}Os , ^{189}Os , ^{190}Os ,
 ^{208}Pb , ^{106}Pd , ^{195}Pt , ^{196}Pt , ^{85}Rb ,
 ^{185}Re , ^{187}Re , ^{102}Ru , ^{104}Ru , ^{34}S ,
 ^{121}Sb , ^{123}Sb , ^{80}Se , ^{120}Sr , ^{124}Sn ,
 ^{126}Te , ^{130}Te , ^{184}W , ^{186}W , ^{188}Yb ,
 ^{170}Yb , ^{172}Yb , ^{174}Yb , ^{64}Zn
- 255 Hannover, Technische Hochschule
Hannover, W. Germany
 ^{46}Ca , ^{76}Se , ^{77}Se , ^{80}Se , ^{144}Sm ,
 ^{147}Sm , ^{148}Sm , ^{149}Sm , ^{150}Sm , ^{152}Sm ,
 ^{154}Sm
- 256 Heidelberg, Universität
Heidelberg, Germany
 ^{10}B , ^7Li
- 257 Institut der Max-Planck-Gesellschaft
Faradayweg 4-6
1 Berlin 33, West Germany
 ^7Li
- 258 Institut für Elektrowerkstoffe
Eckerstrasse 4
78 Freiburg, West Germany
 ^{57}Fe , ^{64}Ni
- 259 Johann Wolfgang Goethe University
Frankfurt/Main, Germany
 ^{33}S
- 260 Karlsruhe, der Universität
Engesserstrasse 7
75 Karlsruhe, West Germany
 ^{137}Ba , ^{25}Mg , ^{87}Sr
- 261 Kernforschung Sanlage
Postfach 365
517 Jülich, Germany
 ^{109}Cd , ^7Li , ^{208}Pb , ^{207}Pb , ^{86}Sr ,
SS, ^{168}Yb
- 262 Kiel Universität
2057 Geesthacht Reactorstation
23 Kiel, Germany
 ^{108}Cd
- 263 Köln, Universität
Zulpicher Str. 47
5 Köln 1, Germany
 ^{92}Mo , ^{208}Pb , ^{104}Ru , ^{28}Si , SS, Tgs,
 ^{90}Zr , ^{92}Zr
- 264 Mainz/Rhein, Universität
Mainz am Rhein, Germany
 ^{124}Da , ^{127}Da , ^6Li , ^{208}Pb , ^{76}Se ,
 ^{80}Se , ^{87}Sr

265 Max Planck Institut fur Kernphysik
Saupfercheckweg
Heidelberg, Germany

^{40}Ca , ^{142}Nd , ^{144}Nd , ^{146}Nd , ^{148}Nd ,
 ^{150}Nd , ^{208}Pb , ^{232}Th , ^{238}U

266 Max Planck Institute fur Chemie
Saarstrasse 23, Mainz
West Germany

^{130}Ba , ^{137}Ba , ^{42}Ca , ^{48}Ca , ^{104}Cd ,
 ^{112}Cd , ^{136}Ce , ^{138}Ce , ^{156}Dy , ^{161}Dy ,
 ^{162}Er , ^{168}Er , ^{57}Fe , ^{152}Gd , ^{157}Gd ,
 ^{41}K , ^{25}Mg , ^{92}Mo , ^{98}Mo , ^{143}Nd , ^{146}Nd ,
 ^{61}Ni , ^{102}Pd , ^{106}Pd , ^{102}Ru , ^{30}Si ,
 ^{144}Sm , ^{150}Sm , ^{112}Sn , ^{116}Sn , ^{122}Te ,
 ^{126}Te , ^{97}Tl , ^{169}Yb , ^{171}Yb

267 Munchen, Technischen Hochschule
Arcistrasse 21
8 Munchen 2
Germany

^{132}Ba , ^{136}Ba , ^{40}Ca , ^{48}Ca , ^{106}Cd , ^{114}Cd ,
 ^{116}Cd , ^{90}Cr , ^{52}Cr , ^{166}Er , ^{168}Er ,
 ^{170}Er , ^{58}Fe , ^{72}Ge , ^{178}Hf , ^{191}Ir ,
 ^{193}Ir , ^{24}Mg , ^{26}Mg , ^{64}Ni , ^{186}Os ,
 ^{188}Os , ^{190}Os , ^{204}Pb , ^{206}Pb , ^{207}Pb ,
 ^{208}Pb , ^{102}Pd , ^{104}Pd , ^{105}Pd , ^{106}Pd ,
 ^{108}Pd , ^{110}Pd , ^{192}Pt , ^{194}Pt , ^{195}Pt ,
 ^{196}Pt , ^{183}Re , ^{187}Re , ^{90}Ru , ^{98}Ru ,
 ^{100}Ru , ^{101}Ru , ^{102}Ru , ^{29}Si , ^{30}Si ,
 ^{126}Te , ^{128}Te , ^{130}Te , ^{232}Th , ^{238}U , ^{97}Tl ,
 ^{99}Tl , ^{50}Ti

268 Universitat Ulm
Schellingstrasse 26
7 Stuttgart 1, West Germany

^{35}Cl

269 der Universitat Wurzburg
Physikalisches Institut
Rontgenring 8
8700 Wurzburg, Germany

^{183}W

GREECE

270 Greek Atomic Energy Commission, N. R. C. Democ
Agbia Paraskevi Attikis
Athens, Greece

^{29}Si , ^{30}Si , ^{32}S , ^{232}Th

INDIA

271 Bangalore University
Central College
Bangalore-560001, India

^{10}B , ^{11}B , ^7Li

272 Bhabha Atomic Research Centre
Government of India
3rd Floor Mahatta Building
Bombay 1, India

^{114}Cd , ^{208}Pb , ^{232}Th

273 Panjab University
Chandigarh 14, India

^{116}Cd

274 Tata Institute of Fundamental Research
Holiday Camp, Colaba
Bombay 5, India

^{81}Br , ^{116}Cd , ^{119}Sn , ^{32}S

ISRAEL

275 Government of Israel
Ministry of Defense
850 Third Avenue
New York, New York 10022

^{50}Cr , ^{160}Dy , ^{207}Pb

276 Landseas Corporation
1212 Avenue of the Americas
New York, New York 10036

^{40}Ca , ^{42}Ca , ^{44}Ca , ^{52}Cr , ^6Li , ^7Li ,
 ^{144}Sm , ^{150}Sm , ^{152}Sm

277 Tel-Aviv University
Ramat-Aviv
Tel-Aviv, Israel

^{57}Fe

ITALY

278 Consiglio Nazionale Delle Ricerche
Laboratorio de Geocronologia E. Geochimica
Isotopica
56100 Pisa, II
Via Cardinale Maffi
Italy

^{87}Rb

279 Euratom C.C.R.
Ispra (Varese), Italy

^{37}Cl , ^6Li , ^{20}Mg

280 Istituto Nazionale Fisica Nucleare
Via Celoria, 16
Milano, Italy

^{65}Cu , ^{50}Ni

281 Padova, Universita Degli Studi di
Via F. Marzolo 8
Padova, Italy

^{50}Cr , ^{96}Ti , ^{98}Ti

JAPAN

282 Aoyama Gakuin University
College of Science and English
6-16-1, Chitosedai Setagayaku
Tokyo, 157 Japan

^{108}Cd , ^{65}Cu , ^{67}Zn

283 Japan Atomic Energy Research Institute
Tokai Research Establishment
Tokai-Mura, Naka-Gun, Ibaraki-Ken
Japan

^{79}Br , ^{81}Br , ^{147}Sm , ^{149}Sm , ^{32}S

- 284 Japan Radicisotope Association
Hon-Komagoe 2 Chome 28
Bunkyo-Ku
Tokyo, Japan

^{107}Ag , ^{109}Ag , ^{10}B , ^{130}Ba , ^{136}Ba ,
 ^{44}Ca , ^{46}Ca , ^{48}Ca , ^{106}Cd , ^{108}Cd ,
 ^{110}Cd , ^{112}Cd , ^{113}Cd , ^{114}Cd , ^{116}Cd , ^{142}Ce ,
 ^{37}Cl , ^{50}Cr , ^{52}Cr , ^{53}Cr , ^{63}Cu , ^{65}Cu ,
 ^{162}Dy , ^{164}Dy , ^{170}Er , ^{151}Eu , ^{54}Fe ,
 ^{56}Fe , ^{57}Fe , ^{58}Fe , ^{156}Gd , ^{157}Gd ,
 ^{158}Gd , ^{160}Gd , ^{70}Ge , ^{72}Ge , ^{73}Ge ,
 ^{74}Ge , ^{76}Ge , ^{199}Hg , ^{138}La , ^{7}Li ,
 ^{176}Lu , ^{24}Mg , ^{25}Mg , ^{26}Mg , ^{92}Mo , ^{94}Mo ,
 ^{95}Mo , ^{96}Mo , ^{97}Mo , ^{98}Mo , ^{100}Mo ,
 ^{142}Nd , ^{143}Nd , ^{144}Nd , ^{150}Nd , ^{58}Ni ,
 ^{60}Ni , ^{62}Ni , ^{64}Ni , ^{190}Os , ^{204}Pt ,
 ^{206}Pb , ^{208}Pb , ^{207}Pb , ^{209}Pb , ^{108}Pd ,
 ^{110}Pd , ^{196}Pt , ^{198}Pt , ^{85}Rb , ^{87}Rb ,
 ^{100}Ru , ^{102}Ru , ^{104}Ru , ^{34}S , ^{76}Se ,
 ^{78}Se , ^{80}Se , ^{82}Se , ^{28}Si , ^{30}Si ,
 ^{147}Sm , ^{150}Sm , ^{152}Sm , ^{154}Sm , ^{112}Sn ,
 ^{114}Sn , ^{116}Sn , ^{117}Sn , ^{118}Sn , ^{119}Sn ,
 ^{120}Sn , ^{122}Sn , ^{124}Sn , ^{86}Sr , ^{88}Sr , ^{128}Te ,
 ^{130}Te , ^{132}Te , ^{66}Ti , ^{50}Ti , ^{102}W ,
 ^{184}W , ^{186}W , ^{171}Yb , ^{173}Yb , ^{64}Zn ,
 ^{66}Zn , ^{67}Zn , ^{68}Zn , ^{90}Zr , ^{92}Zr ,
 ^{94}Zr

- 285 Kansai Electronics Co., Ltd.
8 Toganochi
Kitaku, Osaka, Japan

^{98}Mo , ^{100}Mo , ^{76}Se , ^{78}Se

- 286 Sumitomo Shoji Chicago of America, Inc.
875 N. Michigan Avenue
Chicago, Illinois 60611

^{128}Te

- 287 Tokyo Metropolitan University
2-1-1 Fukazawa, Setagaya-ku
Tokyo, Japan

^{64}Zn , ^{66}Zn , ^{67}Zn

NETHERLANDS

- 288 Instituut voor Kernfysisch Onderzoek
Oosterringdijk 18
Amsterdam, Netherlands

^6Li , ^{79}Se

- 289 N. V. Philips-Duphar
P. O. Box 2
Weesp, The Netherlands

^{68}Zn

- 290 Reactor Centrum Nederland
Petten N. H., The Netherlands

^{10}B , ^{108}Cd , ^{204}Pb

- 291 Rijksinkoopbureau
(Netherlands Govt. Purchasing Office)
55 A Laan van Meerdervoort
The Hague, Netherlands

^{134}Ba , ^{37}Cl , ^{168}Er , ^{160}Gd , ^6Li ,
 ^{25}Mg , ^{92}Mo , ^{98}Mo , ^{146}Nd , ^{58}Ni ,
 ^{60}Ni , ^{190}Os , ^{110}Pd , ^{76}Se , ^{144}Sm ,
 ^{152}Sm , ^{120}Sn , ^{86}Sr , ^{126}Te , ^{128}Te ,
 ^{173}Yb

- 292 State University of Groningen
Westersingel 34
Groningen
The Netherlands

^{134}Ba , ^{135}Ba , ^{136}Ba , ^{137}Ba , ^{138}Ba ,
 ^{29}Si , ^{30}Si , ^{31}Si

- 293 Vrije Universiteit
Amsterdam, The Netherlands

^{57}Fe , ^{90}K , ^{88}Sr , ^{79}Se

NEW ZEALAND

- 294 University of Auckland
Private Bag
Auckland, New Zealand

^{79}Se , ^{66}Ti

NORWAY

- 295 Institutt for Atomenergi
Kjeller, Norway

^{48}Ca , ^{26}Mg , ^{98}Mo

PORTUGAL

- 296 Magnetrom-Comercio e Industria de Aparelhagem Elec
Rua Fialho de Almeida, 36-A
Lisbon 1, Portugal

^{110}Cd , ^{116}Cd , ^{146}Nd , ^{196}Pt

SCOTLAND

- 297 Nuclear Enterprises Limited
Eighthill
Edinburgh 11, Scotland

^6Li

SOUTH AFRICA

- 298 Daniel F. Young, Inc.
Caldwell Division
a/c National Physical Research Laboratory
17 Battery Place
New York, New York 10004

^{109}Ag

- 299 J. A. Ewing and McDonald, Inc.
51 Madison Avenue
New York, New York 10010

^{106}Cd , ^6Li , ^{108}Pd

- 300 Southern Universities Nuclear Institute
P. O. Box 17
Faure, C.P., South Africa

^{79}Se , ^{90}Zr

SPAIN

- 301 CHEMICONTROL, S.L.
Division Quimica
Avda. Filipinas, 46
Madrid-3 Spain

^{87}Rb

SWEDEN

302 Chalmers University of Technology
Gibraltargatan 5-b
Gothenburg, Sweden

86Sr

303 University of Lund
Solvegatan 14
Lund, Sweden
S-223 62

113Cd , 25Mg

304 Uppsala, University of
Uppsala, Sweden

134Ba , 136Ba , 6Li , 26Mg , 62Ni , 106Pd ,
 194Pt , 50Ti , 66Zn

SWITZERLAND

305 Basel Universitat
4000 Basel
Switzerland

208Pb , Tgs

306 Eidg. Institut für Reaktorforschung
Würenlingen, Switzerland

57Fe , 61Ni

307 Eidg. Technische Hochschule
8049 Zurich, Switzerland

135Ba , Tgs, 96Ti

308 Erlibourg, University of
1700 Fribourg, Switzerland

Tgs, 169Yb , 176Yb , 90Zr

309 European Organization of Nuclear Research
1211 Geneva 23, Switzerland

158Dy , 164Os

310 Geneve, Universite de
Geneva, Switzerland 1211

40K , 33S

311 Swiss Institute for Nuclear Research
5234 Villigen, Switzerland

100Cd , 25Mg , 148

312 Zurich, der Universitat
8001 Zurich, Switzerland

33S , 86Sr , 66Zn , 66Zn

VENEZUELA

313 Instituto Venezolano de
Investigaciones Cientificas
Apartado 1827
Caracas, Venezuela

63Cu

II. ALPHABETICAL LIST OF ISOTOPES,
CRGSS-REFERENCED TO CUSTOMER NUMBERS

A. DOMESTIC

Antimony 121	Cadmium 116
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Barium 130	Calcium 042
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Barium 132	Calcium 044
65	5, 21, 26, 27, 87, 136, 152, 157
Barium 134	Calcium 046
16, 85	152
Barium 135	Calcium 048
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Barium 137	Cerium 138
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Barium 138	Cerium 140
5, 81, 144, 170	81, 91, 102
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Cadmium 112	Copper 065
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27, 34, 101, 114, 128, 174	76
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Erbium 164

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Gadolinium 154

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Gadolinium 155

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Gadolinium 160

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Gadolinium High Purity 155

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Gallium 071

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Germanium 072

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Germanium 076

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Hafnium 177

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Hafnium 179

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Hafnium 180

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Iron 054

5, 7, 16, 27, 41, 48, 89, 108, 122, 144, 162

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Iron 057

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Lithium 006

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Magnesium 025

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Magnesium 026

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Mercury 198

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Mercury 199

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Molybdenum 095

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Molybdenum 097

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Neodymium 150

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Nickel 058

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Nickel 060

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Nickel 061

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Nickel 062

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Osmium 187

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Osmium 188

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Palladium 108

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Palladium 110

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Platinum 196

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Platinum 198

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Rubidium 085

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Rubidium 087

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Selenium 076

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Selenium 080

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Silicon 029

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Strontium 084

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Strontium 086

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Strontium 087

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Strontium 088

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Sulfur 032

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Sulfur 033

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Sulfur 034

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Tellurium 123

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Tellurium 125

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Thallium 203

13, 21, 34, 60, 62, 88, 91, 93, 141

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Tin 112

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Tin 114

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Tin 116

5, 34, 48, 62, 83, 85, 119, 144

Tin 117

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Tin 118

16, 29, 62, 82, 83, 131, 144, 174

Tin 119

14, 16, 34, 55, 85, 122

Tin 120

5, 34, 62, 83, 85, 144

Tin 122

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Tin 124

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Titanium 046

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Titanium 047

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Tungsten 183

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Ytterbium 171

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Ytterbium 172

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Zinc 064

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Zinc 068

5, 27, 44, 47, 79, 83, 87, 88, 121, 161

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B. FOREIGN

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193, 236, 248, 254, 267, 291, 292, 304

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193, 227, 236, 248, 284, 292, 304

Barium 137

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Boron 010

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Cadmium 112

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Cadmium 114

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Cerium 138

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Chlorine 035

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Chlorine 037

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Chromium 050

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Chromium 052

206, 207, 219, 250, 267, 276, 284

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Dysprosium 163

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Gadolinium 154

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Gadolinium 157

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Gadolinium 158

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Gallium 071

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223, 229, 235, 240, 245, 246, 247, 248, 250,
251, 261, 263, 270, 274, 283, 284, 292

Strontium 084

187, 302

Strontium 086

227, 252, 261, 284, 291, 312

Strontium 087

228, 260, 264

Strontium 088

175, 229, 252, 293

Sulfur 032

235

Sulfur 033

206, 216, 230, 259, 265, 310, 312

Sulfur 034

254, 284

Target Preparation Stable

180, 184, 185, 186, 188, 189, 193, 200, 202,
205, 209, 219, 223, 226, 235, 236, 238, 242,
244, 248, 249, 250, 251, 263, 265, 267, 270,
272, 284, 285, 288, 291, 293, 294, 300, 305,
307, 300, 311

Tellurium 122

183, 193, 229, 266

Tellurium 124

176, 183, 193, 235, 245, 248, 250, 286

Tellurium 125

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Tellurium 126

176, 202, 266, 267, 291

Tellurium 128

176, 183, 193, 202, 210, 248, 254, 267, 284,
291

Tellurium 130

176, 193, 254, 267, 284

Tin 112

235, 266, 284

Tin 114

284

Tin 116

189, 284

Tin 117

206, 284

Tin 118

231, 266, 284

Tin 119

219, 231, 235, 274, 284

Tin 120

193, 231, 254, 284, 291

Tin 122

176, 193, 284

Tin 124

193, 201, 231, 254, 284

Titanium 046

200, 207, 219, 233, 235, 250, 267, 281, 284,
294, 307

Titanium 047

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Titanium 048

200, 202, 219, 235, 236, 250, 281, 284

Titanium 049

202, 227, 235, 251, 266, 267

Titanium 050

200, 207, 219, 251, 267, 284, 304

Tungsten 182

252, 284

Tungsten 183

269

Tungsten 184

236, 250, 252, 254, 284

Tungsten 186

252, 254, 284

Ytterbium 168

229, 240, 254, 261, 266, 308

Ytterbium 170

175, 201, 250, 254

Ytterbium 171

231, 242, 266, 284

Ytterbium 172

202, 254

Ytterbium 173

202, 231

Ytterbium 174

254, 284, 291

Ytterbium 176

254, 308

Zinc 064

182, 199, 235, 254, 284, 287, 312

Zinc 066

202, 210, 235, 284, 287, 304, 312

Zinc 067

182, 202, 206, 282, 284, 287

Zinc 068

202, 250, 284, 289

Zirconium 090

222, 235, 263, 284, 300, 308

Zirconium 092

263, 284

Zirconium 094

222, 284

III. ALPHABETICAL LIST OF STATES AND COUNTRIES,
CROSS-REFERENCED TO CUSTOMER NUMBERS

A. DOMESTIC

Alaska	Missouri
3	53, 86
Arizona	Nebraska
6, 7	161
California	Nevada
18, 19, 20, 21, 22, 23, 24, 25, 26, 38, 43, 57, 66, 68, 73, 79, 99, 121, 123, 130, 151, 156, 173	111
Colorado	New Hampshire
9, 11, 33, 34, 35, 39, 120, 148	106
Connecticut	New Jersey
36, 154, 174	14, 113, 122, 125, 131, 133
District of Columbia	New Mexico
28, 31, 50, 59, 89, 126	27, 92, 124
Florida	New York
45, 46, 47, 48, 88	8, 16, 12, 37, 42, 56, 64, 67, 78, 87, 92, 94, 95, 96, 117, 119, 142, 146, 167
Georgia	North Carolina
44, 51, 52	41, 84, 97, 100
Idaho	Ohio
2, 127	13, 54, 60, 103, 104, 136, 139, 150, 172
Illinois	One-Time Billings
5, 32, 61, 83, 101, 153	160
Indiana	Oregon
62, 102, 114	105, 112, 116
Iowa	Pennsylvania
65	12, 29, 30, 108, 109, 110, 115, 141, 166, 168
Kansas	Rhode Island
70, 71	118
Kentucky	South Carolina
72	128
Louisiana	Tennessee
140, 147	134, 136, 143, 144, 145, 159
Maryland	Texas
10, 75, 152, 155	1, 40, 58, 136, 137, 157
Massachusetts	Utah
49, 55, 69, 76, 77, 91, 129, 132	158
Michigan	Virginia
15, 63, 80, 81	149, 163
Minnesota	Washington
85, 98	82, 90, 107, 163, 164, 169
	West Virginia
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Wisconsin

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B. FOREIGN

Australia

175, 176, 177, 178, 179, 180, 181, 182, 183

Austria

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Belgium

185, 186, 187, 188, 189

Brazil

190, 191

Canada

192, 193, 194, 195, 196, 197, 198, 199, 200,
201, 202, 203, 204, 205, 206, 207, 208, 209,
210, 211, 212, 213, 214

Denmark

215, 216, 217, 218, 219, 220

England

221, 222, 223, 224, 225, 226, 227, 228, 229,
230, 231, 232

Finland

233, 234

France

235, 236, 237, 238, 239

Germany

240, 241, 242, 243, 244, 245, 246, 247, 248,
249, 250, 251, 252, 253, 254, 255, 256, 257,
258, 259, 260, 261, 262, 263, 264, 265, 266,
267, 268, 269

Greece

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Illinois

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India

271, 272, 273, 274

Israel

275, 276, 277

Italy

278, 279, 280, 281

Japan

282, 283, 284, 285, 287

Netherlands

288, 289, 290, 291, 292, 293

New Zealand

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Norway

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Portugal

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Scotland

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South Africa

298, 299, 300

Spain

301

Sweden

302, 303, 304

Switzerland

305, 306, 307, 308, 309, 310, 311, 312

Venezuela

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IV. STABLE ISOTOPE SALES - FY 1978

ISOTOPE	DOMESTIC		FOREIGN		PROJECT		TOTAL	
	SHIP	MILLIGRAMS DOLLARS	SHIP	MILLIGRAMS DOLLARS	SHIP	MILLIGRAMS DOLLARS	SHIP	MILLIGRAMS DOLLARS
ANTIMONY-121	1	100.0 140	1	100.0 140			2	200.0 280
ANTIMONY-123	4	380.0 532	2	132.0 190			6	512.0 722
BARIUM-130	3	30.0 637	4	36.0 946	1	3.0	8	69.0 1647
BARIUM-132			1	120.0 720	1	5.0	2	125.0 868
BARIUM-134	1	30.0 72	10	1372.0 3630		76.0 95	11	1478.0 3797
BARIUM-135	1	147.0 163	6	450.0 650	1	30.0 50	8	627.0 863
BARIUM-136	4	410.0 411	8	1026.0 1020			12	1436.0 1431
BARIUM-137	2	200.0 155	5	5600.0 5660			7	5800.0 5815
BARIUM-138	2	2500.0 250	2	480.0 100	1	1120.0 112	5	4100.0 462
BORON-10	19	8413500.0 65367	14	1458000.0 13370	8	602000.0 8266	41	10673500.0 87504
BORON-11	8	34330.0 1137	4	10000.0 528	4	22000.0 960	16	66330.0 2625
BROMINE-79	2	167.0 125	2	200.0 150			4	367.0 275
BROMINE-81	4	294.5 235	4	500.0 400			8	794.5 635
CADMIUM-106	4	61.0 1177	4	90.0 1852	2	155.0 2977	10	306.0 6007
CADMIUM-108			5	80.0 955			5	80.0 955
CADMIUM-110	7	731.0 498	4	480.0 332	1	223.0 156	12	1434.0 986
CADMIUM-111	3	558.0 395	2	206.0 140	1	100.0 60	6	964.0 595
CADMIUM-112	2	1200.0 540	5	832.0 375			7	2032.0 915
CADMIUM-113	7	1790.0 1615	7	2564.0 2307			14	4354.0 3922
CADMIUM-114	3	4500.0 1800	7	3350.0 1370	3	3625.0 1077	13	11475.0 4247
CADMIUM-116	1	100.0 75	11	1479.0 1321	2	75.0 130	14	1654.0 1496
CALCIUM-40	1	400.0 120	10	6825.0 2397	6	735.0 365	17	7960.0 2882
CALCIUM-42	3	388.0 2654	6	141.0 961	4	75.0 593	13	604.0 4209
CALCIUM-43			2	21.0 1428			2	21.0 1428
CALCIUM-44	7	4988.0 3295	14	1145.0 2185	2	305.0 613	23	6438.0 12093
CALCIUM-46	1	2.6 8412	5	68.2 102250			6	70.8 103663
CALCIUM-48	3	77.0 6574	13	408.0 32528	2	162.0 17918	18	647.0 59020
CARBON-13		21.0 80						21.0 80
CERIUM-136			1	1.0 76			1	1.0 76
CERIUM-138			1	2.0 55	1	10.0 275	2	12.0 330
CERIUM-140	3	4500.0 550	2	350.0 100			5	4850.0 650
CERIUM-142	7	420.8 757	2	100.0 180	1	1000.0 1205	10	1520.8 2142
CHLORINE-35	4	2005.0 881	6	13360.0 4795			10	15365.0 5676
CHLORINE-37			7	3850.0 28237	2	108.0 790	9	3958.0 29027
CHROMIUM-50	8	1352.1 4130	16	3187.4 9748	3	214.0 627	27	4753.5 14505
CHROMIUM-52	2	176.9 115	10	2880.5 1829	2	2509.0 1477	14	5566.4 3121
CHROMIUM-53	8	1112.0 681	3	226.0 150	1	60.0 50	12	1398.0 881
CHROMIUM-54	1	50.0 355	2	2100.0 15310		47.0 333	3	2197.0 15998
COPPER-63	9	6632.0 1034	9	4233.0 665			18	10865.0 1699
COPPER-65	8	1449.4 460	9	3075.0 935	4	532.0 199	21	5056.4 1595
DYSPROSIUM-156			1	1.0 50			1	1.0 50
DYSPROSIUM-158	1	5.0 64	1	40.0 518			2	45.0 582
DYSPROSIUM-160			2	230.0 505			2	230.0 505
DYSPROSIUM-161	3	649.1 216	4	992.0 345			7	1641.1 564
DYSPROSIUM-162			3	405.0 161	1	250.0 75	4	655.0 236
DYSPROSIUM-163			1	200.0 80			1	200.0 80
DYSPROSIUM-164	1	500.0 125	8	4335.0 1125	2	400.0 112	11	5235.0 1362
ERBIUM-162			1	5.0 59	1	50.0 592	2	55.0 651
ERBIUM-164	1	133.0 498	2	50.0 168			3	183.0 667
ERBIUM-166	3	849.0 152	3	1833.0 350	1	250.0 50	7	2932.0 552
ERBIUM-167	5	1000.0 250	2	400.0 100			7	1400.0 350
ERBIUM-168			5	9600.0 1950	1	250.0 50	6	9850.0 2000
ERBIUM-170	4	650.0 215	7	2232.5 710	2	750.0 225	13	3632.5 1150
EUROPIUM-151	1	200.0 90	5	1450.0 652	1	111.0 50	7	1761.0 792
EUROPIUM-153	2	223.0 100			1	111.0 50	3	334.0 150
GADOLINIUM-152	1	50.0 602	1	2.0 60		192.0 2564	2	140.0 2001
GADOLINIUM-154	1	21.0 50	1	30.0 93			2	51.0 143

ISOTOPE	SHIP	D O M E S T I C MILLIGRAMS	DOLLARS	SHIP	F O R E I G N MILLIGRAMS	DOLLARS	SHIP	P R O J E C T MILLIGRAMS	DOLLARS	SHIP	T O T A L MILLIGRAMS	DOLLARS
GADOLINIUM-155	2	130.0	227	3	260.0	442				5	390.0	669
GADOLINIUM-156	2	420.0	322	2	600.0	450				4	1020.0	772
GADOLINIUM-157				4	914.0	1078				4	914.0	1078
GADOLINIUM-158	3	266.3	155	4	1000.0	600	1	200.0	120	4	1466.3	875
GADOLINIUM-160	2	111.5	100	7	2100.0	1850				9	2211.5	1950
GALLIUM-69	1	111.0	50	1	112.0	50				2	223.0	100
GALLIUM-71				2	463.0	370	1	140.0	112	3	603.0	482
GERMANIUM-70	6	3300.0	1405	6	1331.0	375				12	4631.0	1780
GERMANIUM-72	3	2310.0	588	3	1420.0	400				6	3730.0	988
GERMANIUM-73				4	170.0	948				4	170.0	948
GERMANIUM-74	2	3140.0	528	6	2566.0	410	1	333.0	50	9	6039.0	988
GERMANIUM-76	4	290.0	2062	5	440.0	3156	2	500.0	2899	11	1230.0	8117
H.P. GD-154	1	17.0	208	1	50.0	612				2	67.0	820
H.P. GD-155	2	16.0	100							2	16.0	100
H.P. LEAD-204				2	40.0	488				2	40.0	488
H.P. LEAD-207	1	120.0	222	1	100.0	185				2	220.0	407
H.P. W-180		10.0	2595								10.0	2595
H.P. ZINC-70							1	10.0	1136	1	10.0	1136
HAFNIUM-176		45.0	560								45.0	560
HAFNIUM-177	1	100.0	50							1	100.0	50
HAFNIUM-178				2	650.0	227				2	650.0	227
HAFNIUM-179				1	100.0	70	1	100.0	195	2	200.0	265
HAFNIUM-180	1	900.0	1215				1	1053.0	1421	2	1953.0	2636
INDIUM-115	1	200.0	90							1	200.0	90
IRIDIUM-191				1	436.0	545				1	436.0	545
IRIDIUM-193				1	354.0	300				1	354.0	300
IRON-54	8	2486.8	4390	6	685.0	1165	6	3836.0	5879	20	7007.8	11434
IRON-56	4	8253.0	870	3	4020.0	450				7	12273.0	1320
IRON-57	18	897.0	7820	20	2701.0	23947	3	50.0	450	41	3648.0	32218
IRON-58	4	233.0	5227	8	386.0	12647	1	70.0	3019	13	689.0	20894
LANTHANUM-138	2	9.0	364	1	5.0	202				3	14.0	566
LEAD-205	1	10.0	5500							1	10.0	5500
LEAD-204				7	1760.0	8403	1	10.0	55	8	1770.0	8458
LEAD-206	4	3769.0	3595	8	10758.0	7142	1	20.0	50	13	14547.0	10788
LEAD-207	5	325.0	130	12	17425.0	6780				17	17750.0	6910
LEAD-208	10	6795.0	1818	29	92175.3	15939	3	1000.0	300	42	99970.3	18057
LITHIUM-6	38	16574000.0	23287	22	3448000.0	7067	18	1190000.0	3107	78	21212000.0	33462
LITHIUM-7	31	151934000.0	365771	15	5902000.0	6451	11	582000.0	791	57	158418000.0	373013
LUTETIUM-175				1	143.0	50				1	143.0	50
LUTETIUM-176	1	8.2	50	4	125.0	757	3	311.0	1404	8	444.2	2211
MAGNESIUM-24	5	2000.0	700	9	3362.1	1235	2	600.0	210	16	5962.1	2145
MAGNESIUM-25	6	945.0	1890	10	3295.0	7075	2	460.0	920	18	4700.0	9885
MAGNESIUM-26	10	11515.0	20014	13	2775.0	4909	6	1730.0	2562	29	16020.0	27486
MERCURY-196	2	108.0	27595	5	288.5	93413				7	396.5	121009
MERCURY-198	1	50.0	512	2	100.0	1165				3	150.0	1677
MERCURY-199	1	50.0	300	2	42.5	255				3	92.5	555
MERCURY-200	1	12.5	50	4	280.0	1106	1	40.0	158	6	332.5	1314
MERCURY-201	2	60.0	987	1	50.0	822				3	110.0	1409
MERCURY-202	2	65.0	1005	2	100.0	1530	1	40.0	612	5	205.0	3147
MERCURY-204	4	320.0	2570	6	910.0	6548	2	100.0	685	12	1330.0	9803
MOLYBDENUM-92	7	7336.0	2201	11	4811.5	1530	1	10000.0	1882	19	22147.5	5613
MOLYBDENUM-94	2	215.0	101	3	800.0	365	1	50.0	50	6	1065.0	516
MOLYBDENUM-95	4	1925.0	577	5	1800.0	540	1	770.0	231	10	4495.0	1348
MOLYBDENUM-96	3	900.0	225	6	945.0	375	1	200.0	50	10	2045.0	650
MOLYBDENUM-97	1	110.0	50	3	510.0	210	1	120.0	50	5	740.0	310
MOLYBDENUM-98	2	250.0	300	14	22230.0	27837	2	630.0	665	18	23110.0	28802
MOLYBDENUM-100	6	1120.0	560	11	6410.0	3257	1	767.0	383	18	8297.0	4201

ISOTOPE	DOMESTIC		FOREIGN		PROJECT		TOTAL	
	SHIP	MILLIGRAMS DOLLARS	SHIP	MILLIGRAMS DOLLARS	SHIP	MILLIGRAMS DOLLARS	SHIP	MILLIGRAMS DOLLARS
NEODYMIUM-142	1	100.0 185	5	830.0 1410	3	250.0 475	9	1180.0 2071
NEODYMIUM-143			4	623.0 500	3	600.0 480	7	1223.0 980
NEODYMIUM-144	2	375.0 112	3	1195.0 400	1	400.0 120	6	1970.0 632
NEODYMIUM-145	3	142.7 150	1	50.0 52			4	192.7 202
NEODYMIUM-146	3	3304.0 1087	6	4577.0 1738	5	5633.0 2092	14	6906.0 2742
NEODYMIUM-148	3	320.0 440	2	330.0 440	1	13.0 50	6	663.0 940
NEODYMIUM-150	4	491.0 590	8	1155.0 1437	2	125.0 178	14	1771.0 2205
NICKEL-58	6	5494.3 844	7	5112.0 822	5	198419.0 17377	18	209025.3 19045
NICKEL-60	4	5278.3 824	4	5263.0 905	2	450.0 110	10	10991.3 1839
NICKEL-61	1	394.0 4287	4	55.0 495	2	25.0 225	7	474.0 5307
NICKEL-62	7	403.0 741	10	11119.0 23778	2	510.0 710	19	12032.0 25229
NICKEL-64	3	240.0 2298	7	2520.0 28288	2	432.0 4418	12	3192.0 35004
OSMIUM-184			1	5.0 1266			1	5.0 1266
OSMIUM-186			1	81.0 1725			1	81.0 1725
OSMIUM-187						13.0 453	1	94.0 2179
OSMIUM-188	2	90.0 272	3	190.0 617	1	100.0 1601	1	100.0 1601
OSMIUM-189			2	150.0 397			5	280.0 850
OSMIUM-190	5	290.0 503	9	1265.0 2143	1	154.0 269	15	1709.0 2916
OSMIUM-192	2	250.0 262			1	500.0 525	3	750.0 747
PALLADIUM-102			6	292.0 7252			6	292.0 7252
PALLADIUM-104	3	175.0 350	6	880.0 1985			9	1055.0 2335
PALLADIUM-105		29.0 36	3	300.0 425	1	25.0 50	4	354.0 511
PALLADIUM-106	2	350.0 315	5	530.0 605		35.0 68	7	915.0 988
PALLADIUM-108	7	842.0 716	12	1702.0 1391	2	560.0 489	21	3104.0 2596
PALLADIUM-110	4	300.0 745	9	1400.0 2747	2	174.0 416	15	1874.0 3908
PLATINUM-192			2	19.0 347			2	19.0 347
PLATINUM-194	2	383.3 230	5	470.0 330	2	5028.0 2170	9	5881.3 2730
PLATINUM-195			4	850.0 510	2	373.0 223	6	1223.0 733
PLATINUM-196	1	300.0 255	10	1705.0 1527		5.0 4	11	2010.0 1786
PLATINUM-198	4	338.0 850	5	1050.0 2625	1	105.0 262	10	1493.0 3737
POTASSIUM-39			2	1166.0 350			2	1166.0 350
POTASSIUM-40	2	14.0 2680	2	13.0 2566			4	27.0 5247
POTASSIUM-41	8	304.0 1821	2	60.0 312			10	364.0 2133
RHENIUM-185			4	2000.0 1200			4	2000.0 1200
RHENIUM-187			3	1200.0 420			3	1200.0 420
RUBIDIUM-85	5	370.0 261	6	1171.5 435	1	25.0 63	12	2016.5 632
RUBIDIUM-87	10	1135.0 3968	6	480.0 1668	2	600.0 1531	18	2215.0 7167
RUTHENIUM-096			6	407.0 3649	1	50.0 500	7	457.0 4149
RUTHENIUM-098			1	107.0 1300			1	107.0 1300
RUTHENIUM-099	1	100.0 165	3	750.0 1237	2	220.0 267	6	1070.0 1669
RUTHENIUM-100	4	450.0 720	3	703.0 1124		269.0 1412	7	1422.0 3257
RUTHENIUM-101			1	486.0 558		80.0 240	1	566.0 798
RUTHENIUM-102	7	14112.0 21516	7	1414.0 920			14	15526.0 22436
RUTHENIUM-104	3	500.0 640	4	309.2 340		363.0 943	7	1172.2 1923
SAMARIUM-144	7	2278.5 1551	8	5525.0 3739	4	350.0 290	19	8153.5 5581
SAMARIUM-147	1	200.0 50	2	400.0 100			3	600.0 150
SAMARIUM-148			5	1194.5 380	1	25.0 50	6	1219.5 430
SAMARIUM-149	4	1100.0 275	6	2200.0 570			10	3300.0 845
SAMARIUM-150	1	200.0 90	6	3685.0 1673	2	235.0 167	9	4120.0 1931
SAMARIUM-152	3	2170.0 175	11	11998.0 1374	2	401.0 109	16	14569.0 1659
SAMARIUM-154	3	2000.0 300	9	2815.0 500	6	1606.0 402	18	6421.0 1202
SELENIUM-74	6	76.0 7586			3	4.0 367	9	80.0 7954
SELENIUM-76	4	210.0 639	3	230.0 557	2	201.0 462	9	641.0 1658
SELENIUM-77	3	2112.3 25780	2	260.0 647	1	20.0 207	6	2692.3 26634
SELENIUM-78	1	100.0 135	5	597.0 834	2	350.0 1180	8	1047.0 2149
SELENIUM-80	1	20.0 50	6	1615.0 1454	2	300.0 270	9	1935.0 1774
SELENIUM-82	1	10.0 293	4	64.0 880	1	200.0 6408	6	274.0 7581

ISOTOPE	SHIP	D O M E S T I C MILLIGRAMS	DOLLARS	SHIP	F O R E I G N MILLIGRAMS	DOLLARS	SHIP	P R O J E C T MILLIGRAMS	DOLLARS	SHIP	T O T A L MILLIGRAMS	DOLLARS
SILICON-28	4	520.0	478	5	1258.0	1190				9	1778.0	1668
SILICON-29	5	340.0	1197	6	795.0	2226	1	200.0	380	12	1335.0	3803
SILICON-30	10	1000.0	5127	10	1700.0	8665	1	50.0	252	21	2750.0	14044
SILVER-107	1	1000.0	400	4	520.0	230	2	425.0	170	7	1945.0	800
SILVER-109	1	100.0	60	7	10666.0	6400				8	10766.0	6460
STRONTIUM-84	1	75.0	3300	2	410.0	21299	3	52.2	1928	6	537.2	26528
STRONTIUM-86	3	600.0	300	7	3200.0	1600	3	650.0	350	13	4450.0	2250
STRONTIUM-87	2	1432.0	736	3	4400.0	2860	3	2435.0	1162	8	8267.0	4758
STRONTIUM-88	1	1000.0	100	4	33300.0	3350	3	1550.0	150	8	35850.0	3600
SULFUR-32	4	961.0	735	1	500.0	225				5	1461.0	960
SULFUR-33	2	25.0	1022	9	271.0	6161				11	296.0	7183
SULFUR-34	6	165.0	888	3	270.0	877				9	435.0	1765
TELLURIUM-120	1	1.0	156							1	1.0	156
TELLURIUM-122	3	165.0	1089	4	258.0	1702	6	1015.0	4891	13	1478.0	7683
TELLURIUM-123	1	70.0	1190							1	70.0	1190
TELLURIUM-124	4	7145.0	31524	10	9640.0	41489	1	50.0	232	15	16835.0	73246
TELLURIUM-125	3	148.0	223	1	43.0	50	1	185.0	416	5	376.0	689
TELLURIUM-126				5	1423.5	2255	2	270.0	100	7	1693.5	2355
TELLURIUM-128	4	2805.5	490	11	5230.5	1170	1	325.0	50	16	8361.0	1710
TELLURIUM-130	3	600.0	150	6	2770.0	550	2	248.0	100	11	3618.0	800
THALLIUM-203	13	193319.0	102674				1	100.0	50	14	193419.0	102724
THALLIUM-205	4	4428.0	679							4	4428.0	679
TIN-112	6	172.0	3444	4	125.0	2766	2	175.0	2691	12	472.0	8902
TIN-114				1	20.0	300	1	50.0	750	2	70.0	1050
TIN-116	6	2416.0	765	3	420.0	179	2	300.0	105	11	3136.0	1049
TIN-117	1	125.0	50	2	225.0	100	1	200.0	80	4	550.0	230
TIN-118	5	2500.0	1400	4	996.0	1095	2	4400.0	3310	11	7896.0	5805
TIN-119	6	3425.0	1047	9	4128.0	1248	1	200.0	60	16	7753.0	2356
TIN-120	5	4200.0	1350	8	3150.0	1260	2	520.0	208	15	7870.0	2818
TIN-122	5	2600.0	1720	4	1200.0	840	1	200.0	140	10	4000.0	2700
TIN-124	4	1700.0	920	10	3800.0	1900	2	300.0	152	16	5800.0	2972
TITANIUM-46	2	400.0	440	11	1730.7	2430	1	40.0	50	14	2170.7	2920
TITANIUM-47				3	133.0	161	1	2857.4	2163	4	2990.4	2324
TITANIUM-48	2	1100.0	350	11	1201.5	546	1	1161.0	342	14	3462.5	1238
TITANIUM-49	1	50.0	115	6	5185.0	9589				7	5235.0	9704
TITANIUM-50	2	250.0	550	8	1951.0	3440				10	2309.0	4243
TUNGSTEN-180							1	108.0	253	1	6.0	1350
TUNGSTEN-182	2	900.0	225	2	400.0	125		6.0	1350	4	1300.0	350
TUNGSTEN-183	1	150.0	52	1	1200.0	420				2	1350.0	472
TUNGSTEN-184	2	650.0	227	5	3341.0	1184				7	3991.0	1411
TUNGSTEN-186	3	770.0	332	3	550.0	252	1	2000.0	900	7	3320.0	1484
VANADIUM-50	1	5.0	605							1	5.0	605
YTERBIUM-168	3	155.0	2869	6	381.0	15993	5	245.0	8115	14	781.0	26979
YTERBIUM-170				4	1550.0	10508				3	1550.0	10508
YTERBIUM-171	3	300.0	150	4	2740.0	1370	1	150.0	75	8	3150.0	1595
YTERBIUM-172	1	300.0	120	2	325.0	130	1	250.0	100	4	875.0	350
YTERBIUM-173				2	365.0	146				2	365.0	146
YTERBIUM-174	4	825.0	250	3	1500.0	375	2	3200.0	800	9	5525.0	1425
YTERBIUM-176	2	400.0	127	2	330.0	110	2	520.0	200	6	1250.0	437
ZINC-64	7	3070.0	1230	11	1775.0	770	1	200.0	80	19	5045.0	2080
ZINC-66	4	540.0	331	10	1666.5	1065	1	187.0	125	15	2353.5	1521
ZINC-67	4	264.0	895	6	189.5	656	1	20.0	77	11	473.5	1628
ZINC-68	9	16800.0	19155	5	83255.0	95870	1	273.0	252	15	100328.0	115277
ZINC-70	2	133.0	4151							2	133.0	4151
ZIRCONIUM-90	4	1390.0	1187	8	9131.0	3710	1	195.0	58	13	10716.0	4956
ZIRCONIUM-92	2	167.0	125	6	710.0	990				8	877.0	1115
ZIRCONIUM-94				2	117.0	100	2	20.0	50	4	137.0	150
TOTAL	702	177361437.6	877575	1095	11387889.0	879548	280	2876799.6	146442	2078	191626126.3	1903566

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