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THESAURUS FOR
RADIATION CHEMISTRY

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MASTER

Introduction

The Radiation Chemistry Data Center has undertaken the collection and indexing of literature on radiation chemistry in order to facilitate the preparation of bibliographies and selection of papers for topics to be reviewed. The following list of keywords has been developed for describing the papers. The keyword list is followed by a formula list; a few species are indexed by their formula instead of name. The thesaurus serves as a guide in the selection of keywords for indexing the papers; new words are added frequently. Revised editions will be made available periodically.

In format, the thesaurus is similar¹ to other thesauri, such as those of the Engineers Joint Council¹ and NASA², and is used in the same way.

Explanation of symbols

NT	Narrower Terms	Members of the category under which they appear. Used to make indexing more specific.
BT	Broader Terms	Used to make indexing more general. The narrower terms are always used when applicable.
RT	Related Terms	Terms which are near-synonyms or related to the term at hand.
UF	Used For	Indicates that this term is the preferred term. (reverse of the USE reference.)
USE		Indicates that the referred-to term should be used instead of this term.

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- (1) Engineers Joint Council. Thesaurus of Engineering Terms. May 1964.
 - (2) NASA SP-7030. NASA Thesaurus. Vol. I-II. Preliminary edition, December 1967.

KEYWORD LIST

A

absorbance USE optical density
 absorption bands
 RT absorption spectra
 absorption coefficient
 NT mass absorption coefficient
 RT cross sections scattering coefficient
 absorption spectra
 NT infrared spectra
 BT spectra
 RT absorption bands extinction coefficient optical density oscillator strength
 UF optical spectra ultraviolet-visible spectra
 absorptivity, molar USE extinction coefficient
 abstraction
 NT H abstraction
 accelerators
 NT betatron cyclotron linear accelerator synchrotron Van de Graaff accelerator
 BT equipment
 acetaldehyde
 BT aldehydes
 acetals
 acetic acid
 BT carboxylic acids
 acetone
 BT ketones
 acetonitrile
 BT nitriles
 acetylene
 BT alkynes
 acid anhydrides
 RT acids, organic
 acid formation
 acids, inorganic
 acids, organic
 NT carboxylic acids sulfonic acids
 RT acid anhydrides salts, organic
 acrylamide
 BT amides
 RT monomers
 acrylates
 NT methyl acrylate polyacrylates
 BT esters
 acrylic acid
 BT carboxylic acids
 acrylonitrile
 BT nitriles monomers
 actinide series USE transuranium elements
 activation energy
 RT chemical kinetics
 UF Arrhenius parameters
 activation volume
 addition
 NT adduct formation
 H addition
 additive effects
 RT additives
 additives
 NT scavengers
 RT additive effects
 adduct formation
 BT addition
 adiabatic approximations
 BT calculation methods
 adsorbents
 BT adsorption

adsorption

adsorption

- NT adsorbents
- chemisorption
- RT surface effects

air

- RT oxygen

alcohol formation

alcohols

- NT allyl alcohol
- benzyl alcohol
- butanols
- ethanol
- hexanols
- methanol
- pentanols
- poly(vinyl alcohol)
- 1-propanol
- 2-propanol

aldehyde formation

aldehydes

- NT acetaldehyde
- formaldehyde
- BT carbonyl compounds

alicyclic

- NT cycloalkanes
- cycloalkenes

aliphatic

alkali halides

- BT halogen compounds,
- inorganic
- salts, inorganic

alkali metal compounds

alkali metals

- UF cesium
- francium
- lithium
- potassium
- rubidium
- sodium

alkaline earth metal compounds

- NT barium compounds
- calcium compounds
- magnesium compounds
- strontium compounds

alkanes

- NT butanes
- ethane
- heptanes
- hexanes
- methane
- methylpentanes
- octanes
- pentanes
- propane
- squalane
- BT hydrocarbons
- RT cycloalkanes
- UF paraffins

alkene formation

alkenes

- NT butenes
- dienes
- ethylene
- hexenes
- pentenes
- polyenes
- propylene
- BT hydrocarbons
- unsaturated compounds
- RT cycloalkenes
- terpenes
- UF olefins

alkenyl benzenes

- NT polystyrene
- stilbene
- styrene
- BT aromatics
- hydrocarbons

alkenyl halides

- NT poly(vinyl chloride)
- vinyl chloride

alkenyl radicals

- NT vinyl radical
- BT radicals

alkoxy radicals

- BT radicals

alkylation

alkylbenzenes

- NT toluene
- BT aromatics
- hydrocarbons

alkyl halides
 BT halogen compounds,
 organic

alkyl radicals
 BT radicals

alkynes
 NT acetylene
 BT hydrocarbons
 unsaturated compounds

alloys
 RT metals

allyl alcohol
 BT alcohols

allyl radicals
 BT radicals
 RT vinyl radical

alpha particles
 RT helium nuclei

alumina
 BT aluminum compounds
 oxides

aluminum compounds
 NT alumina

americium USE transuranium
 elements

amides
 NT acrylamide
 peptides
 polyamides
 BT nitrogen compounds,
 organic

amination

amines
 NT ethylenediamine
 methylamine
 BT nitrogen compounds,
 organic

amino acids
 NT cysteine
 cystine
 BT carboxylic acids
 nitrogen compounds,
 organic

amino acids (cont.)
 RT peptides
 proteins

ammonia
 BT nitrogen compounds,
 inorganic

analytical methods
 NT calorimetry
 chromatography
 current-voltage curves
 diffraction
 dosimetry
 mass spectrometry
 microscopy
 polarography
 tracers
 BT methods
 RT instrumentation
 spectra
 UF separation methods

angular dependence
 RT crystal orientation

aniline
 BT aromatics
 nitrogen compounds, organic

anions USE negative ions

annealing

anthracene
 BT aromatics
 hydrocarbons
 polycyclic

antimony

antimony compounds

apparatus USE equipment

appearance potential
 RT mass spectrometry

aqueous solution
 BT solutions
 RT water

argon
 BT rare gases

argon-37

argon-37

aromatics

NT alkenyl benzenes
alkylbenzenes
aniline
anthracene
NT aryl halides
benzene
benzoate ion
benzoic acid
benzonitrile
biphenyl
naphthalene
nitrobenzene
phenol
pyrene
terphenyl
thiophenol
RT polycyclic

Arrhenius parameters USE
activation energy or frequency
factor

arsenic

arsenic compounds

aryl halides

BT aromatics
halogen compounds,
organic

aryloxy radicals

BT radicals

atom-molecule reactions

Auger processes

autoionization

BT ionization

azides

BT nitrogen compounds,
inorganic
salts, inorganic

azo compounds

BT nitrogen compounds,
organic

RT dyes

B

barium compounds
 BT alkaline earth metal
 compounds

base, inorganic

benzene
 BT aromatics
 hydrocarbons

benzoate ion
 BT aromatics
 carboxylate ions
 RT benzoic acid

benzoic acid
 BT aromatics
 carboxylic acids
 RT benzoate ion

benzonitrile
 BT aromatics
 nitriles

benzyl alcohol
 BT alcohols
 aromatics

berkelium USE transuranium
 elements

beta rays

betatron
 BT accelerators

bibliography
 RT review

bimolecular
 RT chemical kinetics

biological applications

biological systems
 RT food irradiation

biphenyl
 BT aromatics
 hydrocarbons
 RT terphenyl
 UF diphenyl

bleaching
 RT coloration
 glass

blobs

Bloch electrons

boiling point

bond cleavage
 NT bond cleavage C-Br
 bond cleavage C-C
 bond cleavage C-Cl
 bond cleavage C-F
 bond cleavage C-H
 bond cleavage C-N
 bond cleavage C-O
 bond cleavage C-S
 bond cleavage C-Si
 bond cleavage N-H
 bond cleavage N-N
 bond cleavage O-H
 bond cleavage S-H
 bond cleavage S-S
 bond cleavage Si-H

bond cleavage C-Br
 BT bond cleavage

bond cleavage C-C
 BT bond cleavage

bond cleavage C-Cl
 BT bond cleavage

bond cleavage C-F
 BT bond cleavage

bond cleavage C-H
 BT bond cleavage

bond cleavage C-N
 BT bond cleavage

bond cleavage C-O
 BT bond cleavage

bond cleavage C-S
 BT bond cleavage

bond cleavage C-Si
 BT bond cleavage

bond cleavage N-H

bond cleavage N-H
BT bond cleavage

bond cleavage N-N
BT bond cleavage

bond cleavage O-H
BT bond cleavage

bond cleavage S-H
BT bond cleavage

bond cleavage S-S
BT bond cleavage

bond cleavage Si-H
BT bond cleavage

bond dissociation energy
UF bond strength

bond strength USE bond
dissociation energy

Born approximation
BT calculation methods

boron compounds

bremsstrahlung
NT X-rays

bromide ion
BT halide ions

◦ bromination USE halogenation

bromine

bromine atoms
BT halogen atoms

bromine compounds, inorganic
BT halogen compounds,
organic

butadiene
BT dienes
RT monomers

butanes
BT alkanes

butanols
BT alcohols
UF butyl alcohol

butenes
NT isobutylene
BT alkenes

butyl alcohol USE butanols

C

cadmium compounds

cage effect

UF Franck-Rabinowitch
effect

calcium compounds

BT alkaline earth metal
compounds

calculated data

RT computer analysis

calculation methods

NT adiabatic approximation
Born approximation
close-coupling
approximation
configuration interaction
method
distorted wave method
Hartree-Fock method
impact parameter method
LCAO-MO method
optical approximation
perturbed stationary
state method
phase-shifts method
self consistent field
(SCF) method
sudden approximation
valence bond method
BT methodsCalifornium USE transuranium
elements

calorimetry

BT dosimetry

carbohydrates

NT cellulose
glucose
starch

BT polyhydroxy compounds

RT heterocyclic O

UF macromolecules
sugars

carbon

NT carbon-11
carbon-13
carbon-14

carbon (cont.)

UF diamond
graphite

carbon-11

BT carbon

carbon-13

BT carbon

carbon-14

BT carbon

carbon-14, tracer

BT tracers

carbonate radical (HCO_3)

BT radicals

carbonate radical ion

BT radical ions

carbonates

BT salts, inorganic

carbon dioxide

BT oxides

carbon disulfide

BT disulfides

carbon monoxide

BT oxides

carbon tetrachloride

BT chlorine compounds,
organic
halocarbons

carbonyl compounds

NT aldehydes
ketenes
ketones
metal carbonyls

carboxylate ions

NT benzoate ion
formate ion
oxalate ion
BT negative ions
RT carboxylic acids

carboxylation

carboxylic acids

carboxylic acids

NT acetic acid
acrylic acid
amino acids
benzoic acid
dicarboxylic acids
NT formic acid
methacrylic acid
BT acids, organic
RT carboxylate ions
lipids
UF fatty acids

carboxyl radical (COOH)

BT radicals

carboxyl radical ion

BT radical ions

catalysis

RT catalysts

catalysts

RT catalysis

cations USE positive ions

cavity

cellulose

NT cotton
BT carbohydrates
RT polymers

Cerenkov radiation

BT luminescence

cerium USE rare-earth metals

cerium compounds

BT rare earth metal compounds

cerium ions

BT metal ions

cesium USE alkali metals

cesium-137

chain branching

BT chain reactions

chain length

chain reactions

NT chain branching
initiation
propagation
termination

chain scission

chain transfer

charge exchange USE charge transfer

charge neutralization

charge separation

charge transfer

UF charge exchange

charge-transfer complexes

chelates USE coordination compounds

chemical dosimetry

NT ferrous sulfate
dosimeter
BT dosimetry

chemical initiation

BT initiation

chemical kinetics

RT activation energy
bimolecular
competition kinetics
decay
diffusion kinetics
enthalpy of activation
entropy of activation
first order reaction
fractional orders
frequency factor
half-life
ionic strength effect
isotope effects
isotope exchange
lifetime
mechanism
models, kinetic
non-homogeneous kinetics
pseudo-first order
reaction

chemical kinetics (cont.)

- RT rates
 - second order reaction
 - steady state
 - termolecular
 - third order reaction
 - unimolecular
 - zero order reaction
- UF kinetics

chemiluminescence

- BT luminescence

chemisorption

- BT adsorption

chlorates

- BT chlorine compounds,
 - inorganic
 - salts, inorganic

chloride ion

- BT halide ions

chlorination USE halogenation

chlorine

chlorine atoms

- BT halogen atoms

chlorine compounds, inorganic

- NT chlorates
- ferric chloride
- perchlorates

- BT halogen compounds,
 - inorganic

chlorine compounds, organic

- NT carbon tetrachloride
- chloroform
- methylene chloride
- poly(vinyl chloride)
- vinyl chloride

- BT halogen compounds,
 - organic

chloroform

- BT chlorine compounds,
 - organic

chromatography

- BT analytical methods

chromium-51

chromium compounds

chromium ions

- BT metal ions

cis-trans isomers

- BT isomers
- UF stereoisomers

clathrates

close-coupling approximation

- BT calculation methods

coatings

cobalt-60

cobalt compounds

cobalt ions

- BT metal ions

collision theory

- RT steric factor
- UF gas kinetic theory

colloid

- NT emulsions
- gels
- sols
- BT mixtures
- solutions
- UF dispersions

coloration

- RT bleaching
- dyes

color centers

- NT F-centers
- BT defects
- trapped electrons
- RT crystalline

combination USE radical
combination

competition kinetics

- RT chemical kinetics

complex ions

- RT coordination compounds

computer analysis

computer analysis

RT calculated data

computer programs

concentration effects

condensation

conductance

BT electrical properties

conductivity

NT electrical conductivity

photoconductivity

thermal conductivity

configuration interaction method

BT calculation methods

conformational isomers

BT isomers

UF stereoisomers

conversion

NT conversion < 0.1%

conversion 0.1-1%

conversion 1-10%

conversion > 10%

RT G

yields

conversion < 0.1%

BT conversion

conversion 0.1-1%

BT conversion

conversion 1-10%

BT conversion

conversion > 10%

BT conversion

coolants, organic

coordination compounds

RT complex ions

UF chelates

copolymerization

BT polymerization

RT copolymers

grafting

copolymers

BT polymers

RT copolymerization

copper compounds

copper ions

BT metal ions

corundum USE alumina

cotton

BT cellulose

coupling constants

NT hyperfine tensor

quadrupole tensor

RT esr spectra

crosslinking

RT polymerization

cross sections

RT adsorption coefficient

scattering coefficient

crystalline

NT polycrystalline

single crystals

BT solid

RT color centers

defects

F-centers

lattice parameters

crystal orientation

RT angular dependence

esr spectra

curium USE transuranium

elements

current-voltage curves

BT analytical methods

electrical properties

cyanides

NT hydrogen cyanide

BT nitrogen compounds,

inorganic

RT nitriles

cyclization

UF ring closure

cycloalkanes

NT cyclobutane
cyclohexane
cyclopentane
cyclopropane
BT alicyclic
hydrocarbons
RT alkanes

cycloalkenes

NT cyclohexene
cyclopentene
BT alicyclic
hydrocarbons
unsaturated compounds
RT alkenes

cyclobutane

BT cycloalkanes

cyclohexadienyl radicals

BT radicals

cyclohexane

BT cycloalkanes

cyclohexene

BT cycloalkenes

cyclopentane

BT cycloalkanes

cyclopentene

BT cycloalkenes

cyclopropane

BT cycloalkanes

cyclotron

BT accelerators
RT synchrotron

cysteine

BT amino acids
sulfur compounds,
organic

cystine

BT amino acids
sulfur compounds,
organic

data compilation

D

data compilation

deaerated

deamination

decarboxylation

decay

NT decay curves
decay time
decay rate
RT chemical kinetics

decay curves

BT decay

decay rate

BT rates

decay time

RT decay
half-life
lifetime
time

decomposition USE degradation

defects

NT color centers
positive holes
RT crystalline
glass

deformation

degradation

UF decomposition

degree of polymerization

dehalogenation

dehydration

dehydrogenation

delta rays

BT electrons

density

RT density effects

density effects

RT density

deoxyribonucleic acid USE DNA

depolymerization

RT polymerization

detergents

BT surface active agents

deuterium

RT isotope effects
UF hydrogen-2

deuterium, tracer

BT tracers

deuterium compounds

deuterium exchange

BT isotope exchange

deuterium oxide

BT water
UF heavy water

deuterons

BT positive ions

diamond USE carbon

diazonium salts

BT salts, organic

dicarboxylic acids

NT oxalic acid
BT carboxylic acids

dichroism

dielectric constant

BT dielectric properties

dielectric properties

NT dielectric constant

dielectrons

BT electrons

diene formation

dienes

NT butadiene
isoprene
BT alkenes
RT polyenes

diffraction

BT analytical methods

diffusion coefficient USE
diffusion constant

diffusion constant

RT diffusion processes
UF diffusion coefficient

diffusion kinetics

RT chemical kinetics
diffusion processes

diffusion processes

BT mechanism
RT diffusion constant
diffusion kinetics

dimerization

BT polymerization

dimers

dimethyl sulfoxide

BT sulfur compounds, organic

dioxane

BT ethers
heterocyclic O

diphenyl USE biphenyl

diphenylpicrylhydrazyl

UF DPPH

dispersions USE colloids

disproportionation

dissociation

dissociation constant USE
equilibrium constant

dissociative electron capture

BT electron capture
UF electron attachment

distance

RT radius

distorted wave method

BT calculation methods

distribution coefficient

distribution of products USE
yields, relative

disulfides

NT carbon disulfide
BT sulfur compounds,
inorganic
sulfur compounds,
organic
RT sulfides, inorganic
sulfides, organic

DNA

BT nucleic acids
UF deoxyribonucleic acid

domains

dose

NT dose < 10^{18} eV/cc
dose < 10^{18} eV/g
dose 10^{18} - 10^{22} eV/cc
dose 10^{18} - 10^{22} eV/g
dose > 10^{22} eV/cc
dose > 10^{22} eV/g
RT dose effects
dose rate

dose < 10^{18} eV/cc

BT dose

dose < 10^{18} eV/g

BT dose

dose 10^{18} - 10^{22} eV/cc

BT dose

dose 10^{18} - 10^{22} eV/g

BT dose

dose > 10^{22} eV/cc

BT dose

dose > 10^{22} eV/g

BT dose

dose effects

dose effects

RT dose

dose rate

NT dose rate $< 10^{15}$ eV/cc·sec

dose rate $< 10^{15}$ eV/g·sec

dose rate 10^{15} - 10^{17}

eV/cc·sec

dose rate 10^{15} - 10^{17}

eV/g·sec

dose rate 10^{17} - 10^{20}

eV/cc·sec

dose rate 10^{17} - 10^{20}

eV/g·sec

dose rate $> 10^{20}$ eV/cc·sec

RT dose

dose rate effects

dose rate $< 10^{15}$ eV/cc·sec

BT dose rate

dose rate $< 10^{15}$ eV/g·sec

BT dose rate

dose rate 10^{15} - 10^{17} eV/cc·sec

BT dose rate

dose rate 10^{15} - 10^{17} eV/g·sec

BT dose rate

dose rate 10^{17} - 10^{20} eV/cc·sec

BT dose rate

dose rate 10^{17} - 10^{20} eV/g·sec

BT dose rate

dose rate $> 10^{20}$ eV/cc·sec

BT dose rate

dose rate $> 10^{20}$ eV/g·sec

BT dose rate

dose rate effects

RT dose rate

dosimetry

NT calorimetry

chemical dosimetry

photographic dosimetry

BT analytical methods

RT instrumentation

ionization chambers

DPPH USE diphenylpicrylhydrazyl

dry electrons

BT electrons

dyes

RT azo compounds

coloration

quinones

dysprosium USE rare-earth metals

E

efficiency
NT ionization efficiency

eigenvalues

einsteinium USE transuranium
elements

elasticity
BT mechanical properties

elastomers
RT plastics
rubber

electrical conductivity
BT conductivity
electrical properties
RT electrical resistivity
photoconductivity

electrical field

electrical field effects

electrical properties
NT conductance
current-voltage curves
electrical conductivity
electrical resistivity

electrical resistivity
BT electrical properties
RT electrical conductivity

◦ electric discharge

electrochemistry

electrolytes USE salts, inorganic
or salts, organic

electron affinity
RT mass spectrometry

electron attachment USE dis-
sociative electron capture or
electron capture

electron capture
NT dissociative electron
capture

UF electron attachment

electron delocalization

electron dynamics

electron energy

electron escape

electron excitation
UF electron shake-off

electron fraction

electronic configuration

electron impact
RT mass spectrometry

electron localization

electrons
NT delta rays
dielectrons
dry electrons
mobile electrons
pielectrons
solvated electrons
subexcitation electrons
thermal electrons
trapped electrons
RT excitons
muonium

electron scattering

electron scavengers
BT scavengers
RT electron traps

electron shake-off USE electron
excitation

electron spin resonance spectra
USE esr spectra

electron thermalization

electron transfer

electron trapping USE electron
traps

electron traps
BT traps

electron traps

electron traps (cont.)

RT trapped electrons
electron scavengers
UF electron trapping

elements (Many elements are also
listed as keywords)

elongation

BT mechanical properties

emission bands

BT emission spectra

emission spectra

NT emission bands

BT spectra

RT luminescence

empirical equations

emulsion polymerization

BT polymerization

emulsions

BT colloid

ENDOR method

RT esr spectra

energy

NT energy < 1 keV

energy < 1 MeV

energy 1-4 MeV

energy 4-10 MeV

energy 10-25 MeV

energy > 25 MeV

rotational energy

vibrational energy

RT wavelength

energy < 1 keV

BT energy

energy < 1 MeV

BT energy

energy 1-4 MeV

BT energy

energy 4-10 MeV

BT energy

energy 10-25 MeV

BT energy

energy > 25 MeV

BT energy

energy barrier

energy deposition

energy levels

RT spectra

energy localization

energy loss

NT LET

energy loss spectra

energy migration

RT energy transfer

energy partition

RT energy transfer

energy transfer

NT resonance energy transfer

RT energy migration

energy partition

excitation transfer

migration rate

enthalpy

BT thermodynamic properties

enthalpy of activation

RT chemical kinetics

entropy

BT thermodynamic properties

entropy of activation

RT chemical kinetics

environmental applications

NT water pollution

enzyme inactivation

enzymes

BT proteins

epoxides

BT heterocyclic O

epr spectra USE esr spectra

equilibrium constant
 BT thermodynamic properties
 RT pK
 UF dissociation constant
 K

equipment
 NT accelerators
 reactors
 RT instrumentation
 UF apparatus

erbium USE rare-earth metals

esr spectra
 BT spectra
 RT coupling constants
 crystal orientation
 ENDOR method
 g factor
 g shift
 g tensor
 hybridization
 hyperfine interaction
 line shape
 line width
 molecular motion
 spin density
 zero-field splitting
 UF electron spin resonance
 spectra
 epr spectra

ester formation

esters
 NT acrylates
 lactones
 lipids
 methacrylates
 polyacrylates
 polyesters
 poly(vinyl acetate)
 poly(vinyl stearate)
 vinyl acetate
 vinyl stearate

ethane
 BT alkanes

ethanol
 BT alcohols
 UF ethyl alcohol

ether formation

ethers
 NT dioxane
 epoxides
 ethyl ether
 polyethers
 trioxane

ethyl alcohol USE ethanol

ethylene
 BT alkenes
 RT monomers

ethylenediamine
 BT amines

ethyl ether
 BT ethers

ethyl mercaptan
 BT mercaptans

europium
 BT rare-earth metals

exchange reaction USE isotope
 exchange

excimer
 RT luminescence

excitation energy
 UF excitation potential

excitation potential USE
 excitation energy

excitation processes
 BT mechanism

excitation transfer
 RT energy transfer

excited states
 NT singlet states
 triplet states
 RT spectra

exciton
 RT electrons
 positronium

extinction coefficient

extinction coefficient

RT absorption spectra
oscillator strength

UF absorptivity, molar

F

fatty acids USE carboxylic acids

F-centers

BT color centers
trapped electrons

RT crystalline
glass

feature articles

fermium USE transuranium
elements

ferric chloride

BT chlorine compounds, inorganic
iron compounds

ferrous sulfate dosimeter

NT Fricke dosimeter
BT chemical dosimetry
iron ions

fibers

UF textile fibers

films

RT layers
UF thin films

first order reaction

BT chemical kinetics

fission fragments

UF fission products
fuel rods

fission products USE fission
fragments

flames

flash photolysis

BT photochemistry

flow techniques

fluorescence USE luminescence

fluoride ion

BT halide ions

fluorination USE halogenation

fluorine

fluorine compounds, inorganic

NT sulfur hexafluoride

BT halogen compounds,
inorganic

fluorine compounds, organic

NT fluorocarbons

fluoropolymers

BT halogen compounds,
organic

fluorocarbons

BT fluorine compounds,
organic
halocarbons

fluoropolymers

BT fluorine compounds,
organic

UF teflon

food irradiation

RT biological systems

formaldehyde

BT aldehydes

RT trioxane

formate ion

BT carboxylate ions

RT formic acid

formic acid

BT carboxylic acids

RT formate ion

fractional orders

RT chemical kinetics

fragmentation

RT mass spectrometry

francium USE alkali metals

Franck-Rabinowitch effect USE

cage effect

free energy

free radicals USE radicals

frequency factor

RT chemical kinetics

UF Arrhenius parameters

Fricke dosimeter

BT ferrous sulfate dosimeter

fuel rods USE fission fragments

G

G

G

NT G 10-100
G > 100
G(electrons)
G(excited states)
G(initial)
G(ions)
G(photons)
G(radicals)
G(-reactant)
BT yields
RT conversion
M/N

G 10-100
BT G

G > 100
BT G

gadolinium USE rare-earth metals

gamma rays

gas
BT state

gas formation

gas kinetic theory USE collision
theory

G(atoms) USE G(radicals)

gelatin
BT proteins

G(electrons)
BT G

gel formation

gels
BT colloid

germanium

germanium compounds

G(excited states)
BT G

g factor
RT esr spectra
g shift
g tensor

gibbsite USE alumina

G(initial)
BT G
UF initial yields
primary yields

G(ions)
BT G
RT W

glass
NT glass, inorganic
glass, organic
RT bleaching
defects
F-centers
liquid
solid

glass, inorganic
BT glass

glass, organic
BT glass

glucose
BT carbohydrates
polyhydroxy compounds

glycerol
BT polyhydroxy compounds

glycols
BT polyhydroxy compounds

gold compounds

G(photons)
BT G
RT luminescence

G(radicals)
BT G
UF G(atoms)

grafting
RT copolymerization
polymerization

graphite, USE carbon

grappes USE spurs

G(-reactant)
BT G

g shift
RT esr spectra
g factor
g tensor

g tensor
RT esr spectra
g factor
g shift

H abstraction
BT abstraction
UF hydrogen transfer

H addition
BT addition
hydrogenation

half-life
RT chemical kinetics
decay time
lifetime
time

halide ions
NT bromide ion
chloride ion
fluoride ion
iodide ion
BT negative ions

halocarbons
NT carbon tetrachloride
fluorocarbons
BT halogen compounds, organic

halogenation
UF bromination
chlorination
fluorination
iodination

halogen atoms
NT bromine atoms
chlorine atoms
iodine atoms

halogen atom transfer

halogen compounds, inorganic
NT alkali halides
bromine compounds,
inorganic
chlorine compounds,
inorganic
fluorine compounds,
inorganic
hypohalous compounds
iodine compounds,
inorganic

halogen compounds, organic

halogen compounds, organic

NT alkyl halides
aryl halides
bromine compounds,
organic
chlorine compounds,
organic
fluorine compounds,
organic
halocarbons
iodine compounds,
organic

Hammett σ plot

handbook

hardness

BT mechanical properties

Hartree-Fock method

BT calculation methods

heavy ions

NT alpha particles
helium nuclei
BT positive ions
UF heavy particles

heavy particles USE heavy ions

heavy water USE deuterium oxide
or tritium oxide

Heitler-London-Slater-Pauling
method (HLSP method) USE
valence bond method

H elimination

helions USE helium nuclei or He^+

helium

BT rare gases

helium nuclei (He^{++})

RT alpha particles
UF helions

heptanes

BT alkanes

heterocyclic N

NT alkaloids

heterocyclic N (cont.)

NT nucleosides
nucleotides
purines
pyridines
pyrimidines
BT nitrogen compounds,
organic

heterocyclic O

NT dioxane
epoxides
lactones
methyltetrahydrofuran
tetrahydrofuran
trioxane
RT carbohydrates

heterocyclic S

BT sulfur compounds, organic

heterogeneous kinetics USE non-
homogeneous kinetics

heterogeneous systems

hexanes

BT alkanes

hexenes

BT alkenes

hexanols

BT alcohols

holes

BT positive ions
UF positive holes

hole traps

BT traps
RT trapped holes
UF positive charge trapping

holmium USE rare-earth metals

hormones

hot atom chemistry

RT recoil reactions

hot atoms

hot radicals

hybridization
RT esr spectra

hydrated electrons
BT solvated electrons
UF polaron

hydration
BT solvation

hydrazines
BT nitrogen compounds,
inorganic
nitrogen compounds,
organic

hydride ion
BT negative ions

hydrides

hydride transfer
UF hydrogen transfer

hydrocarbons
NT alkanes
alkenes
alkenyl benzenes
alkylbenzenes
alkynes
anthracene
benzene
biphenyl
cycloalkanes
cycloalkenes
naphthalene
petroleum
polyethylene
polyisobutylene
polyisoprene
polypropylene
polystyrene
terphenyl

hydrogen

hydrogen-2 USE deuterium

hydrogen-3 USE tritium

hydrogenation
NT H addition

hydrogen atoms

hydrogen bonding

hydrogen bromide USE hydrogen
halides

hydrogen chloride USE hydrogen
halides

hydrogen cyanide
BT cyanides

hydrogen fluoride USE hydrogen
halides

hydrogen formation

hydrogen halides
UF hydrogen bromide
hydrogen chloride
hydrogen fluoride
hydrogen iodide

hydrogen iodide USE hydrogen
halides

hydrogen peroxide
BT peroxides, inorganic

hydrogen sulfide
BT sulfides, inorganic

hydrogen transfer USE
H abstraction, hydride
transfer or proton transfer

hydrolysis
UF saponification

hydroperoxides
RT peroxides, inorganic
peroxides, organic

hydroxides

hydroxyalkyl radicals
BT radicals

hydroxylation

hydroxyl radical
BT radicals

hyperfine coupling tensor USE
hyperfine tensor

hyperfine interaction

hyperfine interaction

RT esr spectra

hyperfine tensor

BT coupling constants

hypohalous compounds

BT halogen compounds,
inorganic

I

illumination

imides

BT nitrogen compounds,
organic

impact-parameter method

BT calculation methods

UF semi-classical method

trajectory method

impurity effects

inactivation

NT enzyme inactivation

inclusion compounds

indium compounds

induction period

industrial applications

infrared spectra

BT absorption spectra

inhibitors

RT traps

initial yields USE G(initial)

initiation

NT chemical initiation

thermal initiation

BT chain reactions

initiation rate

BT rates

insertion

NT methylene insertion

instrumentation

RT analytical methods

dosimetry

equipment

mass spectrometry

spectra

intensity dependence

intermediates

NT transients

UF precursors

internal conversion
BT radiationless transition

internal sources

intersystem crossing
BT radiationless transition

iodide ion
BT halide ions

iodination USE halogenation

iodine

iodine atoms
BT halogen atoms

iodine compounds, inorganic
BT halogen compounds,
inorganic

iodine compounds, organic
BT halogen compounds,
organic

ion clusters

ion exchange

ion exchange resins
BT polymers

ionic polymerization
BT polymerization

ionic processes
BT mechanism

ionic strength effect
RT chemical kinetics

ionization
NT autoionization
ionization efficiency
ionization energy
ionization potential
photoionization
RT mass spectrometry

ionization chambers
RT dosimetry

ionization efficiency
BT efficiency
ionization

ionization energy
BT ionization

ionization potential
BT ionization
RT mass spectrometry

ion mobility
BT mobility

ion-molecule reactions
RT mass spectrometry

ion neutralization
UF ion recombination

ion pairs
RT M/N

ion recombination USE ion
neutralization

ions
NT negative ions
positive ions
radical ions

iridium-192

iridium compounds

iron compounds
NT ferric chloride

iron ions
NT ferrous sulfate dosimeter
BT metal ions

isobutylene
BT butenes
RT monomers

isomerization

isomers
NT cis-trans isomers
conformational isomers
optical isomers

isoprene

isoprene

BT dienes
RT monomers
rubber

isopropyl alcohol USE 2-propanol

isotope effects

RT chemical kinetics
deuterium
UF kinetic isotope effects

isotope exchange

NT deuterium exchange
RT chemical kinetics
UF exchange reactions

K

K USE equilibrium constant

ketenes

BT carbonyl compounds

ketone formation

ketones

NT acetone
quinones
BT carbonyl compounds

kinetics USE chemical kinetics

kinetic isotope effects USE
isotope effects

krypton

BT rare gases

krypton-85

L

labeling USE tracers
 laboratory manual
 lactones
 BT esters
 heterocyclic O
 lanthanide series USE rare-earth metals
 lanthanum USE rare-earth metals
 lanthanum compounds
 lasers
 lattice parameters
 RT crystalline
 layers
 RT films
 UF monolayers
 LCAO-MO method
 BT calculation methods
 lead compounds
 lecture
 LET
 RT LET effects
 mass absorption coefficient
 stopping power
 UF linear energy transfer
 LET effects
 RT LET
 UF track effects
 lifetime
 RT chemical kinetics
 decay time
 half-life
 time
 light USE sunlight
 Linac USE linear accelerator
 linear accelerator
 BT accelerators
 UF Linac
 linear energy transfer USE LET
 line shape
 RT esr spectra
 line width
 RT esr spectra
 lipids
 BT esters
 RT carboxylic acids
 polyhydroxy compounds
 liquid
 BT state
 RT glass
 solutions
 lithium USE alkali metals
 luminescence
 NT Cerenkov radiation
 chemiluminescence
 thermoluminescence
 RT emission spectra
 excimer
 G(photons)
 luminescence intensity
 luminescence yields
 radiationless transition
 singlet-singlet
 annihilation
 triplet-triplet
 annihilation
 UF fluorescence
 radiative transition
 luminescence intensity
 RT luminescence
 luminescence yields
 BT yields
 RT luminescence
 lutecium USE rare-earth metals

macromolecules

M

macromolecules USE carbohydrates,
nucleic acids, polymers, or
proteins

magnesium compounds
BT alkaline earth metal
compounds

magnetic field

magnetic field effects

manganese compounds

mass absorption coefficient
BT absorption coefficient
RT LET
mass stopping power

mass spectra
BT spectra
mass spectrometry

mass spectrometry
BT analytical methods
RT appearance potential
electron affinity
electron impact
fragmentation
instrumentation
ionization
ionization potential
ion-molecule reactions
mass spectra

mass stopping power
BT stopping power
RT mass absorption coefficient

mechanical properties
NT elasticity
elongation
hardness
tensile strength

mechanism
NT diffusion processes
excitation processes
ionic processes
radical processes
RT chemical kinetics

melting point

mendelevium USE transuranium
elements

mercaptans
NT ethyl mercaptan
BT sulfur compounds, organic
UF thiols

mercury

mercury compounds

metal carbonyls
BT carbonyl compounds

metal foil

metal ions
NT cerium ions
chromium ions
cobalt ions
copper ions
iron ions
nickel ions
silver ions
tin ions
titanium ions
uranium ions
zinc ions
BT positive ions
RT salts, inorganic

metals
RT alloys

methacrylates
NT methyl methacrylate
BT esters

methacrylic acid
BT carboxylic acids

methane
BT alkanes

methanol
BT alcohols
UF methyl alcohol

methods
NT analytical methods
calculation methods
UF technique

methyl acrylate
 BT acrylates
 RT monomers

methyl alcohol USE methanol

methylamine
 BT amines

methylene
 BT radicals

methylene chloride
 BT chlorine compounds, organic

methylene insertion
 BT insertion

methyl methacrylate
 BT methacrylates
 RT monomers

methylpentanes
 BT alkanes

methyltetrahydrofuran
 BT ethers
 heterocyclic O
 RT tetrahydrofuran

microscopy
 BT analytical methods

migration rate
 BT rates
 RT energy transfer

mixtures
 NT colloids
 solutions

M/N
 BT yields
 RT G
 ion pairs

mobile electrons
 BT electrons

mobility
 NT ion mobility
 molecular mobility

models, kinetic
 NT random walk model
 RT chemical kinetics

Moessbauer spectra
 BT spectra

molecular mobility
 BT mobility
 RT molecular motion

molecular motion
 RT molecular mobility

molecular structure USE
 structure

molecular weight

molybdates
 BT salts, inorganic

monolayers USE layers

monomers
 RT acrylamide
 acrylonitrile
 butadiene
 ethylene
 isobutylene
 isoprene
 methyl acrylate
 methyl methacrylate
 propylene
 styrene
 vinyl acetate
 vinyl chloride
 vinyl stearate

muonium
 RT electrons

muons

nanosecond time range

N

nanosecond time range

RT time

naphthalene

BT aromatics
hydrocarbons
polycyclic

negative ions

NT carboxylate ions
formate ions
halide ions
hydride ion
nitrate ion
nitrite ion
oxyanions
phosphate ion
polyanions
sulfate ion
sulfite ion

BT ions

UF anions

neodymium USE rare-earth metals

neon

BT rare gases

neopentane

BT pentanes

neptunium USE transuranium
elements

neutrons

nickel compounds

nickel ions

BT metal ions

niobium compounds

nitrate ion

BT negative ions

nitrates

BT nitrogen compounds,
inorganic
salts, inorganic

nitration

nitric oxide

BT nitrogen compounds,
inorganic
nitrogen oxide
oxides

nitrides

BT nitrogen compounds,
inorganic

nitriles

NT acetonitrile
acrylonitrile
benzonitrile
BT nitrogen compounds,
organic
RT cyanides

nitrite ion

BT negative ions

nitrites

BT nitrogen compounds,
inorganic
salts, inorganic

nitrobenzene

BT aromatics
nitro compounds, organic

nitro compounds, organic

NT nitrobenzene
BT nitrogen compounds,
organic

nitrogen

nitrogen atom

nitrogen compounds, inorganic

NT ammonia
azides
cyanides
hydrazines
nitrates
nitric oxide
nitrides
nitrites
nitrous oxide
thiocyanates

nitrogen compounds, organic

NT amides
amines
amino acids
aniline
azo compounds
heterocyclic N
hydrazines
imides
nitriles
oximes
peptides
proteins

nitrogen fixation

nitrogen formation

nitrogen oxides

NT nitric oxide
nitrous oxide
NO₂

nitrous oxide

BT nitrogen compounds,
inorganic
nitrogen oxides
oxides

nmr spectra

BT spectra
UF nuclear magnetic
resonance spectra
pmr spectra

nobelium USE transuranium
elements

non-aqueous solution

BT solutions

non-homogeneous kinetics

RT chemical kinetics
UF heterogeneous kinetics

nonpolar systems

nuclear magnetic resonance
spectra USE nmr spectra

nucleic acids

NT DNA
nucleosides
nucleotides
UF macromolecule
polynucleotides

nucleosides

BT heterocyclic N
nucleic acids
polyhydroxy compounds
RT nucleotides

nucleotides

BT heterocyclic N
nucleic acids
polyhydroxy compounds
RT nucleosides

nylon USE polyamides

octanes

0

octanes

BT alkanes

oils

olefins USE alkenes

optical approximation

BT calculation methods

optical density

RT absorption spectra

UF absorbance

optical isomers

BT isomers

RT racemization

UF stereoisomers

optical rotation

RT optical isomers

optical spectra USE absorption
spectra

organometallic compounds

oscillation frequency USE
vibrational frequency

oscillator strength

RT absorption spectra
extinction coefficient

oxalate ion

BT carboxylate ions

RT oxalates

oxalic acid

oxalates

BT slats, organic

RT oxalate ion

oxalic acid

oxalic acid

BT dicarboxylic acid

RT oxalate ion

oxalates

oxidation

RT reduction

oxides

NT alumina

carbon dioxide

carbon monoxide

nitric oxide

nitrous oxide

silica

RT peroxides, inorganic

oximes

BT nitrogen compounds,
organic

oxyanions

BT negative ions

oxygen

RT air

oxygen-18, tracer

BT tracers

oxygen atom

ozone

P

palladium compounds

paraffins USE alkanes

partial molal volume

pectins

pentanes

NT neopentane

BT alkanes

pentanols

BT alcohols

pentenes

BT alkenes

peptides

BT amides

nitrogen compounds,
organic

RT amino acids

proteins

perchlorates

BT chlorine compounds,
inorganic
salts, inorganicperhydroxyl radical (HO_2)

BT radicals

peroxide formation

peroxides, inorganic

NT hydrogen peroxide

RT hydroperoxides
oxides

peroxides, organic

RT hydroperoxides

peroxy radicals

BT radicals

perturbed stationary state

method

BT calculation methods

petroleum

BT hydrocarbons

pH

NT pH, acidic

pH, basic

pH, neutral

RT pH effects

pH, acidic

BT pH

pH, basic

BT pH

pH, neutral

BT pH

phase effects USE state effects

phase-shifts method

BT calculation methods

pH effects

RT pH

phenol

NT phenols, substituted

BT aromatics

phenol formation

phenols, substituted

BT phenol

phonons

phosphate ion

BT negative ions

phosphates

BT phosphorus compounds

salts, inorganic

phosphorescence USE luminescence

phosphorus

phosphorus-32

phosphorus compounds

NT phosphates

photochemistry

NT flash photolysis

photochromism

photochromism

photoconductivity

RT electrical conductivity

UF conductivity

photographic dosimetry

BT dosimetry

photoionization

BT ionization

photon energy USE energy

photons

photosensitization

BT sensitization

pi electrons

BT electrons

picosecond time range

RT time

pK

RT equilibrium constant

plasmas

plastics

RT elastomers

polymers

rubber

UF resins

platinum compounds

plutonium USE transuranium
elements

plutonium-239

BT transuranium elements

plutonium compounds

pmr spectra USE nmr spectra

polarization

polarography

BT analytical methods

polaron USE hydrated electron
and/or solvated electron

polar systems

polonium-210

polonium-214

polyacrylates

NT polymethacrylates

BT acrylates

polymers

polyacrylonitrile

BT nitriles

polymers

polyamides

BT amides

polymers

UF nylon

polyanions

BT negative ions

polybutadiene

BT polyenes

polymers

polycrystalline

BT crystalline

polycyclic

NT anthracene

naphthalene

pyrene

RT aromatics

steroids

polyenes

NT polybutadiene

squalene

BT alkenes

RT dienes

polyesters

BT esters

polymers

polyethers

BT ethers

polymers

polyethylene

BT hydrocarbons

polymers

polyhydroxy compounds

NT carbohydrates
 glucose
 glycerol
 glycols
 nucleosides
 nucleotides

RT lipids

polyimides

BT imides
 polymers

polyisobutylene

BT polyenes

polyisoprene

BT dienes
 polymers
 RT rubber

polymerization

NT copolymerization
 dimerization
 emulsion polymerization
 ionic polymerization
 radical polymerization
 solid state polymerization
 suspension polymerization
 telomerization
 RT chain reactions
 crosslinking
 depolymerization
 grafting

polymerization rate

BT rates

polymers

NT copolymers
 ion exchange resins
 polyacrylates
 polyacrylonitrile
 polyamides
 polybutadiene
 polyesters
 polyethers
 polyethylene
 polyimides
 polyisobutylene
 polyisoprene
 polypropylene
 polystyrene

polymers (cont.)

NT poly(vinyl acetate)
 poly(vinyl alcohol)
 poly(vinyl chloride)
 poly(vinyl stearate)
 RT cellulose
 plastics
 wood-polymer combination
 UF macromolecule

polymethacrylates

NT poly(methyl methacrylate)
 BT polyacrylates

poly(methyl methacrylate)

BT polymethacrylates

polynuclear USE polycyclic

polynucleotides USE nucleic acids

polypropylene

BT hydrocarbons
 polymers

polystyrene

BT alkenyl benzenes
 hydrocarbons
 polymers

poly(vinyl acetate)

BT esters
 polymers

poly(vinyl alcohol)

BT alcohols
 polymers

poly(vinyl chloride)

BT alkenyl halides
 chlorine compounds,
 organic
 polymers

poly(vinyl stearate)

BT esters
 polymers

positive charge scavengers

BT scavengers

positive charge trapping USE
hole traps

positive holes

positive holes USE holes

positive ions

NT deuterons
heavy ions
metal ions
protons
tritons
BT holes
ions
UF cations

positron decay

positronium

RT excitons

positrons

post-irradiation

potassium USE alkali metals

praseodymium USE rare-earth
metals

praseodymium compounds

BT rare-earth metal compounds

precursors USE intermediates

pre-irradiation

pressure

NT pressure, high
pressure < 1 mm
pressure < 1 atm
pressure 1 atm
pressure > 1 atm
pressure > 100 atm
RT pressure effects

pressure, high

NT pressure > 100 atm
BT pressure

pressure < 1 mm

BT pressure

pressure < 1 atm

BT pressure

pressure 1 atm

BT pressure

pressure > 1 atm

BT pressure

pressure > 100 atm

BT pressure
pressure, high

pressure effects

RT pressure

primary processes

RT secondary processes

primary yields USE G(initial)

probability

promethium USE rare-earth metals

proof of structure USE structure

propagation

BT chain reactions

propagation rate

BT rates

propane

BT alkanes

1-propanol

BT alcohols

UF n-propyl alcohol

2-propanol

BT alcohols

UF isopropyl alcohol

n-propyl alcohol USE propanol

propylene

BT alkenes

RT monomer

protection

RT sensitization

proteins

NT enzymes

gelatin

BT nitrogen compounds,
organic

RT amino acids

peptides

proteins (cont.)
UF macromolecule

proton affinity

protonation

protons
BT positive ions

proton transfer
UF hydrogen transfer

pseudo-first order reactions
RT chemical kinetics

pulse radiolysis

purines
BT heterocyclic N

pyrene
BT aromatics
polycyclic

pyridines
BT heterocyclic N

pyrimidines
NT thymine
BT heterocyclic N

pyrolysis
UF thermal decomposition

quadrupole tensor
BT coupling constants

quantum energy USE energy

quantum mechanics

quantum yields
NT quantum yields, initial
BT yields

quantum yields, initial
BT quantum yields

quartz USE silica

quaternary ammonium salts
BT salts, organic

quenching
RT traps

quinones
BT ketones
RT dyes

racemization

R

racemization

RT optical isomers

radiationless transition

NT internal conversion
intersystem crossing
RT luminescence

radiative transition USE
luminescence

radical combination
UF combination

radical conversion

radical ions

NT carbonate radical ions
carboxyl radical ion
BT ions
radicals

radical pairs
RT radicals

radical polymerization
BT polymerization

radical processes
BT mechanism

radicals

NT alkenyl radicals
alkoxy radicals
alkyl radicals
allyl radicals
aryloxy radicals
carbonate radicals
carboxyl radicals
cyclohexadienyl radicals
hydroxyalkyl radicals
hydroxyl radical
methylene
perhydroxyl radical
peroxy radicals
radical ions
radicals, nitrogen
radicals, sulfur
trapped radicals
RT radical pairs
UF free radicals

radicals, nitrogen
BT radicals

radicals, sulfur
BT radicals

radical scavengers
BT scavengers
RT radical traps

radical structure USE structure

radical traps
BT traps
RT trapped radicals
radical scavengers

radium-226

radius

NT track radius
RT distance

radon-222

random walk model
BT models, kinetic

range
RT stopping power

rare-earth metal compounds
NT cerium compounds
praseodymium compounds

rare-earth metals

NT europium
UF cerium
dysprosium
erbium
gadolinium
helium
lanthanide series
lanthanum
lutecium
neodymium
praseodymium
promethium
samarium
terbium
thulium
ytterbium

rare gases

NT argon
helium
krypton

rare gases (cont.)

NT neon
xenon

rate coefficient USE rates,
specific

rate constant USE rates, specific

rates

NT decay rate
initiation rate
migration rate
polymerization rate
propagation rate
rates, relative
rates, specific
termination rate
RT chemical kinetics

rates, relative

BT rates

rates, specific

BT rates

UF rate coefficient
rate constant

reactivity

reactor

BT equipment

rearrangements

recoil reactions

RT hot atom chemistry

reduction

RT oxidation

refractive index

relaxation time

resins USE plastics

resonance charge transfer

resonance energy

resonance energy transfer

BT energy transfer

review

RT bibliography

rhodium compounds

ring closure USE cyclization

ring opening

rotational energy

BT energy

rubber

NT rubber, natural
rubber, synthetic
RT elastomers
isoprene
plastics
polyisoprene

rubber, natural

BT rubber

rubber, synthetic

BT rubber

rubidium USE alkali metals

ruthenium compounds

safety

S

safety

salts, inorganic

NT alkali halides

azides

carbonates

chlorates

molybdates

nitrates

nitrites

perchlorates

phosphates

sulfates

thiocyanates

RT metal ions

UF electrolytes

salts, organic

NT oxalates

quaternary ammonium salts

RT acids, organic

UF electrolytes

samarium USE rare-earth metals

saponification USE hydrolysis

scattering coefficient

RT absorption coefficient

cross sections

scattering processes

scavengers

NT electron scavengers

positive charge scavengers

radical scavengers

BT additives

RT traps

scintillators

secondary emitters

secondary processes

RT primary processes

second order reaction

RT chemical kinetics

selenium compounds

self-consistent field (SCF)
method

BT calculation methods

self irradiations

semi-classical method USE impact
parameter method

semiconductors

sensitization

NT photosensitization

RT protection

separation methods USE analytical
methods

silanes

BT silicon compounds

silica

BT silicon compounds
oxides

silicon

silicon compounds

NT silanes

silica

silicones

silicones

BT silicon compounds

silver atoms

UF silver radicals

silver compounds

silver ions

BT metal ions

silver radicals USE silver atoms

single crystals

BT crystalline

singlet-singlet annihilation

RT luminescence

singlet states

BT excited states

sodium USE alkali metals

sodium-22

sodium-24

solid
 NT crystalline
 BT state
 RT glass

 solid state polymerization
 BT polymerization

 sols
 BT colloid

 solubility

 solutions
 NT aqueous solution
 colloid
 non-aqueous solution
 BT mixtures
 RT liquid

 solvated electrons
 NT hydrated electrons
 BT electrons
 RT solvation
 UF polaron

 solvation
 NT hydration
 RT solvated electrons

 solvent effects

 sonolysis

 space applications

 spectra
 NT absorption spectra
 emission spectra
 esr spectra
 mass spectra
 Moessbauer spectra
 nmr spectra
 RT analytical methods
 energy levels
 excited states
 instrumentation

 spin density
 RT esr spectra

 spurs
 RT tracks

squalane
 BT alkanes

 squalene
 BT polyenes
 terpenes

 stability

 standard electrode potential
 RT thermodynamic properties

 starch
 BT carbohydrates
 RT polymers

 state
 NT gas
 liquid
 solid
 RT state effects

 state effects
 RT state
 UF phase effects

 steady state
 RT chemical kinetics

 stereochemistry

 stereoisomers USE cis-trans
 isomers, conformational
 isomers or optical isomers

 steric effects
 RT structural correlations

 steric factor
 RT collision theory

 steroids
 RT polycyclic

 stilbene
 BT alkenyl benzenes

 stopping power
 NT mass stopping power
 RT LET
 range

 strontium-90

strontium compounds

strontium compounds

BT alkaline earth metal
compounds

structural correlations

RT steric effects

structure

UF molecular structure
proof of structure
radical structure

styrene

BT alkenyl benzenes
RT monomers
polystyrene

subexcitation electrons

BT electrons

sudden approximation

BT calculation methods

sugars USE carbohydrates

sulfate ion

BT negative ions

sulfates

BT salts, inorganic
sulfur compounds,
inorganic

sulfides, inorganic

NT hydrogen sulfide
BT sulfur compounds,
inorganic
RT disulfides

sulfides, organic

BT sulfur compound
organic
RT disulfides

sulfite ion

BT negative ions

sulfochlorination

sulfones

BT sulfur compounds, organic

sulfonic acids

BT acids, organic

sulfur

sulfur-35

sulfur compounds, inorganic

NT disulfides
sulfates
sulfides, inorganic
sulfur dioxide
thiocyanates

sulfur compounds, organic

NT cysteine
cystine
dimethyl sulfoxide
disulfides
heterocyclic S
mercaptans
sulfides, organic
sulfones
thiophenol

sulfur dioxide

BT sulfur compounds,
inorganic

sulfur hexafluoride

BT fluoride compounds,
inorganic
sulfur compounds
inorganic

sunlight

RT wavelength > 300 nm
UF light

superexcited states

surface active agents

NT detergents

surface effects

RT adsorption

suspension polymerization

BT polymerization

synchrotron

BT accelerators
RT cyclotron

synthesis

T

technique USE methods

teflon USE fluoropolymers

tellurium compounds

telomerization

BT polymerization

temperature

NT temperature, high
 temperature, low
 temperature 0-76°K
 temperature 77°K
 temperature 78-273°K
 temperature 274-300°K
 temperature 301-573°K
 temperature > 573°K
 transition temperature
 RT temperature effects

temperature, high

NT temperature > 573°K
 BT temperature

temperature, low

NT temperature 77°K
 temperature 0-76°K
 temperature 78-273°K
 BT temperature

temperature 0-76°K

BT temperature
 temperature, low

temperature 77°K

BT temperature
 temperature, low

temperature 78-273°K

BT temperature
 temperature, low

temperature 274-300°K

BT temperature

temperature 301-573°K

BT temperature

temperature > 573°K

BT temperature
 temperature, high

temperature effects

NT thermal spike

RT temperature

tensile strength

BT mechanical properties

terbium USE rare-earth metals

termination

BT chain reactions

termination rate

BT rates

termolecular

RT chemical kinetics

terpenes

NT squalene

RT alkenes

terphenyl

BT aromatics

hydrocarbons

RT biphenyl

UF triphenyl

tetrahydrofuran

BT ethers

heterocyclic O

RT methyltetrahydrofuran

textile fibers USE fibers

thallium compounds

RT thallium ions

thallium ions

BT metal ions

RT thallium compounds

theoretical

thermal conductivity

BT conductivity

thermal decomposition USE

pyrolysis

thermal electrons

BT electrons

thermal initiation

thermal initiation
BT initiation.

thermal spike
BT temperature effects

thermodynamic properties
NT enthalpy
entropy
equilibrium constant
RT standard electrode
potential

thermoluminescence
BT luminescence

thin films USE films

thiocyanates
BT nitrogen compounds,
inorganic
salts, inorganic
sulfur compounds,
inorganic

thiols USE mercaptans

thiophenol
BT aromatics
sulfur compounds,
organic

third order reaction
RT chemical kinetics

thulium USE rare-earth metals

thulium-170
BT rare-earth metals

thymine
BT pyrimidines

time
RT decay time
half-life
lifetime
nanosecond time range
picosecond time range

tin-113

tin compounds

tin ions
BT metal ions

titanium compounds

titanium ions
BT metal ions

toluene
BT alkylbenzenes

tracers
NT carbon-14, tracer
deuterium, tracer
oxygen-18, tracer
tritium, tracer
BT analytical methods
UF labeling

track effects USE LET effects

track lengths
BT tracks

track radius
BT tracks

tracks
NT track lengths
track radius
RT spurs

trajectory method USE impact-
parameter method

transients
BT intermediates
RT excited states
ions
radicals

transition temperature

transuranium elements
NT plutonium-239
UF actinide series
americium
berkelium
californium
curium
einsteinium
fermium
mendelevium

transuranium elements (cont.)

- UF neptunium
- nobelium
- plutonium

trapped electrons

- NT color centers
- F-centers
- BT electrons
- RT electron traps

trapped H

- BT trapped radicals

trapped holes

- RT hole traps

trapped radicals

- NT trapped H
- BT radicals
- RT radical traps

traps

- NT electron traps
- hole traps
- radical traps
- RT inhibitors
- quenching

triglycerides USE lipids

trioxane

- BT ethers
- heterocyclic O
- RT formaldehyde

triphenyl USE terphenyl

triplet states

- BT excited states

triplet-triplet annihilation

- RT luminescence

tritiated water USE tritium oxide

tritium

- UF hydrogen-3

tritium, tracer

- BT tracers

tritium compounds

tritium oxide

- BT water
- UF heavy water
- tritiated water

tritons

- BT positive ions

tungsten compounds

ultraviolet light

U

ultraviolet light

NT vacuum ultraviolet
RT wavelength 200-300 nm
wavelength > 300 nm

ultraviolet-visible spectra USE
absorption spectra

unimolecular

RT chemical kinetics

unsaturated compounds

NT alkenes
alkynes
cycloalkenes
vinyl compounds

uranium compounds

uranium ions

BT metal ions

V

vacuum ultraviolet

BT ultraviolet light
RT wavelength < 100 nm
wavelength 100-200 nm

valence bond method

BT calculation methods
UF Heitler-London-Slater-
Pauling method
(HLSP method)

vanadium compounds

Van de Graaff accelerator

BT accelerators

vibrational energy

BT energy

vibrational frequency

UF oscillation frequency

vinyl acetate

BT esters
vinyl compounds
RT monomers

vinyl chloride

BT alkenyl halides
vinyl compounds
RT monomers

vinyl compounds

NT vinyl acetate
vinyl chloride
vinyl stearate
BT unsaturated compounds

vinyl radical ($\text{CH}_2=\text{CH}$)

BT alkenyl radicals
RT allyl radicals

vinyl stearate

BT esters
vinyl compounds
RT monomers

viscosity

vitamins

vulcanizes

vulcanization

W

X

W

RT G(ions)

xenon

BT rare gases

wall effect

X-rays

BT bremsstrahlung

water

NT deuterium oxide

tritium oxide

RT aqueous solution

water pollution

BT environmental applications

wavelength

NT wavelength < 100 nm

wavelength 100-200 nm

wavelength 200-300 nm

wavelength > 300 nm

RT energy

wavelength < 100 nm

BT wavelength

RT vacuum ultraviolet

wavelength 100-200 nm

BT wavelength

RT vacuum ultraviolet

wavelength 200-300 nm

BT wavelength

RT ultraviolet light

wavelength > 300 nm

BT wavelength

RT sunlight

ultraviolet light

wavelength effects

wood

RT wood-polymer combinations

wood-polymer combinations

RT polymers

wood

yields

Y

Z

yields

NT G

luminescence yields

M/N

quantum yields

yields, relative

RT conversion

yields, relative

BT yields

UF distribution of products

ytterbium USE rare-earth metals

yttrium compounds

yttrium-90

zeolites

zero field splitting

RT esr spectra

zero order reaction

RT chemical kinetics

zinc compounds

zinc ions

BT metal ions

zirconium compounds

FORMULA LIST

**THIS PAGE
WAS INTENTIONALLY
LEFT BLANK**

Ag⁰
USE silver atoms

Al₂O₃
USE alumina

Ar
USE argon

As
USE arsenic

Br
USE bromine atoms

Br⁻
USE bromide ion

Br₂
USE bromine

Br₂⁻

C
USE carbon

CCl₄
USE carbon tetrachloride

CHCl₃
USE chloroform

CHN
USE hydrogen cyanide

CHO₂
USE carboxyl radical (COOH)

CHO₂⁻
USE formate ion

CHO₂⁼

CHO₃
USE carbonate radical (HCO₃)

CH₂O
USE formaldehyde

CH₂O₂
USE formic acid

CH₄
USE methane

CH₄O
USE methanol

CH₅N
USE methylamine

CO
USE carbon monoxide

CO₂
USE carbon dioxide

CO₂⁻
USE carboxyl radical ion

CO₃ (carbonyl dioxy radical)

CO₃⁻
USE carbonate radical ion

CO₃⁼

CS₂
USE carbon disulfide

C₂H₂
USE acetylene

C₂H₂O₄
USE oxalic acid

C₂H₃
USE vinyl radical

C₂H₃Cl
USE vinyl chloride

C₂H₃N
USE acetonitrile

USE ethylene

USE acetaldehyde

USE acetic acid

USE ethane

USE ethanol

USE ethylenediamine

USE oxalate ion

USE ethyl mercaptan

USE acrylonitrile

USE acrylic acid

USE acrylamide

USE cyclopropane
propylene

USE acetone
allyl alcohol

USE trioxane

USE cysteine

USE propane

USE 1-propanol
2-propanol

USE butadiene

USE methacrylic acid
methyl acrylate
vinyl acetate

USE cyclobutane
isobutylene

USE tetrahydrofuran

USE dioxane

USE butanes

USE butanols
ethyl ether

USE thymine

USE cyclopentene
isoprene

USE methyl methacrylate

USE cyclopentane

USE methyltetrahydrofuran

C₅H₁₂
USE neopentane

C₅H₁₂O
USE pentanols

C₆H₅NO₂
USE nitrobenzene

C₆H₆
USE benzene

C₆H₆O
USE phenol

C₆H₆S
USE thiophenol

C₆H₇N
USE aniline

C₆H₁₀
USE cyclohexene

C₆H₁₂
USE cyclohexane

C₆H₁₂N₂O₄S₂
USE cystine

C₆H₁₂O₆
USE glucose

C₆H₁₄
USE hexanes

C₆H₁₄O
USE hexanols

C₇H₅N
USE benzonitrile

C₇H₅O₂⁻
USE benzoate ion

C₇H₆O₂
USE benzoic acid

C₇H₈
USE toluene

C₇H₈O
USE benzyl alcohol

C₈H₈
USE styrene

C₁₀H₈
USE naphthalene

C₁₂H₁₀
USE biphenyl

C₁₄H₁₀
USE anthracene

C₁₄H₁₂
USE stilbene

C₁₆H₁₀
USE pyrene

C₁₈H₁₃N₅O₆
USE diphenylpicrylhydrazyl

C₁₈H₁₄
USE terphenyl

C₂₀H₃₈O₂
USE vinyl stearate

C₃₀H₅₀
USE squalene

C₃₀H₆₂
USE squalane

Cl⁻
USE chloride ion

Cl₂
USE chlorine

Cl₂⁻

Cl_3Fe

Cl_3Fe

USE ferric chloride

D^+

USE deuterons

D_2

USE deuterium

D_2O

USE deuterium oxide

F^-

USE fluoride ion

F_2

USE fluorine

F_2^-

F_6S

USE sulfur hexafluoride

Ge

USE germanium

H

USE hydrogen atoms

H^+

USE protons

H^-

USE hydride ion

HO

USE hydroxyl radical

HO_2

USE perhydroxyl radical

HO_2^- (hydroperoxide ion)

H_2

USE hydrogen

H_2^+ (hydrogen molecule ion)

H_2O

USE water

H_2O_2

USE hydrogen peroxide

H_2O_3 (hydrogen sesquioxide)

H_2S

USE hydrogen sulfide

H_3N

USE ammonia

H_3O

He

USE helium

He^+

Hg

USE mercury

I

USE iodine atoms

I^-

USE iodide ion

I_2

USE iodine

I_2^-

Kr

USE krypton

N

USE nitrogen atom

NO

USE nitric oxide

NO_2 (nitrogen dioxide)

NO_2^-

USE nitrite ion

NO_3 (nitrate radical)

NO_3^-

USE nitrate ion

$\text{NO}_3^{=}$

N_2

USE nitrogen

N_2O

USE nitrous oxide

Ne

USE neon

O

USE oxygen atom

O^+

O^- (oxygen atom anion)

O_2

USE oxygen

O_2^- (oxygen molecule anion)

$\text{O}_2^{=}$ (peroxide ion)

O_2S

USE sulfur dioxide

O_2S^-

O_2Si

USE silica

O_3

USE ozone

O_3^- (ozonide ion)

$\text{O}_3\text{S}^{=}$

USE sulfite ion

O_4P_3^-

USE phosphate ion

$\text{O}_4\text{S}^{=}$

USE sulfate ion

P

USE phosphorus

S

USE sulfur

Sb

USE antimony

Si

USE silicon

T^+

USE tritons

Xe

USE xenon