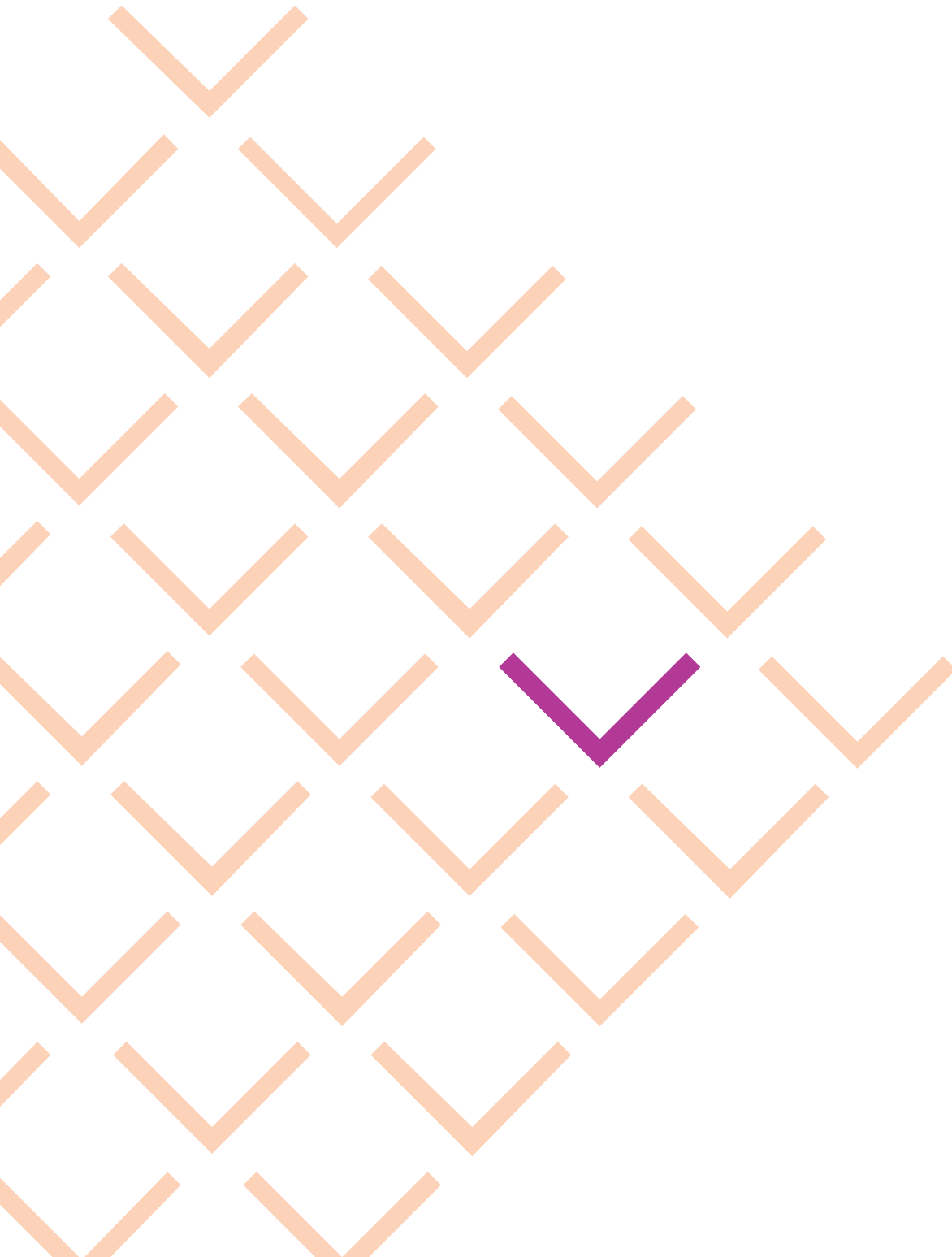


# CAS Standard Abbreviations



# **Standard Abbreviations, Acronyms, Special Characters and Symbols in CAS Computer-Readable Files and Publications**

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# CAS Standard Abbreviations and Acronyms

## Introduction

In both printed CA Issues and Indexes and computer-readable services, certain abbreviations and acronyms are automatically generated for terms in the abstract text, the keyword phrases, and the text modifying phrases for index entries. Most of these abbreviations have been used prior to 1982. Users of computer-readable services need to know these standard abbreviations and acronyms in order to be able to use them in search profiles and identify them in text.

In this document, automatically generated abbreviations and acronyms in CAS publications and services are arranged in three lists. To guide users to abbreviations they need to include in their search profiles, Listing A is arranged in the alphabetical order of the full terms which are abbreviated. Do not use periods when searching CAS abbreviations or acronyms online. To provide explanation of abbreviations encountered in text, Listing B is arranged in the alphabetical order of abbreviations and acronyms.

In addition to the terms specifically listed as standard abbreviations and acronyms, abbreviations are automatically generated for the following types of words:

- 1) Words formed by adding prefixes to terms normally abbreviated may also be abbreviated, e.g., "microchem." for "microchemical." In Listing A words indicated by # on the left are those which, if prefixed, are generally abbreviated. Abbreviations for some common prefixed terms are listed separately.
- 2) Words ending in "-ology" or "-ologic(al)(ly)" are abbreviated "-ol.," e.g., "geol." for "geology." Some examples of such words are listed separately on the following page.
- 3) Words ending in "-ography" or "-ographic(al)(ly)" are abbreviated "-og.," e.g., "chromatog." for "chromatographic." Some examples of such words are listed separately on the following page.
- 4) Plurals of noun abbreviations are formed by adding "s" to the singular abbreviation, e.g., "derivs." for "derivatives." Two exceptions are cases when a single abbreviation is designated to show both the singular and plural forms (e.g., "equil." for "equilibrium(s)" and words marked on the list with an asterisk(\*) whose plurals are not abbreviated.
- 5) Verb forms that require "s" are abbreviated by adding "s" to the listed abbreviation, e.g., "Compd. decomp. on heating" for "Compound decomposes on heating."

Standard abbreviations and acronyms are not automatically generated for terms appearing in titles. However, in titles abbreviations used by the author may appear.

In addition to the standard, automatically generated abbreviations and acronyms, other acronyms, atomic symbols (e.g., Cl, Sb), and molecular formulas (e.g. NaCl) may also be used in CAS publications and services. Many acronyms are defined in the *CA Index Guide*.

**Examples of some terms ending in “-ology” that are abbreviated “-ol.”:**

anesthesiology	limnology
bacteriology	meteorology
biology	methodology
cardiology	morphology
chronology	nephrology
cytology	neurology
dermatology	oncology
ecology	ophthalmology
endocrinology	pathology
enzymology	petrology
epidemiology	pharmacology
etiology	physiology
gastroenterology	radiology
geology	rheology
gynecology	sedimentology
hematology	serology
histology	technology
homology	teratology
hydrology	topology
immunology	virology

Abbreviation “-ol.” is also applied to the adjective form, e.g., “pharmacologic(al),” the adverb form, e.g., “pharmacologically” and prefixed forms, e.g., “neuropharmacology” of terms ending in “-ology.”

**Examples of some terms ending in “-ography” that are abbreviated “-og.”:**

angiography	metallography
bibliography	micrography
biography	oceanography
cardiography	petrography
cholecystography	photography
chromatography	planography
crystallography	polarography
derivatography	radiography
electroencephalography	reprography
electrography	spectrography
fractography	thermography
fragmentography	tomography
geography	topography
holography	xerography
lithography	

Abbreviation “og.” is also applied to the adjective form, e.g., “geographic(al),” the adverb form, e.g., “geographically,” and prefixed forms, e.g., “paleogeography” of terms ending in “-ography.”

## Abbreviations for some common prefixed terms \*

anal. (analysis)	decompn. (decomposition)
electroanal.	photodecompn.
immunoanal.	
microanal.	degrdn. (degradation)
radioanal.	biodegrdn.
thermoanal.	photodegrdn.
	thermodegrdn.
at. [atomic(al)(ly)]	
diat.	detn. (determination)
interat.	immunodetn.
monoat.	microdetn.
polyat.	
tetraat.	dissocn. (dissociation)
triat.	photodissocn.
	predissocn.
chem. [chemical(ly), chemistry]	
agrochem.	elec. [electric(al)(ly)]
biochem.	acoustoelec.
cytochem.	bioelec.
electrochem.	dielec.
geochem.	ferroelec.
histochem.	isoelec.
immunochem.	paraelec.
neurochem.	photodielec.
petrochem.	photoelec.
photochem.	piezoelec.
physicochem.	pyroelec.
radiochem.	thermoelec.
spectrochem.	
thermochem.	equil. (equilibrium)
	disequil.
clin. [clinic(al)(ly)]	nonequil.
preclin.	preequil.
subclin.	
cond. (conductivity)	extrn. (extraction)
electrocond.	coextrn.
magnetocond.	electroextrn.
photocond.	reextrn.
semicond.	
supercond.	Hb (hemoglobin)
thermocond.	cargonylHb
	carboxyHb
crystn. (crystallization)	deoxyHb
cocrystn.	ferriHb
electrocrystn.	methHb
recrystn.	oxyHb
	sulfHb

irradn. (irradiation)

postirradn.

preirradn.

mech. [mechanic(al)(ly)]

biomech.

electromech.

micromech.

photomech.

physicomech.

thermomech.

mol. (molecule, molecular)

bimol.

intermol.

intramol.

macromol.

monomol.

supermol.

supramol.

turbomol.

unimol.

org. [organic(ally)]

bioinorg.

bioorg.

chloroorg.

electroorg.

fluoroorg.

inorg.

metalloorg.

microorg.

oxidn. (oxidation)

autoxidn.

biooxidn.

cooxidn.

deoxidn.

electrooxidn.

epoxidn.

peroxidn.

photooxidn.

reoxidn.

thermooxidn.

pptn. (precipitation)

copptn.

immunopptn.

soly. (solubility)

hydrosoly.

insoly.

liposoly.

sym. [symmetry, symmetric(al)(ly)]

asym.

unsym.

\* See "Standard Abbreviations and Acronyms," Listing A for a complete list of terms which, if prefixed, are generally abbreviated.

## Automatic retrieval of CAS abbreviations on STN

In CAS bibliographic files on STN, e.g., CAPLUS or CA, you can retrieve CAS abbreviations automatically. Simply enter the commands SET ABB ON and SET PLURAL ON at an arrow prompt.

When you SET ABB ON, abbreviations are generated for all terms searched in the Basic Index, or in the specific fields that comprise the Basic Index. A separate posting line appears if any occurrences of an abbreviation are found. When you SET PLURAL ON, you also automatically retrieve plural abbreviations.

The default for SET ABB is OFF. To include abbreviations for all SEARCH and QUERY commands in your session, enter SET ABB ON at an arrow prompt. To retain the ON setting beyond the current session, enter SET ABB ON PERM.

Not all CAS standard abbreviations are available with SET ABB. CAS abbreviations for most units and multiword terms have been removed to keep false drops and irrelevant retrievals to a minimum. To see a list of terms for which abbreviations will be added, enter HELP ABB at an arrow prompt (=>) in the file. For more information on this SET command, enter HELP SET ABB at an arrow prompt.

## SET ABB ON to retrieve CAS abbreviations

```
=> SET ABB ON PERM
```

```
SET COMMAND COMPLETED
```

*Enter SET ABB ON PERM to search abbreviations automatically.*

```
=> SET PLURAL ON PERM
```

```
SET COMMAND COMPLETED
```

*Enter SET PLURAL ON to search plurals automatically.*

```
=> S PRECIPITAT?
```

```
35280 PRECIPITAT?
```

```
75559 PPT
```

```
30694 PPTS
```

```
98131 PPT
```

```
(PPT OR PPTS)
```

```
59648 PPTD
```

```
2 PPTDS
```

```
59648 PPTD
```

```
(PPTD OR PPTDS)
```

```
13101 PPTG
```

```
131576 PPTN
```

```
1980 PPTNS
```

```
132847 PPTN
```

```
(PPTN OR PPTNS)
```

*Truncated terms retrieve abbreviations with SET ABB ON.*

*Plural forms of abbreviations are included with SET PLURAL ON.*

```
L1 258048 PRECIPITAT?
```

```
(PRECIPITAT? OR PPT OR PPTD OR PPTG OR PPTN)
```



## Online help message

=> **FILE CAPLUS**

=> **HELP ABB**

When you SET ABBREVIATIONS ON, abbreviations are automatically generated for the terms in the following list when the term or a truncated stem that would encompass a listed term is searched in the Basic Index, or in the specific fields that comprise the Basic Index.

Examples:

=> **SET ABB ON**

SET COMMAND COMPLETED

=> **S CONCENTRAT?**

149313 CONCENTRAT?

50824 CONC

115142 CONCD

9541 CONCG

1035004 CONCN

L2 1221846 CONCENTRAT?

(CONCENTRAT? OR CONC OR CONCD OR CONCG OR CONCN)

For more information on this SET option, enter HELP SET ABB at an arrow prompt (=). For a list of fields in the Basic Index, enter HELP SFIELDS at an arrow prompt in this file.

ABSOLUTE	DILUTED	PRECIPITATE
ABSTRACT	DILUTING	PRECIPITATED
ADDITION	DILUTION	PRECIPITATING
ADDITIONAL	DIMETHYLFORMAMIDE	PRECIPITATION
ADDITIONALLY	DISSOCIATE	PREPARATION
ADRENOCORTICOTROPIN	DISSOCIATED	PREPARE
ALCOHOL	DISSOCIATING	PREPARED
ALCOHOLIC	DISSOCIATION	PREPARING
ALIPHATIC	DISTILLATION	PRODUCTION
ALKALINE	DISTILLED	PROPYL
ALKALINITY	DISTILLING	PURIFICATION
.	.	.
.	.	.
.	.	.
DECOMPOSING	ORGANIC	FLAVIN ADENINE DINUCLEOTIDE
DECOMPOSITION	OXIDATION	FLAVIN MONONUCLEOTIDE
DEGRADATION	PHENYL	INHIBITORY DOSE
DEOXYRIBONUCLEASE	PHYSICAL	LETHAL DOSE
DERIVATIVE	PHYSICALLY	LUTEINIZING HORMONE
DETERMINATION	POLYMERIZATION	NICOTINAMIDE MONONUCLEOTIDE
DETERMINE	POLYMERIZED	NUCLEAR MAGNETIC RESONANCE
DETERMINED	POLYMERIZING	NUCLEAR QUADRUPOLE RESONANCE
DETERMINING	POSITIVE	RIBONUCLEIC ACID
DIAMETER	POSITIVELY	SCANNING ELECTRON MICROSCOPY
DILUTE	POWDERED	UV PHOTOELECTRON

# Listing A

absolute	abs.	bushel (unit)	bu
abstract	abstr.	butyl (normal)	Bu
#addition	addn.	#calculate	calc.
additional(ly)	addnl.	#calculated	calcd.
adenosine 5'-diphosphate	ADP	#calculating	calcg.
adenosine 5'-monophosphate	AMP	#calculation	calcn.
adenosine triphosphatase	ATPase	calorie (unit)	cal
adenosine 5'-triphosphate	ATP	carboxymethyl cellulose	CM- cellulose
adrenocorticotropin	ACTH	#chemical(ly)	chem.
#alcohol(ic)	alc.	chemical oxygen demand	COD
#aliphatic	aliph.	chemically pure	CP
alkaline	alk.	#chemistry	chem.
alkalinity*	alky.	circular dichroism	CD
all valence electron	AVE	#clinical(ly)	clin.
alternating current	a.c.	coefficient	coeff.
amount	amt.	#coenzyme A	CoA
ampere (unit)	A	coherent potential approximation	CPA
#analysis*	anal.	commercial(ly)	com.
#analytical(ly)	anal.	complete neglect of	
angstrom unit	Å**	differential overlap	CNDO
anhydrous	anhyd.	composition	compn.
apparatus	app.	compound	compd.
approximate(ly)	approx.	concanavalin A	ConA
approximation	approxn.	#concentrate	conc.
#aqueous	aq.	#concentrated	concd.
#aromatic	arom.	#concentrating	concg.
associate	assoc.	#concentration	concn.
associated	assocd.	#conductivity*	cond.
associating	assocg.	configuration interaction	CI
#association	assocn.	constant	const.
asymmetric(al)(ly)	asym.	containing	contg.
atmosphere (unit)	atm.	corrected	cor.
atmospheric	atm.	coulomb (unit)	C
#atomic	at.	coupled electron pair approximation	CEPA
atomic mass unit	amu	#critical	crit.
atomic orbital	AO	#crystalline	cryst.
augmented plane wave	APW	#crystallization	crystn.
average	av.	#crystallized	crystd.
Bardeen-Cooper-Schrieffer	BCS	#crystallizing	crystg.
barrel (unit)	bbl	cubic feet per minute (unit)	cfm
becquerel (unit)	Bq	curie (unit)	Ci
billion electron volts (unit)	GeV	current density	c.d.
biochemical oxygen demand	BOD	cyclic AMP	cAMP
body centered cubic	bcc.	cyclic GMP	cGMP
Bohr magneton (unit)	μB**	cytidine 5'-diphosphate	CDP
boiling point	b.p.	cytidine 5'-monophosphate	CMP
British thermal unit	Btu	cytidine 5'-triphosphate	CTP

debye unit	D	especially	esp.
decompose	decomp.	estimate	est.
decomposed	decompd.	estimated	estd.
decomposing	decompg.	estimating	estg.
#decomposition	decompn.	estimation	estn.
#degradation	degrdn.	ethyl	Et
degree Celsius centigrade (unit)	°C**	ethylenediaminetetraacetic acid	EDTA
degree Fahrenheit (unit)	°F**	evaporate	evap.
degree Kelvin	°K	evaporated	evapd.
degree of polymerization	d.p.	evaporating	evapg.
density	d.	evaporation	evapn.
deoxyribonuclease	DNase	#examination	examn.
deoxyribonucleic acid	DNA	#examined	examd.
derivative	deriv.	#examining	examg.
#determination	detn.	experiment	expt.
determine	det.	experimental(ly)	exptl.
#determined	detd.	extended Hueckel molecular orbital	EHMO
determining	detg.	extract	ext.
diameter	diam.	extracted	extd.
diatomics-in-molecules	DIM	extracting	extg.
diethylaminoethyl cellulose	DEAE-cellulose	#extraction	extn.
differential thermal analysis	DTA	face centered cubic	fcc.
dilute	dil.	farad (unit)	F
diluted	dild.	fermentation	fermn.
diluting	dilg.	flavin adenine dinucleotide	FAD
dilution	diln.	flavin mononucleotide	FMN
dimethylformamide	DMF	floating spherical Gaussian orbital	FSGO
diphosphopyridine nucleotide	NAD	foot (unit)	ft
direct current	d.c.	foot-pound (unit)	ft-lb
disintegrations per minute (unit)	dpm	follicle-stimulating hormone	FSH
dissociate	dissoc.	freezing point	f.p.
dissociated	dissocd.	gallon (unit)	gal
dissociating	dissocg.	gauss (unit)	G
#dissociation	dissocn.	Gaussian-type orbital	GTO
#distillation	distn.	gram (unit)	g
#distilled	distd.	gravitational constant	g
#distilling	distg.	gray (absorbed radiation dose) (unit)	Gy
effective dose	ED	guanosine 5'-diphosphate	GDP
#electric(al)(ly)	elec.	guanosine 5'-monophosphate	GMP
electrocardiogram	ECG	guanosine 5'-triphosphate	GTP
electroencephalogram	EEG	hectare	ha
electromagnetic unit	emu	henry	H
electromotive force	emf.	#hemoglobin	Hb
electron paramagnetic resonance	ESR	hertz (cycles/sec) (unit)	Hz
electron spin resonance	ESR	hexagonal close-packed	hcp.
electron volt (unit)	eV	highest occupied molecular orbital	HOMO
electrostatic unit	esu	hour (unit)	h
enzyme-linked immunosorbent assay	ELISA	Hueckel molecular orbital	HMO
#equilibrium(s)	equil.	hundredweight (unit)	cwt
equivalent (unit)	equiv.	hydrogenic atoms in molecules	HAM
#equivalent	equiv.	immunoglobulin	Ig

inch (unit)	in.	#mixture	mixt.
independent electron pair approximation	IEPA	modified neglect of diatomic overlap	MNDO
infrared	IR	molal (unit)	m
inhibitory dose	ID	molar (unit)	M
inosine 5'-diphosphate	IDP	mole (unit)	mol
inosine 5'-monophosphate	IMP	#molecular	mol.
inosine 5'-triphosphate	ITP	molecular orbital	MO
intermediate neglect of differential overlap	INDO	#molecule	mol.
international unit	IU	molecules-in-molecules	MIM
interstitial cell-stimulating hormone	ICSH	month (unit)	mo.
intramuscular(ly)	i.m.	multiconfigurational self-consistent field	MC-SCF
intrapertitoneal(ly)	i.p.	#negative(ly)	neg.
intravenous(ly)	i.v.	neglect of diatomic differential overlap	NDDO
#irradiation	irradn.	neglect of nonbonded differential overlap	NNDO
iterative extended Hueckel molecular orbital	IEHMO	nicotinamide adenine dinucleotide	NAD
joule (unit)	J	nicotinamide adenine dinucleotide phosphate	NADP
kelvin (unit)	K	nicotinamide mononucleotide	NMN
laboratory	lab.	nuclear magnetic resonance	NMR
lethal dose	LD	nuclear quadrupole resonance	NQR
linear combination of atomic orbitals	LCAO	number	no.
linear combination of fragment configuration	LCFC	observed	obsd.
liquid	liq.	oersted (unit)	Oe
liter (unit)	L	ohm (unit)	$\Omega^{**}$
low energy electron diffraction	LEED	optical rotatory dispersion	ORD
lowest unoccupied molecular orbital	LUMO	#organic	org.
lumen (unit)	lm	ounce (unit)	oz
luteinizing hormone	LH	#oxidation	oxidn.
lux (unit)	lx	Pariser-Parr-Pople	PPP
magnetohydrodynamics	MHD	partial neglect of differential overlap	PNDO
manufacture	manuf.	parts per billion (unit)	ppb
manufactured	manufd.	parts per million (unit)	ppm
manufacturing	manufg.	pascal (unit)	Pa
mathematical(ly)	math.	perturbational molecular orbital	PMO
maximum(s)	max.	phenyl	Ph
maxwell (unit)	Mx	#physical(ly)	phys.
#mechanical(ly)	mech.	pint (unit)	pt
melanocyte-stimulating hormone	MSH	poise (unit)	P
melting at	m.	#polymerization	polymn.
melting point	m.p.	#polymerized	polymd.
melts at	m.	#polymerizing	polymg.
messenger RNA	mRNA	#positive(ly)	pos.
metabolism	metab.	potential difference	p.d.
meter (unit)	m	pound (unit)	lb
methyl	Me	pounds per square inch (unit)	psi
mile (unit)	mi	pounds per square inch absolute (unit)	psia
miles per hour (unit)	mph	pounds per square inch gage (unit)	psig
minimum(s)	min.	#powdered	powd.
minute (unit)	min	#precipitate	ppt.
miscellaneous	misc.		

#precipitated	pptd.	separating	sepg.
#precipitating	pptg.	separation	sepn.
#precipitation	pptn.	siemens (unit)	S
preparation	prepn.	Slater-type orbital	STO
prepare	prep.	#solubility*	soly.
prepared	prepd.	#soluble	sol.
preparing	prepg.	#solution	soln.
#production	prodn.	specific gravity	sp. gr.
propyl (normal)	Pr	specific volume	sp. vol.
#purification	purifn.	specific weight	sp. wt.
qualitative(ly)	qual.	standard	std.
#quantitative(ly)	quant.	steradian (unit)	sr
quart (unit)	qt	stokes (unit)	St
radioimmunoassay	RIA	subcutaneous(ly)	s.c.
random phase approximation	RPA	#symmetric(al)(ly)	sym.
#reduction	redn.	tablespoon (unit)	tbs
reference	ref.	teaspoon (unit)	tsp
reflection high energy electron diffraction	RHEED	#technical(ly)	tech.
reproduction	reprodn.	temperature	temp.
resolution	resoln.	tesla (unit)	T
#respective(ly)	resp.	tetrahydrofuran	THF
respiratory quotient	RQ	theoretical(ly)	theor.
restricted Hartree-Fock	RHF	thermodynamic(s)	thermodn.
revolutions per minute (unit)	rpm	thyroid-stimulating hormone	TSH
ribonuclease	RNase	titration	titrn.
ribonucleic acid	RNA	triethylaminoethyl cellulose	TEAE-cellulose
ribosomal RNA	rRNA	triphosphopyridine nucleotide	NADP
roentgen (unit)	R	ultraviolet	UV
roentgen equivalent man (unit)	rem	United States Pharmacopeia	USP
roentgen equivalent physical (unit)	rep	unrestricted Hartree-Fock	UHF
saponification	sapon.	uridine 5'-diphosphate	UDP
saponified	saponf.	uridine 5'-monophosphate	UMP
saponifying	sapong.	uridine 5'-triphosphate	UTS
saturate	sat.	UV photoelectron spectroscopy	UPS
#saturated	satd.	volt (unit)	V
saturated calomel electrode	SCE	volume	vol.
saturating	satg.	watt (unit)	W
#saturation	satn.	weber (unit)	Wb
scanning electron microscopy	SEM	week (unit)	wk
second (unit)	s	weight	wt.
self-consistent field	SCF	x-ray photoelectron spectroscopy	XPS
separate(ly)	sep.	yard (unit)	yd
separated	sepd.	year (unit)	yr
		zero differential overlap	ZDO

\* Terms whose plurals are not automatically abbreviated by adding "s."

# If prefixed, these words are generally abbreviated. For examples, see the list of "Abbreviations for some common prefixed terms" which precedes Listing A.

\*\* For representation in computer-readable files see "Listing of Characters and Symbols in Computer-Readable Files."

## Listing B

A	ampere (unit)	cal	calorie (unit)
Å	angstrom (unit)	calc.	calculate
abs.	absolute	calcd.	calculated
abstr.	abstract	calcg.	calculating
a.c.	alternating current	calcn.	calculation
ACTH	adrenocorticotropin	cAMP	cyclic AMP
addn.	addition	c.d.	current density
addnl.	additional(ly)	CD	circular dichroism
ADP	adenosine 5'-diphosphate	CDP	cytidine 5'-diphosphate
alc.	alcohol(ic)	CEPA	coupled electron pair approximation
aliph.	aliphatic	cfm	cubic feet per minute (unit)
alk.	alkaline	cGMP	cyclic GMP
alky.	alkalinity	chem.	chemical(ly), chemistry
AMP	adenosine 5'-monophosphate	CI	configuration interaction
amt.	amount	Ci	curie (unit)
amu	atomic mass unit	clin.	clinical(ly)
anal.	analysis, analytical(ly)	CM-cellulose	carboxymethyl cellulose
anhyd.	anhydrous	CMP	cytidine 5'-monophosphate
AO	atomic orbital	CNDO	complete neglect of differential overlap
app.	apparatus	CoA	coenzyme A
approx.	approximate(ly)	COD	chemical oxygen demand
approxn.	approximation	coeff.	coefficient
APW	augmented plane wave	com.	commercial(ly)
aq.	aqueous	compd.	compound
arom.	aromatic	compr.	composition
assoc.	associate	ConA	concanavalin A
assocd.	associated	conc.	concentrate
assocg.	associating	concd.	concentrated
assocn.	association	concg.	concentrating
asym.	asymmetric(al)(ly)	concn.	concentration
at.	atomic	cond.	conductivity
atm	atmosphere (unit)	const.	constant
atm.	atmospheric	contg.	containing
ATP	adenosine 5'-triphosphate	cor.	corrected
ATPase	adenosine triphosphatase	CP	chemically pure
av.	average	CPA	coherent potential approximation
AVE	all valence electron	crit.	critical
bbl	barrel (unit)	cryst.	crystalline
bcc.	body centered cubic	crystd.	crystallized
BCS	Bardeen-Cooper-Schrieffer	crystg.	crystallizing
BOD	biochemical oxygen demand	crystn.	crystallization
b.p.	boiling point	CTP	cytidine 5'-triphosphate
Bq	becquerel (unit)	cwt	hundred weight (unit)
Btu	British thermal unit	D	debye unit
Bu	butyl (normal)	d.	density
bu	bushel (unit)	d.c.	direct current
μB	Bohr magneton (unit)	DEAE-cellulose	diethylaminoethyl cellulose
C	coulomb (unit)		
°C	degree Celsius (centigrade) (unit)		

decomp.	decompose	estg.	estimating
decompd.	decomposed	estn.	estimation
decompg.	decomposing	esu	electrostatic unit
decompn.	decomposition	Et	ethyl
degrdn.	degradation	eV	electron volt (unit)
deriv.	derivative	evap.	evaporate
det.	determine	evapd.	evaporated
detd.	determined	evapg.	evaporating
detg.	determining	evapn.	evaporation
detn.	determination	examd.	examined
diam.	diameter	examg.	examining
dil.	dilute	examn.	examination
dild.	diluted	expt.	experiment
dilg.	diluting	exptl.	experimental(ly)
diln.	dilution	ext.	extract
DIM	diatomics-in-molecules	extd.	extracted
dissoc.	dissociate	extg.	extracting
dissocd.	dissociated	extn.	extraction
dissocg.	dissociating	F	farad
dissocn.	dissociation	°F	degree Fahrenheit (unit)
distd.	distilled	FAD	flavin adenine dinucleotide
distg.	distilling	fcc.	face centered cubic
distn.	distillation	fermn.	fermentation
DMF	dimethylformamide	FMN	flavin mononucleotide
DMSO	dimethyl sulfoxide	f.p.	freezing point
DNA	deoxyribonucleic acid	FSGO	floating spherical Gaussian orbital
DNase	deoxyribonuclease	FSH	follicle-stimulating hormone
d.p.	degree of polymerization	ft	foot (unit)
dpm	disintegrations per minute (unit)	ft-lb	foot-pound (unit)
DTA	differential thermal analysis	g	gram (unit)
ECG	electrocardiogram	g	gravitational constant
ED	effective dose	G	gauss (unit)
EDTA	ethylenediaminetetraacetic acid	gal	gallon (unit)
EEG	electroencephalogram	GDP	guanosine 5'-diphosphate
EHMO	extended Hueckel molecular orbital	GeV	billion electron volts (unit)
elec.	electric(al)(ly)	GMP	guanosine 5'-monophosphate
ELISA	enzyme-linked immunosorbent assay	GTO	Gaussian-type orbital
emf.	electromotive force	GTP	guanosine 5'-triphosphate
emu	electromagnetic unit	Gy	gray (absorbed radiation dose) (unit)
equil.	equilibrium	h	hour (unit)
equiv	equivalent (unit)	H	henry (unit)
equiv.	equivalent	ha	hectare (unit)
esp.	especially	HAM	hydrogenic atoms in molecules
ESR	electron spin resonance, electron paramagnetic resonance	Hb	hemoglobin
est.	estimate	hcp	hexagonal close-packed
estd.	estimated	HMO	Hueckel molecular orbital
		HOMO	highest occupied molecular orbital
		Hz	hertz (cycles/sec) (unit)

ICSH	interstitial cell-stimulating hormone	MHD	magneto hydrodynamics
ID	inhibitory dose	mi	mile (unit)
IDP	inosine 5'-diphosphate	MIM	molecules-in-molecules
IEHMO	iterative extended Hueckel molecular orbital	min	minute (unit)
IEPA	independent electron pair approximation	min.	minimum(s)
Ig	immunoglobulin	misc.	miscellaneous
i.m.	intramuscular(ly)	mixt.	mixture
IMP	inosine 5'-monophosphate	MNDO	modified neglect of diatomic overlap
in.	inch (unit)	mo	month (unit)
INDO	intermediate neglect of differential overlap	MO	molecular orbital
i.p.	intraperitoneal(ly)	mol	mole (unit)
IR	infrared	mol.	molecule, molecular
irradn.	irradiation	m.p.	melting point
ITP	inosine 5'-triphosphate	mph	miles per hour (unit)
IU	international unit	mRNA	messenger RNA
i.v.	intravenous(ly)	MSH	melanocyte-stimulating hormone
J	joule (unit)	Mx	maxwell (unit)
K	kelvin (unit)	NAD	nicotinamide adenine dinucleotide
L	liter (unit)	NADP	nicotinamide adenine dinucleotide phosphate
lab.	laboratory	NDDO	neglect of diatomic differential overlap
lb	pound (unit)	neg.	negative(ly)
LCAO	linear combination of atomic orbitals	NMN	nicotinamide mononucleotide
LCFC	linear combination of fragment configuration	NMR	nuclear magnetic resonance
LD	lethal dose	NNDO	neglect of nonbonded differential overlap
LEED	low energy electron diffraction	no.	number
LH	luteinizing hormone	NQR	nuclear quadruple resonance
liq.	liquid	obsd.	observed
lm	lumen (unit)	Oe	oersted (unit)
LUMO	lowest unoccupied molecular orbital	$\Omega$	ohm (unit)
lx	lux (unit)	ORD	optical rotatory dispersion
m	meter (unit)	org.	organic
m	molal (unit)	oxidn.	oxidation
M	molar (unit)	oz	ounce
m.	melts at, melting at	P	poise (unit)
manuf.	manufacture	Pa	pascal (unit)
manufd.	manufactured	p.d.	potential difference
manufg.	manufacturing	Ph	phenyl
math.	mathematical(ly)	phys.	physical(ly)
max.	maximum	PMO	perturbational molecular orbital
MC-SCF	multiconfigurational self-consistent field	PNDO	partial neglect of differential overlap
Me	methyl (not metal)	polymd.	polymerized
mech.	mechanical(ly) (not mechanism)	polymg.	polymerizing
metab.	metabolism	polymn.	polymerization
		pos.	positive(ly)



powd.	powdered	satn.	saturation
ppb	parts per billion (unit)	s.c.	subcutaneous(ly)
ppm	parts per million (unit)	SCE	saturated calomel electrode
PPP	Pariser-Parr-Pople	SCF	self-consistent field
ppt.	precipitate	SEM	scanning electron microscopy
pptd.	precipitated	sep.	separate(ly)
pptg.	precipitating	sepd.	separated
pptn.	precipitation	sepg.	separating
Pr	propyl (normal)	sepn.	separation
prep.	prepare	sol.	soluble
prepd.	prepared	soln.	solution
prepg.	preparing	soly.	solubility
prepn.	preparation	sp. gr.	specific gravity
prodn.	production	sp. vol.	specific volume
psi	pounds per square inch (unit)	sp. wt.	specific weight
psia	pounds per square inch absolute (unit)	sr	steradian (unit)
psig	pounds per square inch gage (unit)	St	stokes (unit)
pt	pint (unit)	std.	standard
purifn.	purification	STO	Slater-type orbital
qt	quart (unit)	sym.	symmetric(al)(ly)
qual.	qualitative(ly)	T	tesla (unit)
quant.	quantitative(ly)	tbs	tablespoon (unit)
R	roentgen (unit)	TEAE-cellulose	triethylaminoethyl cellulose
redn.	reduction	tech.	technical(ly)
ref.	reference	temp.	temperature
rem	roentgen equivalent man (unit)	theor.	theoretical(ly)
rep	roentgen equivalent physical (unit)	thermodn.	thermodynamic(s)
reprodn.	reproduction	THF	tetrahydrofuran
resoln.	resolution	titrn.	titration
resp.	respective(ly)	TSH	thyroid-stimulating hormone
RHEED	reflection high energy electron diffraction	tsp	teaspoon (unit)
RHF	restricted Hartree-Fock	UDP	uridine 5'-diphosphate
RNA	ribonucleic acid	UHF	unrestricted Hartree-Fock
RNase	ribonuclease	UMP	uridine 5'-monophosphate
RPA	random phase approximation	UPS	UV photoelectron spectroscopy
rRNA	ribosomal RNA	USP	United States Pharmacopeia
rpm	revolutions per minute (unit)	UTP	uridine 5'-triphosphate
RQ	respiratory quotient	UV	ultraviolet
s	second (unit)	V	volt (unit)
S	siemens (unit)	vol.	volume
sapon.	saponification	W	watt (unit)
sapond.	saponified	Wb	weber (unit)
sapong.	saponifying	wk	week (unit)
sat.	saturate	wt.	weight
satd.	saturated	XPS	x-ray photoelectron spectroscopy
satg.	saturating	yd	yard (unit)
		yr	year (unit)
		ZDO	zero differential overlap

## Characters and Symbols in Computer-Readable Files

In computer-readable files all characters of the Roman alphabet and numbers are represented in the same way as in CAS publications. However, no distinctions are made for italic, bold-face, or small capital letters. Also, superscripts and subscripts appear on the line.

Special conventions are used to represent some characters and symbols in computer-readable files. These conventions are shown in the following lists. Some of these characters and symbols can be searched in computer-readable files. For search terms, representations without the periods are used.

## Conventions for Representing Greek Letters in Computer-Readable Files

<i>Symbol</i>	<i>Representation</i>	<i>Description</i>	<i>Symbol</i>	<i>Representation</i>	<i>Description</i>
A	.ALPHA	Alpha	$\delta$	.vdelta	Delta (variant)
B	.BETA	Beta	$\epsilon$	.epsilon	Epsilon
$\Gamma$	.GAMMA	Gamma	$\epsilon$	.vepsilon	Epsilon (variant)
$\Delta$	.DELTA	Delta	$\zeta$	.zeta	Zeta
E	.EPSILON	Epsilon	$\eta$	.eta	Eta
Z	.ZETA	Zeta	$\theta$	.theta	Theta
H	.ETA	Eta	$\vartheta$	.vtheta	Theta (variant)
$\theta$	.THETA	Theta	$\iota$	.iota	Iota
I	.IOTA	Iota	$\kappa$	.kappa	Kappa
K	.KAPPA	Kappa	$\chi$	.vkapa	Kappa (variant)
$\Lambda$	.LAMBDA	Lambda	$\lambda$	.lambda	Lambda
M	.MU	Mu	$\mu$	.nu	Mu
N	.NU	Nu	$\nu$	.nu	Nu
$\xi$	.XI	xi	$\xi$	.xi	xi
O	.OMICRON	Omicron	$\omicron$	.omicron	Omicron
$\Pi$	.PI	Pi	$\pi$	.pi	Pi
P	.RHO	Rho	$\varpi$	.vpi	Pi (variant)
$\Sigma$	.SIGMA	Sigma	$\rho$	.rho	Rho
T	.TAU	Tau	$\sigma$	.sigma	Sigma
Y	.UPSILON	Upsilon	$\varsigma$	.vsigma	Sigma (variant)
$\Phi$	.PHI	Phi	$\tau$	.tau	Tau
X	.CHI	Chi	$\upsilon$	.upsilon	Upsilon
$\Psi$	.PSI	Psi	$\phi$	.phi	Phi
$\Omega$	.OMEGA	Omega	$\phi$	.vphi	Phi (variant)
$\alpha$	.alpha	Alpha	$\chi$	.chi	Chi
$\beta$	.beta	Beta	$\psi$	.psi	Psi
$\gamma$	.gamma	Gamma	$\omega$	.omega	Omega
$\delta$	.delta	Delta			

## Conventions for Representing Symbols in Computer-Readable Files

<i>Symbol</i>	<i>Representation</i>	<i>Description</i>	<i>Symbol</i>	<i>Representation</i>	<i>Description</i>
$\angle$	.angle	Angle	$\langle$	.lbrack	Left Broken Bracket
$\text{\AA}$	.ANG	Angstrom Unit	$\leq$	.leq	Less Than or Equal
$\blacktriangle$	.approx	Approaches	$\lesssim$	.lorsim	Less Than or Similar
$\approx$	.apprxq	Approximately Equal	$\lambda$	.ldabar	Lambda Bar
$\sim$	.apprx	Approximates (similar)	$\in$	.member	Member of
$\oint$	.bdintg	Bounded Integral	$\mp$	.mp	Minus-Plus
$\square$	.box	Box	$\gg$	.mchgt	Much Greater Than
$\bullet$	.bul	Bullet (12 pt. center dot)	$\ll$	.mchl	Much Less Than
$\text{¢}$	.cents	Cent	$\notin$	.notabr	Not a Member of
$\cdot$	.ctndot	Center Dot	$\neq$	.noteq	Not Equal
$\subset$	.ctnd	Contained in	$\odot$	.sun	Of Sun
$\supset$	.ctns	Contains	$\overset{\cdot}{\phantom{a}}$	.ovrhdot	Overhead Dot
$\copyright$	.copyrgt	Copyright	$\overline{\phantom{a}}$	.ovrhdbr	Overhead Double Bar
$\otimes$	.crossprd	Cross Product	$\text{‰}$	.permill	Per Mill
$\dagger$	.dag	Dagger	$\perp$	.perp	Perpendicular
$-$	-	Dash/Minus	$\hbar$	.plnst	Planck's Constant
$^\circ$	.degree	Degree	$\pm$	.pm	Plus-Minus
$\nabla$	.del	Del (Nabla)	$\pounds$	.pnd	Pound Sterling
$\div$	.div	Division	$\prime$	'	Prime/apostrophe
$\nrightarrow$	.dnreslt	Does Not Result in	$\prod$	.product	Product
$\rightleftarrows$	.dblrv	Double Arrow	$\text{\textcircled{A}}$	.RTM	Registered Trade Mark
$\dagger\dagger$	.dbldag	Double Dagger	$\leftarrow$	.rarw	Reverse Arrow
$\rightleftarrows$	.dblharw	Double Half Arrows	$\curvearrowright$	.rcarw	Reverse Curved Arrow
$\dagger\dagger$	.++	Double Plus	$\leftarrow$	.rscharw	Reverse Surface Chemistry Arrow
$\parallel$	.dblvert	Double Vertical	$\rangle$	.rtbrack	Right Broken Bracket
$\downarrow$	.dwnarw	Down Arrow	$\mathcal{A}$	.SCRIPTA	Script A
$\rightarrow$	.fwdarw	Forward Arrow	$\mathcal{B}$	.SCRIPTB	Script B
$\curvearrowright$	.fwdcarw	Forward Curved Arrow	$\mathcal{C}$	.SCRIPTC	Script C
$\geq$	.gtoreq	Greater Than or Equal	$\mathcal{D}$	.SCRIPTD	Script D
$\gtrsim$	.gtorsim	Greater Than or Similar	$\mathcal{E}$	.SCRIPTE	Script E
$\equiv$	.ident	Identity	$\mathcal{F}$	.SCRIPTF	Script F
$\infty$	.infin	Infinity	$\mathcal{G}$	.SCRIPTG	Script G
$\int$	.intg	Integral	$\mathcal{H}$	.SCRIPTH	Script H
$\cap$	.intrsec	Intersection	$\mathcal{L}$	.SCRIPTL	Script L

<i>Symbol</i>	<i>Representation</i>	<i>Description</i>	<i>Symbol</i>	<i>Representation</i>	<i>Description</i>
$\mathcal{P}$	SCRIPTP	Script P	$\times$	.times.	Times
$\mathcal{R}$	SCRIPTR	Script R	$\vdots$	.tpbond.	Triple Bond
$\mathcal{S}$	SCRIPTS	Script S	$\cup$	.union.	Union
$\approx$	.simeq.	Similar or Equal	$\uparrow$	.uparw.	Up Arrow
$\sqrt{\quad}$	.sqrt.	Square Root	$\infty$	.varies.	Varies
$\Sigma$	.sum.	Sum	$\vec{\quad}$	.vector.	Vector
$\rhd$	scharw.	Surface Chemistry Arrow	$\bar{\quad}$	.hvin.	Vinculum (high)
$\oplus$	.sym.	Symmetry	$\underline{\quad}$	.lvin.	Vinculum (low)
$\leftrightarrow$	.tautn.	Tautomer	$\yen$	.yen.	Yen
$\dagger$	.thermod.	Thermodynamics			

**NOTE:** Symbols which modify characters (e.g., the vinculum) precede the character (i.e.,  $\bar{A}$  becomes .hvin.A).

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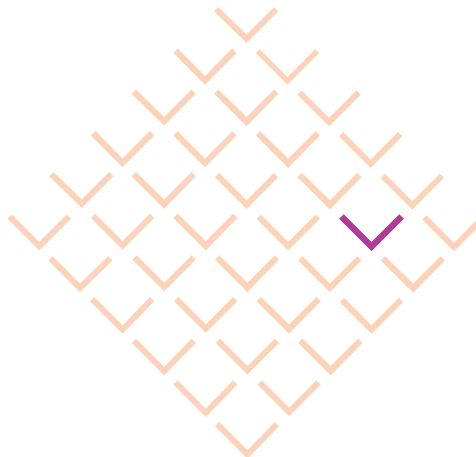
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