

# APPENDICES

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# APPENDIX A

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OZONE PEER-REVIEW MEETING

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*Les Diablerets, Switzerland  
June 1-5, 1998*

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# APPENDIX B

## MAJOR ACRONYMS AND ABBREVIATIONS

AASE	Airborne Arctic Stratospheric Expedition
ACATS-IV	Airborne Chromatograph for Atmospheric Trace Species-IV
ACE	Aerosol Characterization Experiment
ADEOS	Advanced Earth Observing Satellite
AER	Atmospheric and Environmental Research, Inc. (United States)
AFEAS	Alternative Fluorocarbons Environmental Acceptability Study
AGAGE	Advanced Global Atmospheric Gases Experiment
AGWP	Absolute Global Warming Potential
ALE	Atmospheric Lifetime Experiment
ALIAS	Aircraft Laser Infrared Absorption Spectrometer
ANCAT/EC	Abatement of Nuisance Caused by Air Traffic/European Commission
APARE	East Asian-North Pacific Regional Experiment
ARL	Air Resources Laboratory (NOAA)
ARL	Australian Radiation Laboratory (Australia)
ASHOE/MAESA	Airborne Southern Hemisphere Ozone Experiment/Measurements for Assessing the Effects of Stratospheric Aircraft
asl	above sea level
ASTEX/MAGE	Atlantic Stratocumulus Transition Experiment/Marine Aerosol and Gas Exchange
ATLAS	Atmospheric Laboratory for Applications and Science
ATMOS	Atmospheric Trace Molecule Spectroscopy
AVHRR	Advanced Very High Resolution Radiometer
AWI	Alfred Wegener Institute (Germany)
BEF	Bromine Efficiency Factor
BLP	Bromine Loading Potential
BM	Brewer-Mast (ozonesonde)
BUV	Backscatter-Ultraviolet (spectrometer)
CAC	Climate Analysis Center (now CPC)
CCM	community climate model-2
CCN	cloud condensation nuclei
CD-ROM	compact disk-read only memory
CF	cloud factor
CFC	chlorofluorocarbon
CGAA	Cape Grim Air Archive (Tasmania)
CICERO	Centre for International Climate and Environmental Research, Universitetet I Oslo (Norway)
CIE	International Lighting Commission (France)
CIESIN	Consortium for International Earth Science Information Network
CIRES	Cooperative Institute for Research in Environmental Sciences (United States)
CITE	Chemical Instrument Test and Evaluation
CLAES	Cryogenic Limb Array Etalon Spectrometer
CMDL	Climate Monitoring and Diagnostics Laboratory (NOAA)

## ACRONYMS

CN	condensation nuclei
CNRM	Centre National de Recherches Météorologiques (France)
CNRS	Centre National de la Recherche Scientifique (France)
CORINAIR	Core Inventories Air
CPC	Climate Prediction Center (NCEP)
CRISTA	Cryogenic Infrared Spectrometers and Telescopes for the Atmosphere
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australia)
CTM	chemical transport model
DMS	dimethyl sulfide
DNA	deoxyribonucleic acid
DSIR	Department of Scientific and Industrial Research (South Africa)
DU	Dobson unit
EASOE	European Arctic Stratospheric Ozone Expedition
EC	European Commission
ECC	electrochemical concentration cell (ozonesonde)
ECHAM	European Centre Hamburg Model
ECl	equivalent chlorine
ECMWF	European Centre for Medium-Range Weather Forecasts (United Kingdom)
EDB	ethylene dibromide
EECl	effective equivalent chlorine
EESC	equivalent effective stratospheric chlorine
EMEP	European Monitoring and Evaluation Programme
ENSO	El Niño-Southern Oscillation
EOS	Earth Observing System
EP	Earth Probe
EPA	Environmental Protection Agency (United States)
ERBE	Earth Radiation Budget Experiment
ERBS	Earth Radiation Budget Satellite
ERS-2	Earth Radiation Satellite-2
ER-2	Earth Resources-2 (aircraft)
ESA	European Space Agency
FDH	Fixed Dynamical Heating (model)
FILOS	Far Infrared Limb Observing Spectrometer
FIRS-2	Fourier transform spectrometer
FSSP	forward scattering spectrometer probe
FSU	Former Soviet Union
FTIR	Fourier transform infrared
FWHM	full-width half-maximum
GAGE	Global Atmospheric Gases Experiment
GAW	Global Atmospheric Watch
GC	gas chromatograph
GC-MS	gas chromatography-mass spectrometry
GCM	general circulation model
GEF	Global Environmental Facilities

GFDL	Geophysical Fluid Dynamics Laboratory (NOAA)
Gg	gigagram ( $10^9$ grams)
GISS	Goddard Institute for Space Studies (United States)
GOME	Global Ozone Monitoring Experiment
GSFC	Goddard Space Flight Center (NASA)
GWP	Global Warming Potential
HALOE	Halogen Occultation Experiment
HBF	high-barrier film
HBFC	hydrobromofluorocarbon
HC	hydrocarbon
HCFC	hydrochlorofluorocarbon
HFC	hydrofluorocarbon
HFE	hydrofluorinated ether or hydrofluoroether
HITRAN	high-resolution translation (molecular absorption database)
HIRS	High Resolution Infrared Radiation Sounder
hPa	hectoPascal
ICAO	International Civil Aviation Organization
IGAC	International Global Atmospheric Chemistry
ILAS	Improved Limb Atmospheric Spectrometer
IMAGES	intermediate model of the annual and global evolution of species
IOC	International Ozone Commission
IPCC	Intergovernmental Panel on Climate Change
IR	infrared
ISAMS	Improved Stratospheric and Mesospheric Sounder
ISCCP	International Satellite Cloud Climatology Project
ISSJ	International Scientific Station of the Jungfraujoch
ITCZ	Inter-Tropical Convergence Zone
IUPAC	International Union of Pure and Applied Chemistry
JOSIE	Joint Ozone Sonde Intercomparison Experiment
JMA	Japan Meteorological Agency (Japan)
JPL	Jet Propulsion Laboratory (California Institute of Technology, United States)
KNMI	Koninklijk Nederlands Meteorologisch Instituut (The Netherlands)
KPNSO	Kitt Peak National Solar Observatory (United States)
kt	kilotonne ( $10^9$ grams)
LACE	Lightweight Airborne Chromatograph Experiment
LIMS	Limb Infrared Monitor of the Stratosphere
LLNL	Lawrence Livermore National Laboratory (United States)
MAHRSI	Middle Atmosphere High Resolution Spectrograph Investigation
MAS	Millimeterwave Atmospheric Sounder
MASP	Multi-Angle Aerosol Spectrometer Probe
MAPS	Measurement of Air Pollution from Satellite

## ACRONYMS

mbar	millibar
MBGC	Methyl Bromide Global Coalition
MBL	marine boundary layer
MDI	metered dose inhaler
MIT	Massachusetts Institute of Technology (United States)
MLO	Mauna Loa Observatory (NOAA)
MLOPEX	Mauna Loa Observatory Photochemistry Experiment
MLS	Microwave Limb Sounder
MOGUNTIA	model of the general universal tracer transport in the atmosphere
MOPITT	Measurement Of Pollution In The Troposphere
μm	micrometers, micron (10 <sup>-6</sup> meters)
MPAE	Max-Planck-Institute for Aeronomy (Germany)
MPIC	Max-Planck-Institute for Chemistry (Germany)
MSU	Microwave Sounding Unit
NAD	nitric acid dihydrate
NAP	nitric acid pentahydrate
NASA	National Aeronautics and Space Administration (United States)
NAT	nitric acid trihydrate
NBS	National Bureau of Standards (now NIST)
NCAR	National Center for Atmospheric Research (United States)
NCEP	National Centers for Environmental Prediction
NDSC	Network for the Detection of Stratospheric Change
NH	Northern Hemisphere
NIST	National Institute of Standards and Technology (formerly NBS, United States)
NIWA	National Institute of Water & Atmospheric Research Ltd. (New Zealand)
nm	nanometer (10 <sup>-9</sup> meters)
NMHC	nonmethane hydrocarbon
NOAA	National Oceanic and Atmospheric Administration (United States)
NOHALICE	Nitrous Oxide and Halocarbons Intercomparison Experiment
NPL	National Physical Laboratory (United Kingdom)
NSF	National Science Foundation (United States)
NWS	National Weather Service (United States)
ODF	opacity distribution functions
ODP	Ozone Depletion Potential
ODS	ozone-depleting substance
OGI	Oregon Graduate Institute
OHP	Observatoire de Haute Provence (Haute Provence Observatory, France)
O3MD	ozone mass deficiency
OPC	optical particle counter
PAN	peroxyacetyl nitrate
PEM	Pacific Exploratory Mission
PFC	perfluorocarbon
POAM	Polar Ozone and Aerosol Measurement
POLARIS	Photochemistry of Ozone Loss in the Arctic Region in Summer
POLINAT	Pollution from Aircraft Emissions in the North Atlantic Flight Corridor

ppb	parts per billion
ppbv	parts per billion by volume
ppm	parts per million
ppmv	parts per million by volume
ppt	parts per trillion
pptv	parts per trillion by volume
PSC	polar stratospheric cloud
PTB	Physikalisch Technische Bundesanstalt (Germany)
PV	potential vorticity
PVU	potential vorticity unit
QBO	quasi-biennial oscillation
RAF	Radiation Amplification Factor
RB	Robertson-Berger Network
RCM	radiative-convective model
RIVM	National Institute of Public Health and the Environment (The Netherlands)
R/V	research vessel
SAD	surface area density
SAFARI	Southern African Fire-Atmosphere Research Initiative
SAGE	Stratospheric Aerosol and Gas Experiment
SAH	sulfuric acid hemihexahydrate
SAM	Stratospheric Aerosol Measurement
SAMS	Stratospheric and Mesospheric Sounder
SAO	semi-annual oscillation
SAOZ	Système d'Analyse par Observation Zénithale
SAT	sulfuric acid tetrahydrate
SBUV/SBUV2	Solar Backscatter Ultraviolet Spectrometer
SCAR-B	Smoke, Clouds, and Radiation-Brazil
SCATE	Sulfur Chemistry in the Antarctic Troposphere Experiment
SEAWIFS	Sea-Viewing Wide Field-of-View Sensor
SEFDH	Seasonally Evolving Fixed Dynamical Heating
SESAME	Second European Stratospheric Arctic and Midlatitude Experiment
SH	Southern Hemisphere
SIO	Scripps Institution of Oceanography (United States)
SLS	Submillimeter Limb Sounder
SME	Solar Mesosphere Explorer
SOAPEX	Southern Ocean Atmospheric Photochemistry Experiment
SORG	Stratospheric Ozone Review Group (U.K. Department of the Environment)
SOLSPEC	Solar Spectrum (instrument)
SOLSTICE	Solar Stellar Irradiance Comparison Experiment
SPARC	Stratospheric Processes and their Role in Climate (WCRP)
SPOT	Satellite Pour l'Observation de la Terre
SSA	stratospheric sulfate aerosol
SSBUV	Shuttle Solar Backscatter Ultraviolet Spectrometer
SST	sea surface temperature
SSU	Stratospheric Sounding Unit

## ACRONYMS

STE	stratosphere-troposphere exchange
STS	supercooled ternary solution
STRAT	Stratospheric Tracers of Atmospheric Transport
STREAM	Stratosphere-Troposphere Exchange Experiment by Aircraft Measurement
STTA	Stratospheric Temperature Trends Assessment (SPARC)
STUK	Finnish Center for Radiation and Nuclear Safety (Finland)
SUNY	State University of New York (United States)
SUCCESS	SUBsonic Aircraft Contrail and Cloud Effects Special Study
SUSIM	Solar Ultraviolet Spectral Irradiance Monitor
SUSPEN	Standardization of Ultraviolet Spectroradiometry in Preparation of a European Network
SUVDAMA	Scientific UV Data Management
SZA	solar zenith angle
TEAP	Technology and Economic Assessment Panel
TFA	trifluoroacetic acid
Tg	teragram ( $10^{12}$ grams)
TIROS	Television and InfraRed Observational Satellite
TOHPE	Tropospheric OH Photochemistry Experiment
TOMS	Total Ozone Mapping Spectrometer
TOVS	TIROS Operational Vertical Sounder
TRACE-A	Transport and Atmospheric Chemistry near the Equator-Atlantic
UARS	Upper Atmosphere Research Satellite
UCI	University of California at Irvine (United States)
UEA	University of East Anglia (United Kingdom)
UH	University of Heidelberg (Germany)
UKMO	United Kingdom Meteorological Office
UK	United Kingdom
UN	United Nations
UNEP	United Nations Environment Programme
US	United States
USDA	U.S. Department of Agriculture
USGS	United States Geological Survey
UT	University of Tokyo (Japan)
UV	ultraviolet
UVRAPPF	UV Radiation in the Arctic: Past, Present, and Future
UV-MFRSR	UV Multi-Filter Rotating Shadowband Radiometer
WAS	whole-air samplers
WCRP	World Climate Research Programme
WMO	World Meteorological Organization
WOUDC	World Ozone and Ultraviolet Radiation Data Centre (Canada)
WVMS	Water Vapor Millimeter-wave Spectrometer

# APPENDIX C

## CHEMICAL FORMULAE AND NOMENCLATURE

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### HALOGEN-CONTAINING SPECIES

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Cl	atomic chlorine	Br	atomic bromine
Cl <sub>2</sub>	molecular chlorine	Br <sub>2</sub>	molecular bromine
ClO	chlorine monoxide	BrO	bromine monoxide
OCIO	chlorine dioxide		
Cl <sub>2</sub> O <sub>2</sub>	dichlorine peroxide (ClO dimer)		
ClONO	chlorine nitrite, nitryl chloride		
ClONO <sub>2</sub>	chlorine nitrate	BrONO <sub>2</sub>	bromine nitrate
HCl	hydrogen chloride (hydrochloric acid)	HBr	hydrogen bromide
HOCl	hypochlorous acid	HOBr	hypobromous acid
BrCl	bromine chloride		
Cl <sub>y</sub>	inorganic chlorine	Br <sub>y</sub>	inorganic bromine
CCl <sub>y</sub>	organic chlorine	CBr <sub>y</sub>	organic bromine
ClO <sub>x</sub>	chlorine radicals	BrO <sub>x</sub>	bromine radicals
F	atomic fluorine	I	atomic iodine
HF	hydrogen fluoride (hydrofluoric acid)	HI	hydrogen iodide
SF <sub>6</sub>	sulfur hexafluoride	IO	iodine monoxide
NF <sub>3</sub>	nitrogen trifluoride		
F <sub>y</sub>	inorganic fluorine		
CF <sub>y</sub>	organic fluorine		

#### HALOCARBONS

##### Chlorofluorocarbons (CFCs)

CFC-10	CCl <sub>4</sub>
CFC-11	CCl <sub>3</sub> F
CFC-12	CCl <sub>2</sub> F <sub>2</sub>
CFC-13	CClF <sub>3</sub>
CFC-14	CF <sub>4</sub>
CFC-113	CCl <sub>2</sub> FCClF <sub>2</sub>
CFC-114	CClF <sub>2</sub> CClF <sub>2</sub>
CFC-115	CClF <sub>2</sub> CF <sub>3</sub>
CFC-116	CF <sub>3</sub> CF <sub>3</sub>

##### Hydrochlorofluorocarbons (HCFCs)

HCFC-21	CHCl <sub>2</sub> F
HCFC-22	CHClF <sub>2</sub>
HCFC-123	CF <sub>3</sub> CHCl <sub>2</sub>
HCFC-124	CF <sub>3</sub> CHClF
HCFC-141b	CCl <sub>2</sub> FCH <sub>3</sub>
HCFC-142b	CClF <sub>2</sub> CH <sub>3</sub>
HCFC-225ca	CF <sub>3</sub> CF <sub>2</sub> CHCl <sub>2</sub>
HCFC-225cb	CClF <sub>2</sub> CF <sub>2</sub> CHClF

##### Hydrofluorocarbons (HFCs)

HFC-23	CHF <sub>3</sub>	HFC-227ca	CF <sub>3</sub> CF <sub>2</sub> CHF <sub>2</sub>
HFC-32	CH <sub>2</sub> F <sub>2</sub>	HFC-227ea	CF <sub>3</sub> CHF <sub>2</sub> CF <sub>3</sub>
HFC-41	CH <sub>3</sub> F	HFC-236cb	CF <sub>3</sub> CF <sub>2</sub> CH <sub>2</sub> F
HFC-125	CF <sub>3</sub> CHF <sub>2</sub>	HFC-236ea	CF <sub>3</sub> CHF <sub>2</sub> CHF <sub>2</sub>

## CHEMICAL FORMULAE

HFC-134	$\text{CHF}_2\text{CHF}_2$	HFC-236fa	$\text{CF}_3\text{CH}_2\text{CF}_3$
HFC-134a	$\text{CF}_3\text{CH}_2\text{F}$	HFC-245ca	$\text{CHF}_2\text{CF}_2\text{CFH}_2$
HFC-143	$\text{CHF}_2\text{CH}_2\text{F}$	HFC-245cb	$\text{CF}_3\text{CF}_2\text{CH}_3$
HFC-143a	$\text{CH}_3\text{CF}_3$	HFC-272ca	$\text{CH}_3\text{CF}_2\text{CH}_3$
HFC-152	$\text{CH}_2\text{FCH}_2\text{F}$	HFC-365mfc	$\text{CF}_3\text{CH}_2\text{CF}_2\text{CH}_3$
HFC-152a	$\text{CH}_3\text{CHF}_2$	HFC-43-10mee	$\text{CF}_3\text{CHFCHFCF}_2\text{CF}_3$
HFC-161	$\text{CH}_3\text{CH}_2\text{F}$		

### Halons

Halon-1202	$\text{CBr}_2\text{F}_2$	Halon-1301	$\text{CBrF}_3$
Halon-1211	$\text{CBrClF}_2$	Halon-2402	$\text{CBrF}_2\text{CBrF}_2$

### Hydrofluoroethers (HFEs)

HFE-125	$\text{CF}_3\text{OCHF}_2$	HFE-245fa2	$\text{CF}_3\text{CH}_2\text{OCHF}_2$
HFE-134	$\text{CHF}_2\text{OCHF}_2$	HFE-245cb2	$\text{CHF}_2\text{CF}_2\text{OCH}_3$
HFE-143a	$\text{CH}_3\text{OCF}_3$		

### Chlorocarbons

$\text{CH}_3\text{Cl}$	methyl chloride
$\text{CH}_2\text{Cl}_2$	methylene chloride, dichloromethane
$\text{CHCl}_3$	chloroform, trichloromethane
$\text{CCl}_4$	carbon tetrachloride
$\text{CH}_3\text{CCl}_3$	methyl chloroform
$\text{C}_2\text{HCl}_3$	trichloroethene, trichloroethylene
$\text{C}_2\text{Cl}_4$	tetrachloroethene, perchloroethene
$\text{C}_2\text{H}_4\text{Cl}_2$	dichloroethane
$\text{C}_2\text{H}_2\text{Cl}_4$	tetrachloroethane
$\text{C}_2\text{H}_2\text{Cl}_2$	vinylidene chloride
$\text{C}_4\text{Cl}_6$	hexachlorobutadiene
$\text{COCl}_2$	phosgene, carbonyl chloride

### Fluorocarbons

$\text{CF}_4$	perfluoromethane, carbon tetrafluoride
$\text{C}_2\text{F}_6$	perfluoroethane
$\text{C}_3\text{F}_8$	perfluoropropane
c- $\text{C}_3\text{F}_6$	perfluorocyclopropane
$\text{C}_4\text{F}_{10}$	perfluorobutane
c- $\text{C}_4\text{F}_8$	perfluorocyclobutane
$\text{C}_5\text{F}_{12}$	perfluoropentane
$\text{C}_6\text{F}_{14}$	perfluorohexane
$\text{COF}_2$	carbonyl fluoride
$\text{CF}_3\text{COF}$	trifluoroacetyl fluoride
TFA	trifluoroacetic acid ( $\text{CF}_3\text{COOH}$ )

### Bromocarbons

$\text{CH}_3\text{Br}$	methyl bromide
$\text{CH}_2\text{Br}_2$	methylene bromide, dibromomethane
$\text{CHBr}_3$	bromoform, tribromomethane
$\text{CH}_2\text{BrCH}_2\text{Br}$	ethylene dibromide, 1,2 dibromoethane
$\text{CH}_2\text{BrCH}_2\text{CH}_3$	1-bromopropane, n-propyl bromide

### Iodocarbons

$\text{CH}_3\text{I}$	methyl iodide
$\text{CH}_2\text{I}_2$	diiodomethane
$\text{CH}_3\text{CH}_2\text{I}$	ethyl iodide
$\text{CH}_3\text{CHICH}_3$	isopropyl iodide
$\text{CH}_2\text{ICH}_2\text{CH}_3$	1-iodopropane, n-propyl iodide

### Others

$\text{CHBr}_2\text{Cl}$	dibromochloromethane
$\text{CH}_2\text{BrCl}$	bromochloromethane
$\text{CHBrCl}_2$	bromodichloromethane
$\text{CH}_2\text{ClI}$	chloriodomethane
$\text{CF}_3\text{I}$	iodotrifluoromethane
$\text{CHBrF}_2$	difluorobromomethane
$\text{CF}_3\text{CHBrCl}$	halothane
$\text{CF}_3\text{CF}_2\text{I}$	iodopentafluoroethane
$\text{COCIF}$	chlorofluorocarbonyl
$\text{CF}_3\text{COCl}$	trifluoroacetyl chloride



## OTHER CHEMICAL SPECIES

O	atomic oxygen	H	atomic hydrogen
O( <sup>3</sup> P)	atomic oxygen (ground state)	H <sub>2</sub>	molecular hydrogen
O( <sup>1</sup> D)	atomic oxygen (first excited state)	OH	hydroxyl radical
O <sub>2</sub>	molecular oxygen	HO <sub>2</sub>	hydroperoxyl radical
O <sub>3</sub>	ozone	H <sub>2</sub> O	water
O <sub>x</sub>	odd oxygen (O, O( <sup>1</sup> D), O <sub>3</sub> ) or oxidant (O <sub>3</sub> + NO <sub>2</sub> )	H <sub>2</sub> O <sub>2</sub>	hydrogen peroxide
		HO <sub>x</sub>	odd hydrogen (H, OH, HO <sub>2</sub> , H <sub>2</sub> O <sub>2</sub> )
N	atomic nitrogen	HO <sub>2</sub> NO <sub>2</sub>	peroxynitric acid, pernitric acid
N <sub>2</sub>	molecular nitrogen	CH <sub>3</sub> OONO <sub>2</sub>	methylperoxynitrate
N <sub>2</sub> O	nitrous oxide	PAN	peroxyacetylnitrate (CH <sub>3</sub> C(O)OONO <sub>2</sub> )
NO	nitric oxide	RONO <sub>2</sub>	alkyl nitrates
NO <sub>2</sub>	nitrogen dioxide		
NO <sub>3</sub>	nitrogen trioxide, nitrate radical	NAD	nitric acid dihydrate (HNO <sub>3</sub> ·2H <sub>2</sub> O)
N <sub>2</sub> O <sub>5</sub>	dinitrogen pentoxide	NAT	nitric acid trihydrate (HNO <sub>3</sub> ·3H <sub>2</sub> O)
ClONO <sub>2</sub>	chlorine nitrate	NAP	nitric acid pentahydrate (HNO <sub>3</sub> ·5H <sub>2</sub> O)
HNO <sub>2</sub> , HONO	nitrous acid		
HNO <sub>3</sub>	nitric acid	NH <sub>3</sub>	ammonia
NO <sub>x</sub>	nitrogen oxides (NO + NO <sub>2</sub> )		
NO <sub>y</sub>	odd nitrogen (usually includes NO, NO <sub>2</sub> , NO <sub>3</sub> , N <sub>2</sub> O <sub>5</sub> , ClONO <sub>2</sub> , HNO <sub>4</sub> , HNO <sub>3</sub> )		
S	atomic sulfur	SF <sub>6</sub>	sulfur hexafluoride
SO <sub>2</sub>	sulfur dioxide	CS <sub>2</sub>	carbon disulfide
SO <sub>x</sub>	sulfur oxides	COS, OCS	carbonyl sulfide
H <sub>2</sub> SO <sub>4</sub>	sulfuric acid	H <sub>2</sub> S	hydrogen sulfide
SAM	sulfuric acid monohydrate (H <sub>2</sub> SO <sub>4</sub> ·H <sub>2</sub> O)		
SAT	sulfuric acid tetrahydrate (H <sub>2</sub> SO <sub>4</sub> ·4H <sub>2</sub> O)		
SAH	sulfuric acid hemihexahydrate (H <sub>2</sub> SO <sub>4</sub> ·6.5H <sub>2</sub> O)		
C	carbon atom		
CO	carbon monoxide		
CO <sub>2</sub>	carbon dioxide		
NMHC	nonmethane hydrocarbon	CH <sub>2</sub> O	formaldehyde
CH <sub>4</sub>	methane	CH <sub>3</sub> COCH <sub>3</sub>	acetone
C <sub>2</sub> H <sub>6</sub>	ethane	CH <sub>3</sub> OOH	methyl hydroperoxide
C <sub>3</sub> H <sub>8</sub>	propane	CH <sub>3</sub> COO	methyl peroxy radical
C <sub>2</sub> H <sub>4</sub>	ethylene, ethene	CH <sub>3</sub> C(O)OO	acetyl peroxy radical
C <sub>2</sub> H <sub>2</sub>	acetylene, ethyne	RO	alkoxy radicals
		RO <sub>2</sub>	organic peroxy radical