

APPENDIX B

CHEMICAL FORMULAE AND NOMENCLATURE

Reactive Halogen-Containing Species

Cl	atomic chlorine	Br	atomic bromine
Cl _y	total inorganic chlorine	Br _y	total inorganic bromine
Cl ₂	molecular chlorine	Br ₂	molecular bromine
ClO	chlorine monoxide	BrO	bromine monoxide
ClO _x	(ClO + 2 ClOOCl)	Br ₂ O	dibromine monoxide
Cl ₂ O ₂ , ClOOCl	dichlorine peroxide (ClO dimer)	BrO _x	(Br, BrO, BrONO ₂ , HOBr, ...)
ClONO ₂ , ClNO ₃	chlorine nitrate	BrONO ₂ , BrNO ₃	bromine nitrate
HCl	hydrogen chloride (hydrochloric acid)	HBr	hydrogen bromide
HOCl	hypochlorous acid	HOBr	hypobromous acid
F	atomic fluorine	I	atomic iodine
F ₂	molecular fluorine	I ₂	molecular iodine
F _y	total inorganic fluorine	I _y	total inorganic iodine
HF	hydrogen fluoride (hydrofluoric acid)	IO	iodine monoxide
FO _x	F + FO	IO _x	iodine radicals

Other Reactive Species

O	atomic oxygen	H	atomic hydrogen
O(³ P)	atomic oxygen (ground state)	H ₂	molecular hydrogen
O(¹ D)	atomic oxygen (first excited state)	OH	hydroxyl radical
O ₂	molecular oxygen	HO ₂	hydroperoxyl radical
O ₃	ozone	H ₂ O	water
O _x	odd oxygen (O, O(¹ D), O ₃)	HO _x	odd hydrogen (H, OH, HO ₂ , H ₂ O ₂)
N	atomic nitrogen	HNO ₂ , HONO	nitrous acid
N ₂	molecular nitrogen	HOONO	pernitrous acid
N ₂ O	nitrous oxide	HNO ₃	nitric acid
NO	nitric oxide	HNO ₄ , HOONO ₂	peroxynitric acid
NO ₂	nitrogen dioxide	NH ₃	ammonia
NO ₃	nitrogen trioxide, nitrate radical	NH ₄ NO ₃	ammonium nitrate
N ₂ O ₅	dinitrogen pentoxide	NO _x	nitrogen oxides (NO + NO ₂)

Other Reactive Species (continued)

$\text{HNO}_3 \cdot 3\text{H}_2\text{O}$	nitric acid trihydrate condensate (NAT)	NO_y	total reactive nitrogen (NO, NO_2 , NO_3 , N_2O_5 , ClONO_2 , HNO_4 , HNO_3)
S	atomic sulfur		
SO_2	sulfur dioxide	H_2S	hydrogen sulfide
H_2SO_4	sulfuric acid	CS_2	carbon disulfide
CH_3SCH_3	dimethyl sulfide (DMS)	COS , OCS	carbonyl sulfide
C	carbon atom		
CO	carbon monoxide	CO_2	carbon dioxide
CH_3	methyl radical	CH_3CH_3	ethane
CH_4	methane	$\text{CH}_3\text{CH}_2\text{CH}_3$	propane
CH_3OH	methyl alcohol, methanol	$\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$	butane
$\text{CF}_3\text{C}(\text{O})\text{OH}$, $\text{CF}_3\text{CO}_2\text{H}$	trifluoroacetic acid (TFA)	CH_2O	formaldehyde
CaCO_3	calcite, calcium carbonate		
TiO_2	titanium dioxide		
Al_2O_3	aluminum oxide		

Note: Table A-1 in Appendix A provides an extensive listing of chemical names and formulas, including many ozone depleting substances, their replacements, and other substances of interest to the Montreal Protocol.