

Chem 101 Nomenclature Chart

OXOACIDS AND THEIR ANIONS

Acids (name of compound)		Anions (form latter part of name of ionic compound)			
HNO ₃	nitric acid	NO ₃ ⁻	nitrate		
HNO ₂	nitrous acid	NO ₂ ⁻	nitrite		
HClO ₄	perchloric acid	ClO ₄ ⁻	perchlorate	(Same for Br and I)	
HClO ₃	chloric acid	ClO ₃ ⁻	chlorate	(Same for Br and I)	
HClO ₂	chlorous acid	ClO ₂ ⁻	chlorite	(Same for Br and I)	
HClO	hypochlorous acid	ClO ⁻ (or OCl ⁻)	hypochlorite	(Same for Br and I)	
H ₂ C ₂ O ₄	oxalic acid	C ₂ O ₄ ²⁻	oxalate		
HC ₂ H ₃ O ₂	acetic acid	C ₂ H ₃ O ₂ ⁻	acetate		
H ₂ CO ₃	carbonic acid	HCO ₃ ⁻	hydrogen carbonate or bicarbonate	CO ₃ ²⁻	carbonate
H ₂ SO ₄	sulfuric acid	HSO ₄ ⁻	hydrogen sulfate or bisulfate	SO ₄ ²⁻	sulfate
H ₂ SO ₃	sulfurous acid	HSO ₃ ⁻	hydrogen sulfite or bisulfite	SO ₃ ²⁻	sulfite
H ₃ PO ₄	phosphoric acid	H ₂ PO ₄ ⁻	dihydrogen phosphate	HPO ₄ ²⁻	hydrogen phosphate
				PO ₄ ³⁻	phosphate

BINARY & OTHER NON-OXOACIDS AND THEIR ANIONS

Formula	Name (gaseous)	Formula	Name (in water)	Anion	Name
HF(g)	hydrogen fluoride	HF(aq)	hydrofluoric acid	F ⁻	fluoride
HCl(g)	hydrogen chloride	HCl(aq)	hydrochloric acid	Cl ⁻	chloride
HBr(g)	hydrogen bromide	HBr(aq)	hydrobromic acid	Br ⁻	bromide
HI(g)	hydrogen iodide	HI(aq)	hydriodic acid	I ⁻	iodide
H ₂ S(g)	hydrogen sulfide	H ₂ S(aq)	hydrosulfuric acid	S ²⁻	sulfide
HCN(g)	hydrogen cyanide	HCN(aq)	hydrocyanic acid	CN ⁻	cyanide

MISCELLANEOUS IONS

H ⁻	hydride	O ²⁻	oxide	N ³⁻	nitride
OH ⁻	hydroxide	O ₂ ²⁻	peroxide	AsO ₄ ³⁻	arsenate
MnO ₄ ⁻	permanganate	CrO ₄ ²⁻	chromate		
NCS ⁻	thiocyanate	Cr ₂ O ₇ ²⁻	dichromate		
		S ₂ O ₃ ²⁻	thiosulfate		
Ag ⁺	silver	Cd ²⁺	cadmium	Al ³⁺	aluminum
NH ₄ ⁺	ammonium	Zn ²⁺	zinc	Al ³⁺	gallium

It's the *only non-metal cation we expect to see!*

VARIABLE VALENCE (CHARGE) METAL CATIONS

<u>Ion</u>	<u>stock name</u>
Fe ²⁺	iron (II)
Fe ³⁺	iron (III)
Co ²⁺	cobalt (II)
Co ³⁺	cobalt (III)
Mn ²⁺	manganese (II)
Mn ³⁺	manganese (III)
Cu ¹⁺	copper (I)
Cu ²⁺	copper (II)
Hg ₂ ²⁺	mercury (I) <i>(Note: This is the only metallic polyatomic ion!)</i>
Hg ²⁺	mercury (II)
Sn ²⁺	tin (II)
Sn ⁴⁺	tin (IV)
Pb ²⁺	lead (II)
Pb ⁴⁺	lead (IV)

SIMPLE MONOATOMIC IONS

The monatomic ions of Group 1A metals have +1 charges.

The monatomic ions of Group 2A metals have +2 charges (*except Be*).

The monatomic ions of Group 6A non-metals have -2 charges.

The monatomic ions of Group 7A non-metals have -1 charges.

SOME COMMON MOLECULAR (NON-IONIC) COMPOUNDS

H ₂ O ₂	hydrogen peroxide	NO	nitric oxide
NH ₃	ammonia	N ₂ O	nitrous oxide
CH ₄	methane		

GREEK PREFIXES FOR BINARY MOLECULAR COMPOUNDS

<u>Atoms</u>	<u>Prefix</u>	<u>Atoms</u>	<u>Prefix</u>
1	mono-	6	hexa-
2	di-	7	hepta-
3	tri-	8	octa-
4	tetra-	9	nona-
5	penta-	10	deca-