

## NOMENCLATURE CHART

### OXYACIDS AND THEIR ANIONS

Acids (name of compound)	Anions (form latter part of name of ionic compound)		
HNO <sub>3</sub> nitric acid	NO <sub>3</sub> <sup>-</sup> nitrate		
HNO <sub>2</sub> nitrous acid	NO <sub>2</sub> <sup>-</sup> nitrite		
HClO <sub>4</sub> perchloric acid	ClO <sub>4</sub> <sup>-</sup> perchlorate		
HClO <sub>3</sub> chloric acid	ClO <sub>3</sub> <sup>-</sup> chlorate		
HClO <sub>2</sub> chlorous acid	ClO <sub>2</sub> <sup>-</sup> chlorite		
HClO hypochlorous acid	ClO <sup>-</sup> hypochlorite		
HC <sub>2</sub> H <sub>3</sub> O <sub>2</sub> acetic acid	C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> <sup>-</sup> acetate		
H <sub>2</sub> CO <sub>3</sub> carbonic acid	HCO <sub>3</sub> <sup>-</sup> hydrogen carbonate or bicarbonate	CO <sub>3</sub> <sup>2-</sup> carbonate	
H <sub>2</sub> SO <sub>4</sub> sulfuric acid	HSO <sub>4</sub> <sup>-</sup> hydrogen sulfate or bisulfate	SO <sub>4</sub> <sup>2-</sup> sulfate	
H <sub>2</sub> SO <sub>3</sub> sulfurous acid	HSO <sub>3</sub> <sup>-</sup> hydrogen sulfite or bisulfite	SO <sub>3</sub> <sup>2-</sup> sulfite	
H <sub>3</sub> PO <sub>4</sub> phosphoric acid	H <sub>2</sub> PO <sub>4</sub> <sup>-</sup> dihydrogen phosphate	HPO <sub>4</sub> <sup>2-</sup> hydrogen phosphate	PO <sub>4</sub> <sup>3-</sup> phosphate

Each of these 4 ions and 4 acids form similar structures and names for Br, and I instead of Cl.

### BINARY & OTHER NON-OXYACIDS AND THEIR ANIONS

HF(aq) hydrofluoric acid	F <sup>-</sup> fluoride
HCl(aq) hydrochloric acid	Cl <sup>-</sup> chloride
HBr(aq) hydrobromic acid	Br <sup>-</sup> bromide
HI(aq) hydroiodic acid	I <sup>-</sup> iodide
H <sub>2</sub> S(aq) hydrosulfuric acid	S <sup>2-</sup> sulfide
HCN(aq) hydrocyanic acid	CN <sup>-</sup> cyanide

### MISCELLANEOUS IONS

H <sup>-</sup> hydride	NH <sub>4</sub> <sup>+</sup> ammonium
OH <sup>-</sup> hydroxide	Ag <sup>+</sup> silver
MnO <sub>4</sub> <sup>-</sup> permanganate	Zn <sup>2+</sup> zinc
CrO <sub>4</sub> <sup>2-</sup> chromate	Cd <sup>2+</sup> cadmium
Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup> dichromate	Al <sup>3+</sup> aluminum
O <sub>2</sub> <sup>2-</sup> peroxide	
AsO <sub>4</sub> <sup>3-</sup> arsenate	

### GREEK PREFIXES (BINARY MOLECULAR CPDS)

1	mono-	6	hexa-
2	di-	7	hepta-
3	tri-	8	octa-
4	tetra-	9	nona-
5	penta-	10	deca-

it's the only non-metal cation we will see!

**VARIABLE VALENCE (CHARGE) METAL IONS**

<b><u>Ion</u></b>	<b><u>stock name</u></b>	<b><u>traditional name (for information only)</u></b>
Cu <sup>1+</sup>	copper(I)	cuprous
Cu <sup>2+</sup>	copper(II)	cupric
Hg <sub>2</sub> <sup>2+</sup>	mercury(I)	mercurous (Note: This is the only metal polyatomic ion!)
Hg <sup>2+</sup>	mercury(II)	mercuric
Au <sup>1+</sup>	gold(I)	aurous
Au <sup>3+</sup>	gold(III)	auric
Cr <sup>2+</sup>	chromium(II)	chromous
Cr <sup>3+</sup>	chromium(III)	chromic
Mn <sup>2+</sup>	manganese(II)	manganous
Mn <sup>3+</sup>	manganese(III)	manganic
Fe <sup>2+</sup>	iron(II)	ferrous
Fe <sup>3+</sup>	iron(III)	ferric
Co <sup>2+</sup>	cobalt(II)	cobaltous
Co <sup>3+</sup>	cobalt(III)	cobaltic
Ni <sup>2+</sup>	nickel(II)	nickelous
Ni <sup>3+</sup>	nickel(III)	nickelic
Sn <sup>2+</sup>	tin(II)	stannous
Sn <sup>4+</sup>	tin(IV)	stannic
Pb <sup>2+</sup>	lead(II)	plumbous
Pb <sup>4+</sup>	lead(IV)	plumbic

Cation name is same as element

Anions end in *-ide*

**COMMON IONS BASED ON PERIODICITY**

1A		2A										3A	4A	5A	6A	7A	8A	
																H <sup>-</sup>		
Li <sup>+</sup>															N <sup>3-</sup>	O <sup>2-</sup>	F <sup>-</sup>	
Na <sup>+</sup>	Mg <sup>2+</sup>											Al <sup>3+</sup>		P <sup>3-</sup>	S <sup>2-</sup>	Cl <sup>-</sup>		
		<b>3B</b>	<b>4B</b>	<b>5B</b>	<b>6B</b>	<b>7B</b>	←	<b>8B</b>	→	<b>1B</b>	<b>2B</b>							
K <sup>+</sup>	Ca <sup>2+</sup>				Cr <sup>2+</sup> Cr <sup>3+</sup>	Mn <sup>2+</sup> Mn <sup>3+</sup>	Fe <sup>2+</sup> Fe <sup>3+</sup>	Co <sup>2+</sup> Co <sup>3+</sup>	Ni <sup>2+</sup> Ni <sup>3+</sup>	Cu <sup>+</sup> Cu <sup>2+</sup>	Zn <sup>2+</sup>	Ga <sup>3+</sup>					Br <sup>-</sup>	
Rb <sup>+</sup>	Sr <sup>2+</sup>									Ag <sup>+</sup>	Cd <sup>2+</sup>	In <sup>3+</sup>	Sn <sup>2+</sup> Sn <sup>4+</sup>				I <sup>-</sup>	
Cs <sup>+</sup>	Ba <sup>2+</sup>									Au <sup>+</sup> Au <sup>3+</sup>	Hg <sup>2+</sup> Hg <sup>2+</sup>		Pb <sup>2+</sup> Pb <sup>4+</sup>					

Shaded elements are variable valence metals (i.e. use Roman Numerals in their names)