

NAMING IONS

For cations, name atom followed by *ion*.

e.g., H^+ is called the **hydrogen ion**.

For anions, name atom and change the suffix to **-ide**.

e.g., N^{3-} - nitri**de** ion, H^- - hydri**de** ion

For polyatomic oxyanions:

<u>Fewest oxygen atoms</u>	hypo-----ite	hypochlorite	ClO^-
<u>Fewer oxygen atoms</u>	----ite	chlorite	ClO_2^-
<u>More oxygen atoms</u>	----ate	chlorate	ClO_3^-
<u>Most oxygen atoms</u>	per-----ate	perchlorate	ClO_4^-

NAMING COMPOUNDS:

Ionic Compounds (a metal is present):

(name cation) + (name anion)

e.g., $CaCl_2$

calcium + chlor**ide** = calcium chlor**ide**

If cation can exist with multiple ionic charges (see prior page for list), identify the charge:

e.g., $PbCl_2$ (in this case lead is Pb^{2+})

lead (II) + chloride = lead (II) chloride OR plumbous chloride

Molecular Compounds (no metal is present):

(name first element) + (name second, with **-ide** suffix)

and indicate how many atoms are present in compound using prefixes (mono, di, tri, tetra...)

EXCEPTION, never start a compound using mono.

e.g., N_2O_5 - dinitrogen pentoxide

CO_2 - carbon dioxide

POLYATOMIC IONS

1- CHARGE		2- CHARGE		3- CHARGE	
$H_2PO_3^-$	dihydrogen phosph ite	HPO_3^{2-}	hydrogen phosph ite	PO_3^{3-}	phosph ite
$H_2PO_4^-$	dihydrogen phosph ate	HPO_4^{2-}	hydrogen phosph ate	PO_4^{3-}	phosph ate
HCO_3^-	hydrogen carbon ate OR bicarbon ate	CO_3^{2-}	carbon ate		
HSO_3^-	hydrogen sulf ite OR bisulf ite	SO_3^{2-}	sulf ite		
HSO_4^-	hydrogen sulf ate OR bisulf ate	SO_4^{2-}	sulf ate		
NO_2^-	nitri te	$S_2O_3^{2-}$	thiosulf ate	+ CHARGE	
NO_3^-	nitra te	$C_2O_4^{2-}$	oxal ate	NH_4^+	ammon ium
OH^-	hydrox ide	CrO_4^{2-}	chrom ate	H_3O^+	hydron ium
$C_2H_3O_2^-$	acet ate	$Cr_2O_7^{2-}$	dichrom ate	Hg_2^{2+}	mercury(I)
CN^-	cyan ide	O_2^{2-}	perox ide		
OCN^-	cyan ate				
MnO_4^-	permangan ate				
ClO^-	hypochlor ite	BrO^-	hypobrom ite	IO^-	hypoiod ite
ClO_2^-	chlor ite	BrO_2^-	brom ite	IO_2^-	iod ite
ClO_3^-	chlor ate	BrO_3^-	brom ate	IO_3^-	iod ate
ClO_4^-	perchlor ate	BrO_4^-	perbrom ate	IO_4^-	period ate

Hydrates: Contain water in the crystal structure of the compound

name ionic compound • (how many?)**hydrate**

indicate how many H_2O molecules are present using prefix (mono, di, tri...)

e.g., $Sn(NO_3)_2 \cdot 5H_2O$ - tin (II) nitrate pentahydrate

Acids: Generally identified by a leading H and an aqueous phase.

- 1) Identify the name of the anion in the acid
- 2) Change suffix of anion according to table:
- 3) Finish the name with "acid"

-ide → -ic
-ite → -ous
-ate → -ic

Acid formula anion name change suffix **acid name**
 $HCN_{(aq)}$ → cyan**ide** → cyan**ic** → **hydrocyanic acid**
(start the name with hydro)

$HNO_{2(aq)}$ → nitri**te** → nitri**ous** → **nitrous acid**
 $HNO_{3(aq)}$ → nitra**te** → nitri**c** → **nitric acid**