

**AP CHEMISTRY 2021-22**  
**Naming Compounds and Acids Information**

Chemical nomenclature (a fancy word for naming!) is crucial to success in AP Chemistry and is considered a basic skill. Students should know how to both name any compound – either ionic or molecular (aka covalent) – and given the name, should be able to write the correct formula. **Students should also know how to name acids which is a topic that should be researched and learned. ALL nomenclature rules should be reviewed, memorized, and practiced – either with a book or finding problems online.** The below list of polyatomic ions must be MEMORIZED! Remember that you will always have a periodic table available!

**List of Polyatomic ions – These should be memorized. Students will need to know them all year long**

<b>Table of Common Polyatomic Ions</b>			
<b>Ion Formula</b>	<b>Name</b>	<b>Ion Formula</b>	<b>Name</b>
$\text{Hg}_2^{2+}$	Mercury(I)	$\text{SCN}^{-1}$	Thiocyanate
$\text{NH}_4^{+1}$	Ammonium	$\text{CO}_3^{2-}$	Carbonate
$\text{C}_2\text{H}_3\text{O}_2^{-1}$ or $\text{CH}_3\text{COO}^{-1}$	Acetate	$\text{CrO}_4^{2-}$	Chromate
$\text{CN}^{-1}$	Cyanide	$\text{Cr}_2\text{O}_7^{2-}$	Dichromate
$\text{H}_2\text{PO}_4^{-1}$	Dihydrogen Phosphate	$\text{HPO}_4^{2-}$	Hydrogen Phosphate
$\text{OH}^{-1}$	Hydroxide	$\text{C}_2\text{O}_4^{2-}$	Oxalate
$\text{HCO}_3^{-1}$	Hydrogen Carbonate	$\text{O}_2^{2-}$	Peroxide
$\text{NO}_3^{-1}$	Nitrate	$\text{SO}_3^{2-}$	Sulfite
$\text{NO}_2^{-1}$	Nitrite	$\text{SO}_4^{2-}$	Sulfate <sup>###</sup>
$\text{ClO}^{-1}$ or $\text{OCl}^{-1}$	Hypochlorite	$\text{S}_2\text{O}_3^{2-}$	Thiosulfate
$\text{ClO}_2^{-1}$	Chlorite	$\text{PO}_3^{3-}$	Phosphite
$\text{ClO}_3^{-1}$	Chlorate <sup>***</sup>	$\text{PO}_4^{3-}$	Phosphate
$\text{ClO}_4^{-1}$	Perchlorate		
$\text{MnO}_4^{-1}$	Permanganate		

**\*\*\*NOTE** that bromine (Br) and other halogens will form similar oxyanions (for example,  $\text{BrO}_3^-$  is the bromate ion and  $\text{BrO}_2^-$  is the bromite ion)

**###NOTE** that selenium (Se) and other atoms in the same family as sulfur will form similar oxyanions (for example,  $\text{SeO}_4^{2-}$  is the selenate ion)

**Helpful Info about Transition Metals** – Most transition metals have the capability of forming more than one possible cation – thus the need for roman numerals when naming compounds. **BUT** there are **FOUR** transition metals that only form **ONE** cation given the opportunity, and these should be memorized. They are:

**Silver (Ag) – Forms a +1 ion      Cadmium (Cd), Nickel (Ni), and Zinc (Zn) – Form a +2 ion**