NAME:

CHAPTER 5 **SNC 2D0**

NAMING & WRITING FORMULAS: Binary Acids and Oxyacids

ACIDS always produce hydrogen (H^+).

There are two types of acids: binary acids and oxyacids.

1. BINARY ACIDS

- Binary acids contain only 2 elements, hydrogen and one other element.

Rules hydro + root + ic acid

1. Use **hydro** as the prefix.
2. Then add the stem name of the second element.
3. Add an **ic** ending

H^{+1} S^{2-} → H_2S

aqueous (solution)

- ***Examples of Common Binary Acids***

Formula	Compound Name	Acid Name	Use
HCl (aq)	Hydrogen Chloride	Hydrochloric Acid	· Cleaning concrete
H_2S (aq)	Hydrogen sulfide	Hydrosulfuric Acid	purify metals
HF (aq)	Hydrogen Fluoride	Hydrofluoric acid	etching glass
HBr (aq)	Hydrogen bromide	Hydrobromic acid	to make cleaning compounds

2. OXOACIDS

- The second type of acid is an oxy acid.
- These acids contain hydrogen, oxygen and one non-metal.

  Oxy acids are often formed with a polyatomic ion (radical) that react with hydrogen. HSO_3 → sulfite → sulfurous acid

H_2SO_4 → sulfate → sulfuric acid

Rules

1. The radical ending, **ate**, is dropped.
2. The ending **ic acid** is added to the stem name

- ate → root + ic acid
- ite → root + ous acid

- ***Examples of Common Oxyacids***

Formula	Radical	Radical Name	Acid Name
$HC_2H_3O_2$ (aq)	$C_2H_3O_2^{1-}$	acetate	Acetic Acid
HNO_3 (aq)	NO_3^{1-}	nitrate	Nitric Acid
H_2CO_3 (aq)	CO_3^{-2}	carbonate	Carbonic acid
H_2SO_4 (aq)	SO_4^{2-}	Sulfate	Sulfuric Acid
H_3PO_4 (aq)	PO_4^{3-}	phosphate	phosphoric Acid

acetate

For all acids, the number of hydrogen atoms is equal to the valence or charge on the polyatomic or radical it is bonding with.

Practice *makes Perfect!!*

Formula	Binary or Oxoacid?	Name
		hydrochloric acid
$HF_{(aq)}$		
		hydroiodic acid
$H_3P_{(aq)}$		
		sulphuric acid
		phosphoric acid
$HNO_{3\ (aq)}$		
$H_2CO_{3\ (aq)}$		
		hydrosulphuric acid
$HClO_{3\ (aq)}$		

WRITING NAMES – BINARY/OXYACIDS

Formula	Name	Formula	Name
1. $HF_{(aq)}$		10. $HClO_{(aq)}$	
2. $HI_{(aq)}$		11. $HClO_{2\ (aq)}$	
3. $HCl_{(aq)}$		12. $HClO_{3\ (aq)}$	
4. $HBr_{(aq)}$		13. $HClO_{4\ (aq)}$	
5. $H_2S_{(aq)}$		14. $H_2CO_{3\ (aq)}$	
6. $HNO_{3\ (aq)}$		15. $H_2C_2O_{4\ (aq)}$	
7. $HNO_{2\ (aq)}$		16. $H_3PO_{4\ (aq)}$	
8. $H_2SO_{4\ (aq)}$		17. $H_3PO_{3\ (aq)}$	
9. $H_2SO_{3\ (aq)}$		18. $H_2CrO_{4\ (aq)}$	

WRITING FORMULAS – BINARY/OXYACIDS

Name	Formula	Name	Formula
1. Hydrobromic acid		10. Carbonic acid	
2. Hydroiodic acid		11. Chloric acid	
3. Hydroflouric acid		12. Chlorous acid	
4. Hydrochloric acid		13. Perchloric acid	
5. Hydrosulfic acid		14. Hypochlorous acid	
6. Phosphoric acid		15. Permanganic acid	
7. Phosphorous acid		16. Acetic acid	
8. Sulfuric acid		17. Nitric acid	
9. Sulfurous acid		18. Nitrous acid	