

## Writing Acid Formulas/Naming acids

formula starts with "H"

name-ends in "acid"

Balance the overall charge to zero... (like ionic - criss cross)

All acids start with  $H^{+1}$

$H^{+1} PO_4^{-3}$

$H_3PO_4$

Identify the acid: cation is always  $H^+$   
use the anion to name it

3 ways to name:

1. binary acids ("bi" = "2") or non-oxy acid

$H^+$  and one other element

anion ends in -ide

$HCl$   $Cl^{-1}$  chloride **hydro-\_\_\_\_\_ic acid**

$HF$   $F^{-1}$  fluoride **hydro-\_\_\_\_\_ic acid**

$H_2S$   $S^{-2}$  sulfide **hydro-\_\_\_\_\_ic acid**

$H_3N$   $N^{-3}$  nitride **hydro-\_\_\_\_\_ic acid**

Binary rule: **hydro-stem-ic acid**  
use stem from anion

2. Oxyacid acids

↑  
contain oxygen

Again, look at the anion

$HNO_3$   $NO_3^{-1}$  nitrate \_\_\_\_\_ic acid

$H_2SO_4$   $SO_4^{-2}$  sulfate \_\_\_\_\_ic acid

$H_3PO_4$   $PO_4^{-3}$  phosphate \_\_\_\_\_ic acid

Oxyacid rule #1:  
if anion ends in -ate, use **stem-ic acid**

**I ate something ic-ky in the cafeteria**

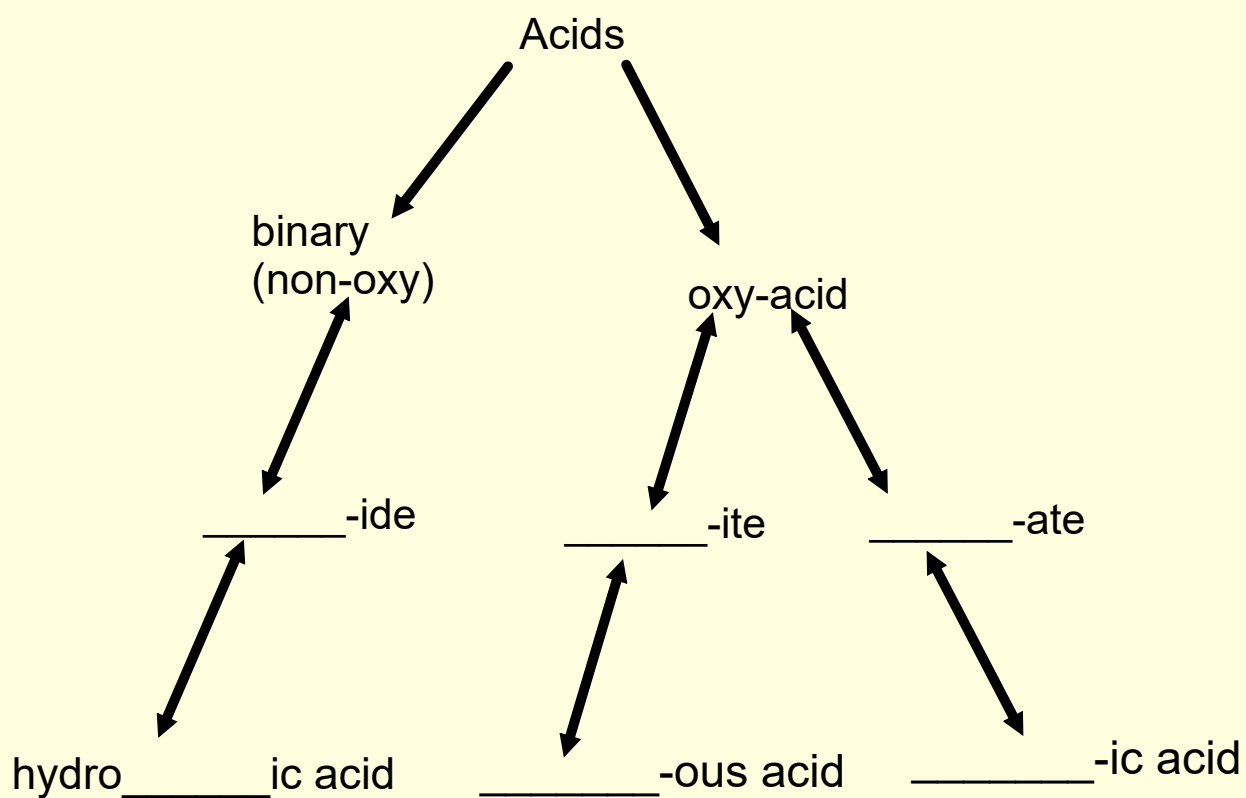
$HNO_2$   $NO_2^{-1}$  nitrite \_\_\_\_\_ous acid

$H_2SO_3$   $SO_3^{-2}$  sulfite \_\_\_\_\_ous acid

$H_3PO_3$   $PO_3^{-3}$  phosphite \_\_\_\_\_ous acid

oxyacid rule #2:  
if anion ends in -ite, use **stem-ous acid**

# acid nomenclature: (review)



## Naming Acids

	<b>Anion Ending</b>	<b>Acid Name</b>
Binary @	<i>-ide</i>	<i>hydro-(stem)-ic acid</i>
Oxyacid/ Ternary	<i>-ate</i>	(stem) <i>-ic acid</i>
	<i>-ite</i>	(stem) <i>-ous acid</i>

***An easy way to remember which goes with which...***

***“In the cafeteria, you ATE something ICky”***

## Naming Acids

	underline stem name of anion	rule	acid name
<b>HBr</b>	<u>bromide</u> Br <sup>-1</sup>	binary: hydro- <u>stem</u> -ic acid	<b>hydro<u>bromic</u> acid</b>
<b>H<sub>2</sub>CO<sub>3</sub></b>	<u>carbonate</u> CO <sub>3</sub> <sup>-2</sup>	oxyacid: <u>Stem</u> -ic acid	<b><u>carbonic</u> acid</b>
<b>H<sub>2</sub>SO<sub>3</sub></b>	<u>sulfite</u> SO <sub>3</sub> <sup>-2</sup>	oxyacid: <u>Stem</u> -ous acid	<b><u>sulfurous</u> acid</b> (note: not exact stem)

Formula	Anion	Anion name	Acid Name
HF			
HCl			
			hydrobromic acid
HI			
			hydrosulfuric acid
HNO <sub>3</sub>			
			acetic acid
H <sub>2</sub> SO <sub>4</sub>			
			carbonic acid
H <sub>3</sub> PO <sub>4</sub>			
			hypochlorous acid
HClO <sub>2</sub>			
			chloric acid
HClO <sub>4</sub>			
			iodic acid
HNO <sub>2</sub>			
H <sub>2</sub> SO <sub>3</sub>			

Formula	Anion	Anion name	Acid Name
HF	F <sup>-</sup> is	fluoride	hydrofluoric acid
HCl	Cl <sup>-</sup> is	chloride	hydrochloric acid
HBr	Br <sup>-</sup> is	bromide	hydrobromic acid
HI	I <sup>-</sup> is	iodide	hydriodic acid
H <sub>2</sub> S	S <sup>2-</sup> is	sulfide	hydrosulfuric acid
HNO <sub>3</sub>	NO <sub>3</sub> <sup>-</sup> is	nitrate	nitric acid
HC <sub>2</sub> H <sub>3</sub> O <sub>2</sub>	C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> <sup>-</sup> is	acetate	acetic acid
H <sub>2</sub> SO <sub>4</sub>	SO <sub>4</sub> <sup>2-</sup> is	sulfate	sulfuric acid
H <sub>2</sub> CO <sub>3</sub>	CO <sub>3</sub> <sup>2-</sup> is	carbonate	carbonic acid
H <sub>3</sub> PO <sub>4</sub>	PO <sub>4</sub> <sup>3-</sup> is	phosphate	phosphoric acid
HClO	ClO <sup>-</sup> is	hypochlorite	hypochlorous acid
HClO <sub>2</sub>	ClO <sub>2</sub> <sup>-</sup> is	chlorite	chlorous acid
HClO <sub>3</sub>	ClO <sub>3</sub> <sup>-</sup> is	chlorate	chloric acid
HClO <sub>4</sub>	ClO <sub>4</sub> <sup>-</sup> is	perchlorate	perchloric acid
HIO <sub>3</sub>	IO <sub>3</sub> <sup>-</sup> is	iodate	iodic acid
HNO <sub>2</sub>	NO <sub>2</sub> <sup>-</sup> is	nitrite	nitrous acid
H <sub>2</sub> SO <sub>3</sub>	SO <sub>3</sub> <sup>2-</sup> is	sulfite	sulfurous acid

$H^+$   $PO_3^{2-}$   $PO_3^{3-}$  phosphite phosphorous acid  
 $H_3PO_3$

## Review:

What indicates an acid:  
in the name?  
in the formula?



## Review

hydrocyanic acid

chloric acid

hydrophosphoric acid

sufurous acid

hypochlorous acid