

## NAMING ACIDS

A variety of acids are used in foods, industry, and research. Acids are covalently bonded molecules, but when they are put into water they produce ions. One of the ions produced is always  $H^+$ , which immediately combines with a water molecule to form the hydronium ion ( $H_3O^+$ ). The  $H_3O^+$  ion is what defines the acidic properties of a substance. Because of their special classification, acids have a naming system different from ionic or other molecular (covalent) compounds.

### How to identify an acid:

**The first element in an acid formula is always hydrogen, followed by an anion.**

Practice: Which of the following are acids? Circle all the acids.

NaCl       $H_2S$        $HClO_4$        $CH_4$       HF       $C_2H_6$        $H_2SO_3$        $FeCl_3$

### How to name an acid:

**The anion in the acid determines the name of the acid. There are three scenarios:**

**1. Anion is a monoatomic ion (one element, ends in “ide”)**

- Write the prefix “**hydro**” then the name of the anion changing the ending of the anion to “**ic**”. Then add the word acid.
- Example: HCl
  - Anion = chloride, thus add the prefix “hydro” then change chloride to chloric and add the word acid.
  - HCl = hydrochloric acid

**2. Anion is a polyatomic ion ending in “ate”**

- Write the name of the polyatomic ion, changing the ending to “**ic**”. Then add the word acid.
- Example:  $HClO_3$ 
  - Anion = chlorate, thus change chlorate to chloric and add the word acid.
  - $HClO_3$  = chloric acid

**3. Anion is a polyatomic ion ending in “ite”**

- Write the name of the polyatomic ion, changing the ending to “**ous**”. Then add the word acid.
- Example:  $HClO_2$ 
  - Anion = chlorite, thus change chlorite to chlorous and add the word acid.
  - $HClO_2$  = chlorous acid

Practice: Complete the table below.

	Acid Formula	Anion Formula	Anion Name	Acid Name
Ex. 1	H <sub>2</sub> S	S <sup>2-</sup>	sulfide	Hydrosulfuric acid
Ex. 2	H <sub>2</sub> SO <sub>4</sub>	SO <sub>4</sub> <sup>2-</sup>	sulfate	Sulfuric acid
1.	HBr			
2.	H <sub>3</sub> PO <sub>4</sub>			
3.	HNO <sub>3</sub>			
4.	HNO <sub>2</sub>			
5.		CO <sub>3</sub> <sup>2-</sup>		
6.			sulfite	
7.		P <sup>3-</sup>		
8.		C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> <sup>-</sup>		