

NAMING ACIDS

The word *acid* evokes a sense of fear, just in and of itself. But, there should be no fear when naming an acid.

There are two types of acids we will be naming:

1. Binary (meaning *two*)
2. Oxyacid (meaning **oxygen is present**)

There are specific rules for both. The hardest part is identify what type of acid you have first. The easiest way is to first, identify you have an acid (remember that ALL acids start with H in front), and the next is to look for what that H is bonding to, meaning the anion, or negative part of the acid.

BINARY ACIDS

With a binary acid, the H will be bonded to a **non-metal element**, like chlorine or bromine. This type of acid DOES NOT HAVE OXYGEN PRESENT IN THE FORMULA.

A few of examples are listed below:

- HCl
- HBr
- HI

To name a binary acid there is a specific formula that is followed:

1. Use the prefix *hydro* +
2. Root of the anion's name +
 - Tricks:
 - phosphorous: phosphor- is the root
 - sulfur: sulfur- is the root
3. The suffix - *ic*

Let's try to name some of those types of acids using this formula:

★**Example:**

➡HCl:

• *hydro* + **chlor** (root of chlorine) + *ic* = hydrochloric acid

• HBr:

• _____ + _____ + _____ = _____

• HI:

• _____ + _____ + _____ = _____

• H₂S:

• _____ + _____ + _____ = _____

• HF:

• _____ + _____ + _____ = _____

So, remember, binary acids have only two elements: hydrogen and a non-metal.

OXYACIDS:

So, what happens when you have oxygen in the acid?? Well, that means the hydrogen is bonding with a polyatomic that contains oxygen. The names of these acids depend on the polyatomic anion.

There is a specific formula for these types of acids as well.

- DO NOT USE THE PREFIX HYDRO!!**
- If the polyatomic anion ends in **-ate**, the acid name will end in the suffix **-ic**
 - H_2SO_4
 - This acid has the anion **sulfate**
 - Instead of "sulfic" acid, this anion takes the root name of sulfur - **sulfuric acid**
- If the polyatomic anion ends in **-ite**, the acid name will end in the suffix **-ous**
 - H_2SO_3
 - This acid has the anion **sulfite**
 - The name of this acid is **sulfurous acid**
- The root name of the polyatomic anion is still used.

Let's try to name some of those types of acids using this formula:

★Example:

⇒ H_3PO_4 :

- **Polyatomic ion:** phosphate (**-ate** → **-ic**)
- **Name:** Phosphor (root of phosphate ion) + **ic** = phosphoric acid

• H_2CO_3 :

- **Polyatomic ion:** _____ (____ → ____)
- **Name:** _____ + _____ = _____

• $\text{HC}_2\text{H}_3\text{O}_2$:

- **Polyatomic ion:** _____ (____ → ____)
- **Name:** _____ + _____ = _____

• HNO_3 :

- **Polyatomic ion:** _____ (____ → ____)
- **Name:** _____ + _____ = _____

• HNO_2 :

- **Polyatomic ion:** _____ (____ → ____)
- **Name:** _____ + _____ = _____

Remember, oxyacids have hydrogen bonded to a polyatomic with oxygen in the formula!! LOOK AT THE ENDING OF THE POLYATOMIC!! -ATE → -IC, -ITE → -OUS