

Rules for Naming Acids that Do Not Contain Oxygen in the Anion:

Rule #1: hydrogen _____ide becomes hydro_____ic acid

Ex: $\text{HCl}_{(\text{aq})}$: hydrogen chloride becomes hydrochloric acid

Since all these acids have the same cation, H^+ , we don't need to name the cation.

The acid name comes from the root name of the anion name.

The prefix hydro- and the suffix -ic are then added to the root name of the anion.

HF, which contains the anion fluoride, is called **hydrofluoric acid**.

HCN, which contains the anion cyanide, is called **hydrocyanic acid**.

Rules for Naming Oxyacids (anion contains the element oxygen):

Rule #2 hydrogen _____ate becomes _____ic acid

Memory Aid: I "ATE" at the cafeteria and got s"IC"k

Ex: $\text{HBO}_{3(\text{aq})}$: hydrogen borate becomes boric acid

Since all these acids have the same cation, H^+ , we don't need to name the cation.

The acid name comes from the root name of the oxyanion name or the central element of the oxyanion. Suffixes are used based on the ending of the original name of the oxyanion. If the name of the polyatomic anion ended with -ate, change it to -ic for the acid.

HNO_3 , which contains the polyatomic ion **nitrate**, is called **nitric acid**.

Rule #3 hydrogen _____ite becomes _____ous acid

Memory Aid: Think Righteous Brothers or Righteous Dude... R "ITE" - "OUS"

Ex: $\text{H}_2\text{SO}_{3(\text{aq})}$: hydrogen sulfite becomes sulfurous acid

HNO_2 , which contains the polyatomic ion **nitrite**, is called **nitrous acid**.

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

Directions: Use the naming rules from your notes to name these acids.

Formula	Name	Formula	Name
1) HF		4) HClO	
2) HI		5) HClO ₂	
3) HCl		6) HClO ₃	

Directions: Use the rules for writing formulas to write the proper formulas for these acids.

Name	Formula	Name	Formula
7) Hydrobromic acid		10) Carbonic acid	
8) Hydroiodic acid		11) Chloric acid	
9) Hydrofluoric acid		12) Chlorous acid	

Directions: Use the naming rules from your notes to name these bases.

Formula	Name	Formula	Name
1) KOH		4) Sr(OH) ₂	
2) LiOH		5) Fe(OH) ₃	
3) Ba(OH) ₂		6) Fe(OH) ₂	

Directions: Use the rules for writing formulas to write the proper formulas for these bases.

Name	Formula	Name	Formula
7) aluminum hydroxide		10) rubidium hydroxide	
8) lithium hydroxide		11) calcium hydroxide	
9) copper (II) hydroxide		12) sodium hydroxide	