Naming Acids

Acids

For simplicity, the acids that we will be concerned with naming are really just a special class of ionic compounds where the cation is always H^+. So if the formula has hydrogen written first, then this usually indicates that the hydrogen is an H^+ cation and that the compound is an acid. When dissolved in water, acids produce H^+ ions (also called protons, since removing the single electron from a neutral hydrogen atom leaves behind one proton).

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

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.

All acids beginning with the prefix „hydro“ are otherwise known as **binary acids**.

HCl, which contains the anion chloride, is called hydrochloric acid.

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

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

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 and if it ended with -ite, change it to -ous in the acid.

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

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

Anion name and Acid name

Formula	Anion	Anion name	Acid Name
HF	F^- is	fluoride	hydrofluoric acid
HCl	Cl^- is	chloride	hydrochloric acid
HBr	Br^- is	bromide	hydrobromic acid
HI	I^- is	iodide	hydroiodic acid
H_2S	S^{2-} is	sulfide	hydrosulfic acid
HNO_2	NO_2 is	nitrite	nitrous acid
HNO_3	NO_3^- is	nitrate	nitric acid
$HC_2H_3O_2$	$C_2H_3O_2^-$ is	acetate	acetic acid
H_2SO_4	SO_4^{2-} is	sulfate	sulfuric acid
H_2CO_3	CO_3^{2-} is	carbonate	carbonic acid
H_3PO_4	PO_4^{3-} is	phosphate	phosphoric acid
HClO	ClO^- is	hypoclorite	hypochlorous acid
$HClO_2$	ClO_2^- is	chlorite	chlorous acid
$HClO_3$	ClO_3^- is	chlorate	chloric acid
$HClO_4$	ClO_4^- is	perchlorate	perchloric acid
HIO_3	IO_3^- is	iodate	iodic acid
HNO_2	NO_2^- is	nitrite	nitrous acid
H_2SO_3	SO_3^{2-} is	sulfite	sulforous acid
HCN	CN is	cyanide	hydrocyanic acid