Acids

Acids are substances that dissolve in water to produce H^+ ions. In order to display its acidic properties, it must be in the aqueous state (aq). The formulas of acids always begin with H.

Naming and Writing Formulas for Acids

A) BINARY ACIDS (H + ELEMENT, aq)

1. Identify the element bonded to H, and write its name.
2. Write "hydro-" in front of the element, and change the ending to "-ic acid"

Example	HF (aq)	Fluorine is bonded to hydrogen The name of this acid is hydrofluoric acid.
	H_2S (aq)	hydrosulfuric acid

B) OXYACIDS (H + POLYATOMIC ANION, aq)

1. Identify the element (other than oxygen) in the oxyanion, and write its name.
2. Change the ending to "-ic acid" if the anion ends in *–ate,* or "-ous acid" if anion ends in *–ite*. (See table below)

Name of oxyanion	Name of acid	Example		
		Anion	Acid	
per_____ate	per_____ic acid	perchlorate, ClO_4^-	perchloric acid	$HClO_4$
_____ate	**_____ic acid**	**chlorate, ClO_3^-**	**chloric acid**	**$HClO_3$**
_____ite	_____ous acid	chlorite, ClO_2^-	chlorous acid	$HClO_2$
hypo_____ite	hypo_____ous acid	hypochlorite, ClO^-	hypochlorous acid	HClO

Example	$HBrO_3$ (aq)	The bromate ion (BrO_3^-) is bonded to hydrogen The name of this acid is bromic acid.

☞ Practice: Identify the anion, and name/write the formula for the following acids:

Acid formula	Anion	Acid name	Acid formula	Anion	Acid name
(a) H_2S (aq)	S^{2-}	Hydrosulfuric acid	(j) H_3PO_4 (aq)	PO_4^{3-}	phosphoric acid
(b) HF (aq)	F^-	Hydrofluoric acid	(k) HNO_2 (aq)	NO_2^-	nitrous acid
(c) HNO_3 (aq)	NO_3^-	Nitric acid	(l) $HBrO_3$ (aq)	BrO_3^-	bromic acid
(d) HI (aq)	I-	Hydroiodic acid	(m) $HClO_3$ (aq)	ClO_3^-	chloric acid
(e) HIO_3 (aq)	IO_3^-	Iodic acid	(n) H_2SO_2 (aq)	SO_2^{2-}	hyposulfurous acid
(f) H_2SO_4 (aq)	SO_4^{2-}	Sulfuric acid	(o) HF (aq)	F^-	hydrofluoric acid
(g) HBr (aq)	Br^-	Hydrobromic acid	(p) H_2CO_3 (aq)	CO_3^{2-}	carbonic acid
(h) H_3PO_2 (aq)	PO_2^{3-}	Hypophosphorous acid	(q) H_2SO_4 (aq)	SO_4^{2-}	sulfuric acid
(i) H_3P (aq)	P^{3-}	Hydrophosphoric acid	(r) HClO (aq)	ClO^-	hypochlorous acid