lithium chloride	$LiCl$	I
ammonium permanganate	NH_4MnO_4	I
silver nitrate	$AgNO_3$	I
zinc hydroxide	$Zn(OH)_2$	I
carbon disulfide	CS_2	C
iron(III) phosphate	$FePO_4$ (also called ferric phosphate)	I
copper(I) iodide	CuI (also called cuprous iodide)	I
tin(IV) fluoride	SnF_4 (also called stannic fluoride)	I
barium dichromate	$BaCr_2O_7$	I
beryllium nitrite	$Be(NO_2)_2$	I
sulfur trioxide	SO_3	C
calcium bromide	$CaBr_2$	I
lead(IV) carbonate	$Pb(CO_3)_2$ (also called plumbic carbonate)	I
carbon tetrafluoride	CF_4	C
strontium sulfide	SrS	I
aluminum acetate	$Al(C_2H_3O_2)_3$	I
sodium bicarbonate	$NaHCO_3$	I
tin(II) iodide	SnI_2 (also called stannous iodide)	I
boron trichloride	BCl_3	C
dibromine pentoxide	Br_2O_5	C
ammonia	NH_3	C
silicon dioxide	SiO_2	C
tetrasulfur tetranitride	S_4N_4	C
magnesium phosphide	Mg_3P_2	I
copper(I) bisulfite	$CuHSO_3$ (also called cuprous bisulfate)	I

$NaClO_4$	sodium perchlorate	I
P_2O_3	diphosphorus trioxide	C
Li_3P	lithium phosphide	I
$KHSO_4$	potassium bisulfate	I
FeS	iron(II) sulfide or ferrous sulfide	I
$PbCrO_4$	lead(II) chromate or plumbous chromate	I
$MgBr_2$	magnesium bromide	I
$ZnSO_4$	zinc sulfate	I
K_2CO_3	potassium carbonate	I
Cl_2S_5	dichlorine pentasulfide	C
H_2O	water	C
Al_2O_3	aluminum oxide	I
NF_3	nitrogen trifluoride	C
CO_2	carbon dioxide	C
NH_4NO_2	ammonium nitrite	I
$Cu(NO_3)_2$	copper(II) nitrate or cupric nitrate	I
Ca_3N_2	calcium nitride	I
$AlPO_4$	aluminum phosphate	I
Na_2SO_3	sodium sulfite	I
CCl_4	carbon tetrachloride	C
KCN	potassium cyanide	I
HCl	hydrogen choride or hydrochloric acid if (aq)	strong acid⇒I
CH_4	methane	C
$Ba(OH)_2$	barium hydroxide	I
H_2S	(di)hydrogen sulfide	C
$LiC_2H_3O_2$	lithium acetate	I

Naming Acids
Chem Worksheet 9-3

Name Key

Acids are compounds that can donate the hydrogen ion, H^+. When the formula for an acid is written the symbol for this hydrogen generally appears at the beginning of the formula. For example the formula for hydrochloric acid is written HCl and the formula for phosphoric acid is H_3PO_4. Notice that both formulas begin with the letter H. In both cases the acid is made of a hydrogen ion (or hydrogen ions) and a negative ion, known as the **anion**.

The name for an acid is based on the name of the anion. If the anion ends with the letters –ide, the acid is named one way while acids containing anions that end with –ate use a different rule. Remember that monatomic anions typically end with –ide. The rules for naming acids are summarized below.

Naming Acids

Anion called __(root)__ ide
Example: sulfide, S^{2-}
↓
Acid called hydro_(root)_ ic acid
Example: hydrosulfuric acid, H_2S

Anion called __(root)__ ate
Example: chlorate, ClO_3^-
↓
Acid called _(root)_ ic acid
Example: chloric acid, $HClO_3$

Anion called __(root)__ ite
Example: chlorite, ClO_2^-
↓
Acid called _(root)_ ous acid
Example: chlorous acid, $HClO_2$

Examples

#1. Write the chemical formula for: sulfurous acid.

- this acid contains the hydrogen ion and the sulfite ion: H^+ SO_3^{2-}
- create a neutral compound from these ions: H^{1+} ~~SO_3^{2-}~~ H_2SO_3

#2. Name the following acid: H_2CO_3.

- this acid contains the hydrogen ion and the carbonate ion: H^+ CO_3^{2-}
- the name of the negative ion is **carbonate**, therefore the acid is called **carbonic acid.**

Fill in the following table with the missing information.

	Formula	Cation	Formula for anion	Name of anion	Name of Acid
1.	HCl	H^+	Cl^-	chloride	hydrochloric acid
2.	HNO_3	H^+	NO_3^-	nitrate	Nitric acid
3.	HF	H^+	F^-	fluorine	hydrofluoric acid
4.	H_2SO_4	H^+	SO_4^{2-}	sulfate	sulfic acid
5.	H_2CO_3	H^+	CO_3^{-2}	carbonate	carbonic acid
6.	H_2SO_3	H^+	SO_3^{-2}	sulfite	sulfurous acid
7.	$HClO_3$	H^+	ClO_3^-	chlorate	chloric acid
8.	H_3PO_4	H^+	PO_4^{-3}	phosphate	phosphic acid
9.	$H_2C_2O_4$	H^+	$C_2O_4^{-2}$	oxalate	oxalic acid
10.	HCN	H^+	CN^{-1}	cyanide	hydrocyanic acid
11.	$HC_2H_3O_2$	H^+	$C_2H_3O_2^{-1}$	acetate	acetic acid → vinegar!
12.	HI	H^+	I^-	iodine	hydroionic acid
13.	H_2S	H^+	S^{2-}	sulfide	hydrogen sulfide
14.	HClO	H^+	ClO^{-1}	chlorate	chloric acid
15.	H_3AsO_4	H^+	AsO_4^{3-}	arsenate	arsenic acid
16.	HNO_2	H^+	NO_2^{-1}	Nitrite	nitrous acid