

NAMING IONIC COMPOUNDS

- The name of the compound is based on the name of the ions in the compound
- Cation first, anion second (drop the word "ion")

Examples:



magnesium hydroxide



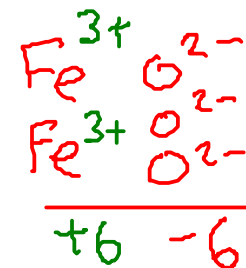
sodium sulfide



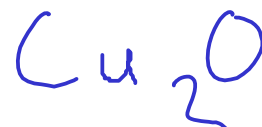
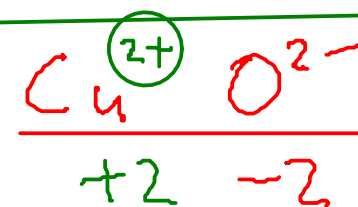
beryllium bromide



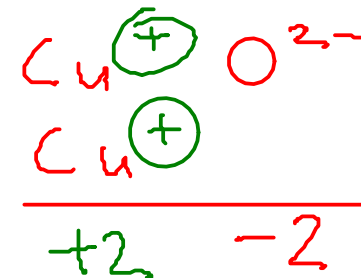
iron(III) oxide



copper(II) oxide

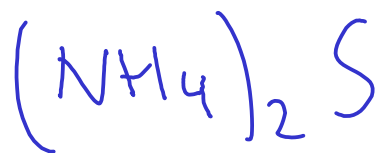


copper(I) oxide



Remember to include the Roman numeral for CHARGE in the name of transition metal compounds!

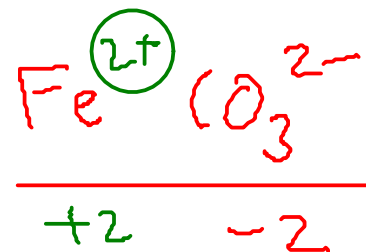
NAMING IONIC COMPOUNDS



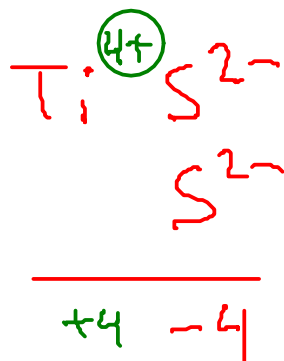
ammonium sulfide



iron(II) carbonate



titanium(IV) sulfide



barium phosphate



barium phosphide

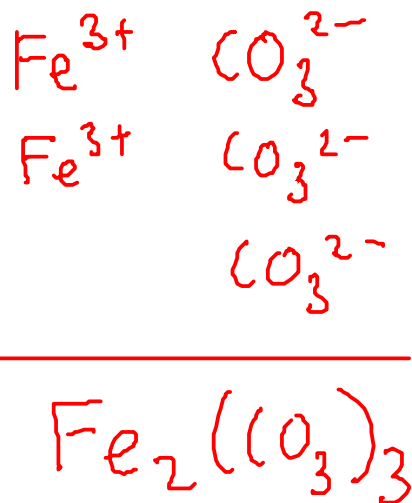
Spelling matters!

DETERMINING THE FORMULA OF AN IONIC COMPOUND FROM THE NAME

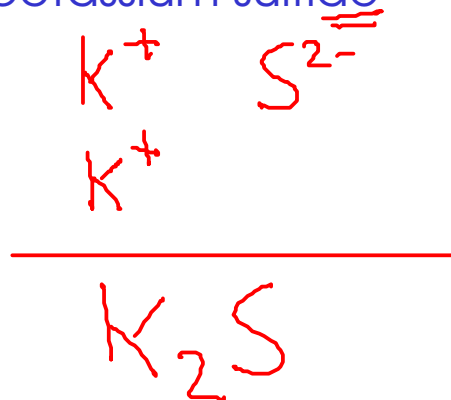
- The name of an ionic compound is made of the names of the CATION and ANION in the compound.
 - To get the FORMULA, you must figure out the SMALLEST RATIO of cation to anion that makes the charges balance out
-

Examples:

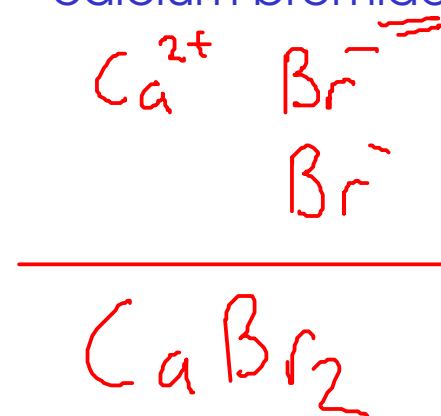
iron(III) carbonate



potassium sulfide



calcium bromide

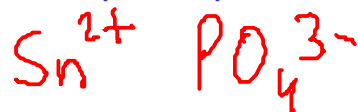


DETERMINING IONIC FORMULAS

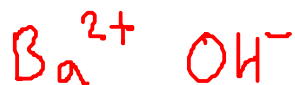
sodium sulfate



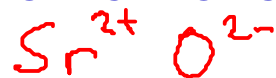
tin(II) phosphate



barium hydroxide



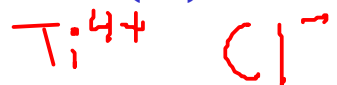
strontium oxide



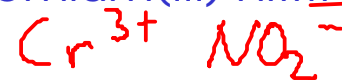
chromium(III) nitrate



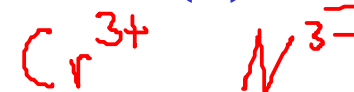
titanium(IV) chloride



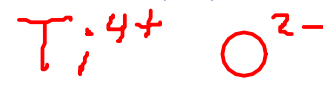
chromium(III) nitrite



chromium(III) nitride



titanium(IV) oxide



If your formula contains more than one polyatomic ion, you NEED to put the polyatomic ion in parenthesis!

MOLECULAR COMPOUNDS

- There are several kinds of molecular compound. We will learn to name two simple but important classes

① BINARY MOLECULAR COMPOUNDS

- molecular compounds containing only two elements

② ACIDS

- molecular compounds that dissolve in water to release H^+ ions
- corrosive to metals (react with many to produce hydrogen gas)
- contact hazard: can cause chemical burns to eyes and skin
- sour taste
- turn litmus indicator RED
- two kinds of acids:

① BINARY ACIDS

- contain hydrogen and one other element

usually
Group VIIA


② OXYACIDS

- contain hydrogen, OXYGEN, and another element

BINARY MOLECULAR COMPOUNDS

- Named based on the elements they contain, plus prefixes to indicate the number of atoms of each element in each molecule

① FIRST ELEMENT

- Add a GREEK PREFIX to the name of the element.
- Omit the "MONO-" (1) prefix if there is only one atom of the first element

② SECOND ELEMENT

- Add a GREEK PREFIX to the STEM NAME of the element
- Add the suffix "-ide" (as if you were naming an anion)
- DO NOT omit the "mono-" prefix if there is only one atom of the second element

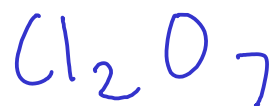
A LIST OF THE GREEK PREFIXES ARE ON THE COURSE WEB SITE!

BINARY MOLECULAR COMPOUNDS

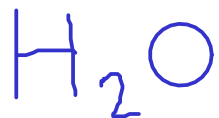
Examples:



boron trifluoride



dichlorine hept(a)oxide

carbon
monoxidecarbon
dioxidedihydrogen
monoxide

(But we call it by its common name - water!)

carbon tetrachloride



iodine trichloride



dinitrogen tetrafluoride



MgCl_2 : magnesium CHLORIDE, not magnesium dichloride. Why? Magnesium chloride is IONIC, and should be named using the system we already learned for ionic compounds. (How can we tell? Generally, metal/nonmetal compounds are IONIC.)

ACIDS

① BINARY ACIDS

- named after the element (other than hydrogen) they contain
- common binary acids include a Group VIIA element
- named: "Hydro-" + STEM NAME OF ELEMENT+ "-ic acid"

Four
common
binary
acids

HF : hydrofluoric acid * dissolves glass!

HCl : hydrochloric acid * most common binary acid!

HBr : hydrobromic acid

HI : hydroiodic acid