

Chem 513
Ms. Schoenbrun

Name: _____

HW I: Naming Compounds

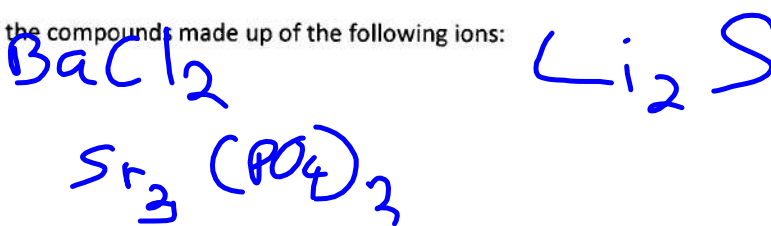
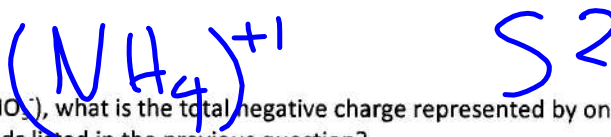
1. Define a. anion: b. cation.

2. If a magnesium ion has a charge of $2+$ (Mg^{2+}), what is the total positive charge represented by one formula unit of each of the compounds listed below?
 - a. MgCl_2
 - b. MgSO_4
 - c. $\text{Mg}_3(\text{PO}_4)_2$

3. How many nitrate ions, NO_3^- , are represented by one formula unit of each of the following ionic compounds?
 - a. $\text{Mg}(\text{NO}_3)_2$
 - b. NaNO_3
 - c. $\text{Al}(\text{NO}_3)_3$

4. If the nitrate ion has a charge of 1^- (NO_3^-), what is the total negative charge represented by one formula unit of each of the compounds listed in the previous question?
 - a. $\text{Mg}(\text{NO}_3)_2$
 - b. NaNO_3
 - c. $\text{Al}(\text{NO}_3)_3$

5. Write correct formulas for the compounds made up of the following ions:
 - a. Ba^{2+} and Cl^-
 - b. Li^+ and S^{2-}
 - c. Sr^{2+} and PO_4^{3-}
 - d. NH_4^+ and S^{2-}
 - e. Al^{3+} and S^{2-}



Writing and Naming Compounds:

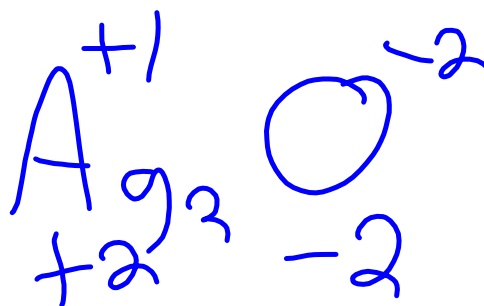


1. Writing ionic cpds: Ag, O; Ca, SO₄

a) Write the metal first:(look at periodic table diagram)



b) Determine charge on atoms from chart or periodic table:

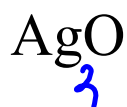


c) select subscripts to make charges = 0

d) using polyatomic ions, put the ion in parantheses before adding subscript

Naming Ionic Cpds:

1. Ionic cpds -only 2 elements (no polyatomic ions)



- a) name the metal (cation) first

Silver
oxide

- b) then name the non-metal with the suffix ide

oxygen-
chlorine-
hydrogen

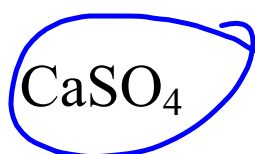
oxide
chloride
hydride

2. If polyatomic ion, e.g. $\overset{+1}{\text{Ag}}_2\overset{-2}{\text{O}_2}$

a) name metal first

silver peroxide

b) use name of the polyatomic ion



Calcium sulfate



Magnesium nitrite



Potassium sulfide

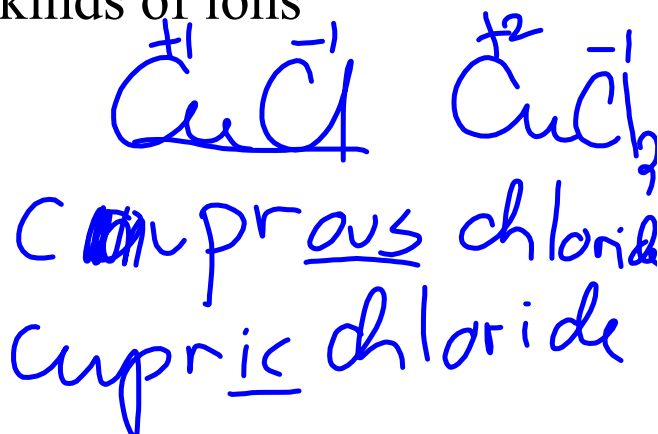


silver nitrate

But some metals form 2 kinds of ions

e.g. Cu^{+1} and Cu^{+2}

Write the formulas:



But to name:

Traditional: lower charge - suffix ous
higher charge - suffix ic

Stock System: name by charges:

$\text{Cu}^{+1} =$

copper(I) chloride CuCl

$\text{Cu}^{+2} =$

copper(II) chloride CuCl_2

The Traditional System and Stock System for Naming Certain Ions

Element		Ion		
Symbol	Name	Symbol	Name	
			Traditional	Stock System
Cu	copper	Cu^{1+}	cuprous	copper (I)
		Cu^{2+}	cupric	copper (II)
Fe	iron	Fe^{2+}	ferrous	iron (II)
		Fe^{3+}	ferric	iron (III)
Hg	mercury	Hg_2^{2+}	mercurous	mercury (I)
		Hg^{2+}	mercuric	mercury (II)
Pb	lead	Pb^{2+}	plumbous	lead (II)
		Pb^{4+}	plumbic	lead (IV)
Sn	tin	Sn^{2+}	stannous	tin (II)
		Sn^{4+}	stannic	tin (IV)

Chemistry

Name _____
WorksheetNaming and Writing Ionic Compounds

1. Write the formula for each compound:

- a) barium chloride BaCl_2 b) calcium oxide CaO
c) magnesium sulfate MgSO_4 d) silver bromide AgBr
e) zinc carbonate ZnCO_3 f) lithium nitrite LiNO_2

2. Name these compounds:

- a) NaHCO_3 Sodium bicarbonate
b) K_2O_2 Potassium peroxide
c) HgCl_2 Mercury (II) chloride mercuric
d) $\text{Fe}(\text{OH})_3$ Ferric Hydroxide Iron(III) hydroxide
e) $\text{Ni}(\text{C}_2\text{H}_3\text{O}_2)_2$ Nickel (II) Acetate Iron(III) hydroxide

3. Write the formula for each compound:

- a) ammonium nitrate NH_4NO_3 b) aluminum sulfide Al_2S_3
c) copper II hydroxide _____ d) lead II phosphate _____
e) iron III sulfite _____ f) beryllium chromate _____

4. Name these compounds:

- a) CuCl _____
b) CaS _____
c) KClO_3 _____
d) NaNO_2 _____
e) $\text{Ni}_3(\text{PO}_4)_2$ _____