

Name _____

Chemistry

Date _____

Instructor: Ms. Brunsting

Module 9 Lab: Naming Compounds

1. Name the following binary salts (ionic salts).
 - a. Na_3P
 - b. MgO
 - c. ZnH_2
 - d. Ca_3N_2
 - e. Li_2S
2. Name the following compounds using the "ic", "ous" system **and** the Stock System.
 - a. CrS
 - b. CuCl
 - c. FeS
 - d. Fe_2O_3
 - e. CoBr_3
 - f. SnF_4
 - g. HgO
 - h. PbBr_2
3. Name the following salts.
 - a. Na_2SO_4
 - b. $\text{Ca}_3(\text{PO}_4)_2$
 - c. NaMnO_4
 - d. $\text{Ba}(\text{NO}_2)_2$
 - e. KNO_3
 - f. $\text{K}_2\text{Cr}_2\text{O}_7$
4. Name the following compounds using the old system ("ic", "ous").
 - a. FeSO_4
 - b. $\text{Fe}(\text{OH})_3$
 - c. $\text{Hg}(\text{NO}_3)_2$
 - d. $\text{Co}_2(\text{CO}_3)_3$
 - e. CuCO_3
 - f. CuCN

5. Name the following binary compounds (covalent compounds).

- a. SO_2
- b. BrF_5
- c. N_2O_5
- d. SiCl_4

6. Write the formulas for the following compounds.

- a. Ferrous sulfide
- b. Cupric hydroxide
- c. Mercury (II) chloride
- d. Aluminum sulfide
- e. Manganese (IV) oxide
- f. Stannous fluoride
- g. Potassium permanganate
- h. Calcium carbonate
- i. Ferrous sulfate
- j. Lead (II) carbonate
- k. Sodium nitrate

Naming Compounds

Ionic Molecules

For binary (2 element) molecules: Positive ion + Negative ion + -ide MgCl_2 **magnesium chloride**

For other ionic molecules: Positive ion + Negative ion $\text{Ca}(\text{OH})_2$ **calcium hydroxide**

Using the Stock System

For transition metals, include the metal's charge using Roman numerals Fe_2O_3 **iron (III) oxide**

Using the Old System

For transition metals, use the suffix -ic or -ous to indicate the metal's charge. Fe_2O_3 **ferric oxide**

Covalent Molecules

Prefix + First element + Prefix + Second element

↙ No prefix if there's just one

C_2H_4 **dicarbon tetrahydride**

CO_2 **carbon dioxide**

ION NAMES

Oxidation Number 1⁺

NH ₄ ⁺	ammonium	Li ⁺	lithium
Cu ⁺	copper (I), cuprous	K ⁺	potassium
H ⁺	hydrogen	Ag ⁺	silver
Hg ⁺	mercury (I), mercurous	Na ⁺	sodium

Oxidation Number 2⁺

Ba ²⁺	barium	Pb ²⁺	lead (II), plumbous
Cd ²⁺	cadmium	Mn ²⁺	manganese (II), manganous
Ca ²⁺	calcium	Hg ²⁺	mercury (II), mercuric
Cr ²⁺	chromium (II), chromous	Ni ²⁺	nickel (II), nickelous
Co ²⁺	cobalt (II), cobaltous	Sr ²⁺	strontium
Cu ²⁺	copper (II), cupric	Sn ²⁺	tin (II), stannous
Fe ²⁺	iron (II), ferrous	VO ²⁺	vanadyl
Mg ²⁺	magnesium	Zn ²⁺	zinc

Oxidation Number of 3⁺

Al ³⁺	aluminum	Co ³⁺	cobalt (III), cobaltic
As ³⁺	arsenic (III), arsenious	Fe ³⁺	iron (III), ferric
Cr ³⁺	chromium (III), chromic	Mn ³⁺	manganese (III), manganic

Oxidation Number of 4⁺

Pb ⁴⁺	lead (IV), plumbic	Sn ⁴⁺	tin (IV), stannic
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Oxidation Number of 5⁺

V ⁵⁺	vanadium (V)	As ⁵⁺	arsenic (V), arsenic
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Oxidation Number of 1⁻

C ₂ H ₃ O ₂ ⁻	acetate	ClO ⁻	hypochlorite
Br ⁻	bromide	I ⁻	iodide
ClO ₃ ⁻	chlorate	NO ₃ ⁻	nitrate
Cl ⁻	chloride	NO ₂ ⁻	nitrite
CN ⁻	cyanide	ClO ₄ ⁻	perchlorate
F ⁻	fluoride	IO ₄ ⁻	periodate
OH ⁻	hydroxide	MnO ₄ ⁻	permanganate
H ⁻	hydride		

Oxidation Number of 2⁻

CO ₃ ²⁻	carbonate	O ₂ ²⁻	peroxide
CrO ₄ ²⁻	chromate	SO ₄ ²⁻	sulfate
Cr ₂ O ₇ ²⁻	dichromate	SO ₃ ²⁻	sulfite
SiO ₃ ²⁻	silicate	S ²⁻	sulfide
O ²⁻	oxide	S ₂ O ₃ ²⁻	thiosulfate
C ₂ O ₄ ²⁻	oxalate		

Oxidation Number of -3

N ³⁻	nitride	BO ₃ ³⁻	borate
PO ₄ ³⁻	phosphate	AsO ₄ ³⁻	arsenate
PO ₃ ³⁻	phosphite	AsO ₃ ³⁻	arsenite
P ³⁻	phosphide		