
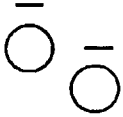


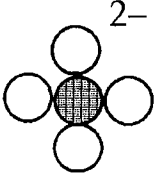
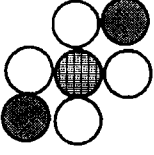
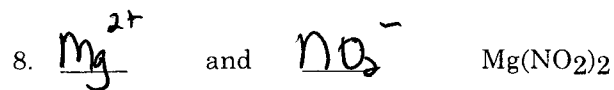


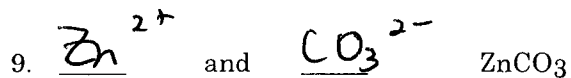
### Unit 4 Worksheet 3

#### Representing Ions and Empirical Formulas

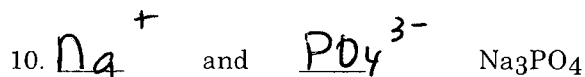
IONS		FORMULA	NAME
1. $\text{Ca}^{2+}$ 	and $\text{Br}^-$ 	<u><math>\text{CaBr}_2</math></u> 	<u>Calcium Bromide</u>
2. $\text{Fe}^{2+}$	and $\text{Cl}^-$	<u><math>\text{FeCl}_2</math></u>	<u>Iron (II) Chloride</u>
3. $\text{K}^+$ 	and $\text{SO}_4^{2-}$ 	<u><math>\text{K}_2\text{SO}_4</math></u> 	<u>Potassium Sulfate</u>
4. $\text{Al}^{3+}$	and $\text{NO}_3^-$	<u><math>\text{Al}(\text{NO}_3)_3</math></u>	<u>Aluminum nitrate</u>
5. $\text{Pb}^{2+}$	and $\text{S}^{2-}$	<u><math>\text{PbS}</math></u>	<u>Lead (II) Sulfide</u>
6. <u><math>\text{NH}_4^+</math></u>	and <u><math>\text{OH}^-</math></u>	$\text{NH}_4\text{OH}$	<u>Ammonium nitrate</u>
7. <u><math>\text{K}^+</math></u>	and <u><math>\text{HCO}_3^-</math></u>	$\text{KHCO}_3$	<u>Potassium Bicarbonate</u>



Magnesium nitrite

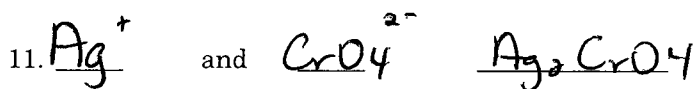


Zinc Carbonate



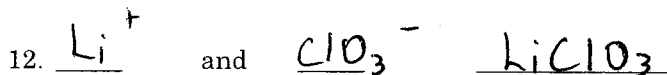
Sodium Phosphate

For 11 – 15 state the total number of atoms and the number of ions in the compound



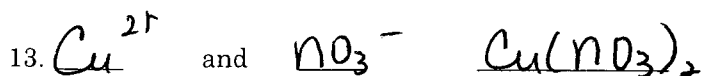
silver chromate

7 atoms 3 ions



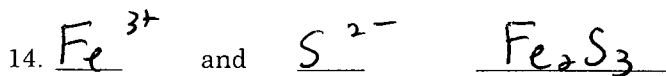
lithium chlorate

5 atoms 2 ions



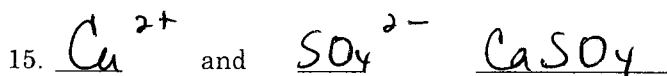
copper (II) nitrate

9 atoms 3 ions



iron (III) sulfide

5 atoms 5 ions



calcium sulfate

6 atoms 2 ions

## Unit 4 – Worksheet 2

### Ionic Compounds

Properties

Basic structural unit

1. Give the name of the following simple binary ionic compounds.
  - a.  $\text{Na}_2\text{O}$  Sodium Oxide
  - b.  $\text{K}_2\text{S}$  Potassium Sulfide
  - c.  $\text{MgCl}_2$  Magnesium Chloride
  - d.  $\text{CaBr}_2$  Calcium bromide
  - e.  $\text{BaI}_2$  Barium Iodide
  - f.  $\text{Al}_2\text{S}_3$  Aluminum Sulfide
  - g.  $\text{CsBr}$  Cesium Bromide
  - h.  $\text{AgF}$  Silver Fluoride
2. Give the name of the following simple binary ionic compounds.
  - a.  $\text{Na}_3\text{N}$  Sodium nitride
  - b.  $\text{K}_2\text{O}$  Potassium Oxide
  - c.  $\text{AgBr}$  Silver Bromide
  - d.  $\text{MgI}_2$  Magnesium Iodide
  - e.  $\text{SrO}$  Strontium oxide
3. Write the formula for the following binary ionic compounds.
  - a. lithium bromide  $\text{LiBr}$
  - b. sodium iodide  $\text{NaI}$
  - c. silver sulfide  $\text{Ag}_2\text{S}$
  - d. cesium oxide  $\text{Cs}_2\text{O}$
  - d. beryllium iodide  $\text{BeI}_2$
  - f. barium hydride  $\text{Ba(OH)}_2$
  - g. aluminum fluoride  $\text{AlF}_3$
  - h. potassium oxide  $\text{K}_2\text{O}$
4. Write the formula for these ionic substances.
  - a. silver oxide  $\text{Ag}_2\text{O}$
  - b. aluminum sulfide  $\text{Al}_2\text{S}_3$
  - c. sodium nitride  $\text{Na}_3\text{N}$
  - d. barium chloride  $\text{BaCl}_2$
  - e. strontium hydride  $\text{SrH}_2$

5. Write the name of these ionic substances using a Roman numeral to specify the charge of the cation.

- a.  $\text{SnBr}_2$  Tin (II) Bromide  
b.  $\text{SnBr}_4$  Tin (IV) Bromide  
c.  $\text{CrO}$  Chromium (II) Oxide  
d.  $\text{Cr}_2\text{O}_3$  Chromium (III) Oxide  
e.  $\text{Hg}_2\text{I}_2$  Mercury (I) Iodide  
f.  $\text{HgI}_2$  Mercury (II) Iodide

6. Write the name of these ionic substances using a Roman numeral to specify the charge of the cation.

- a.  $\text{PbCl}_2$  Lead (II) Chloride  
b.  $\text{Fe}_2\text{O}_3$  Iron (III) Oxide  
c.  $\text{SnI}_2$  Tin (II) Iodide  
d.  $\text{Hg}_2\text{O}$  Mercury (I) Oxide  
e.  $\text{HgS}$  Mercury (II) Sulfide  
f.  $\text{CuI}$  Copper (I) Iodide

7. Write the formulas of each ionic compound.

- a. chromium (III) chloride  $\text{CrCl}_3$   
b. tin (IV) oxide  $\text{SnO}_2$   
c. lead (II) oxide  $\text{PbO}$   
d. copper (II) iodide  $\text{CuI}_2$   
e. cobalt (II) oxide  $\text{CoO}$   
f. cobalt (III) oxide  $\text{Co}_2\text{O}_3$

8. Write the formulas of each ionic compound.

- a. chromium (III) sulfide  $\text{Cr}_2\text{S}_3$   
b. manganese (IV) oxide  $\text{MnO}_2$   
c. gold (III) chloride  $\text{AuCl}_3$   
d. titanium (IV) chloride  $\text{TiCl}_4$   
e. iron (II) bromide  $\text{FeBr}_2$   
f. iron (II) oxide  $\text{FeO}$

**Chemistry: Unit 4 - Worksheet 4****More Empirical Formulas**

IONS		FORMULA	NAME
1. $\text{Na}^+$	and $\text{Br}^-$	$\text{NaBr}$	Sodium bromide
2. $\text{Cu}^+$	and $\text{SO}_4^{2-}$	$\text{Cu}_2\text{SO}_4$	Copper(I) Sulfate
3. $\text{Pb}^{2+}$	and $\text{Cl}^-$	$\text{PbCl}_2$	Lead (II) Chloride
4. $\text{K}^+$	and $\text{S}^{2-}$	$\text{K}_2\text{S}$	Potassium Sulfide
5. $\text{Sn}^{2+}$	and $\text{F}^-$	$\text{SnF}_2$	Tin (II) Fluoride
6. $\text{Ba}^{2+}$	and $\text{I}^-$	$\text{BaI}_2$	Barium Iodide
7. $\text{Al}^{3+}$	and $\text{Cl}^-$	$\text{AlCl}_3$	Aluminum Chloride
8. $\text{Mg}^{2+}$	and $\text{NO}_3^-$	$\text{Mg}(\text{NO}_3)_2$	Magnesium Nitrate
9. $\text{K}^+$	and $\text{OH}^-$	$\text{KOH}$	Potassium hydroxide
10. $\text{NH}_4^+$	and $\text{SO}_4^{2-}$	$(\text{NH}_4)_2\text{SO}_4$	Ammonium Sulfate
11. $\text{Ag}^+$	and $\text{O}^{2-}$	$\text{Ag}_2\text{O}$	silver oxide
12. $\text{Li}^+$	and $\text{Br}^-$	$\text{LiBr}$	lithium bromide
13. $\text{Cu}^{2+}$	and $\text{NO}_3^-$	$\text{Cu}(\text{NO}_3)_2$	copper (II) nitrate
14. $\text{Mg}^{2+}$	and $\text{Cl}^-$	$\text{MgCl}_2$	magnesium chloride
15. $\text{Ca}^{2+}$	and $\text{CO}_3^{2-}$	$\text{CaCO}_3$	calcium carbonate
16. $\text{Mg}^{2+}$	and $\text{NO}_3^-$	$\text{Mg}(\text{NO}_3)_2$	magnesium nitrate
17. $\text{Cu}^{2+}$	and $\text{OH}^-$	$\text{Cu}(\text{OH})_2$	Copper (II) hydroxide
18. $\text{Na}^+$	and $\text{HCO}_3^-$	$\text{NaHCO}_3$	sodium bicarbonate
19. $\text{Fe}^{3+}$	and $\text{S}^{2-}$	$\text{Fe}_2\text{S}_3$	iron (III) sulfide
20. $\text{K}^+$	and $\text{CrO}_4^{2-}$	$\text{K}_2\text{CrO}_4$	potassium chromate

## Part II

Write the names of the following compounds

1.  $\text{Cu}(\text{NO}_3)_2$  Copper (II) Nitrate
2.  $\text{BaCl}_2$  Barium chloride
3.  $\text{HgO}$  Mercury (II) oxide
4.  $\text{Ni}(\text{OH})_2$  Nickel (II) hydroxide
5.  $\text{Na}_3\text{PO}_4$  Sodium Phosphate
6.  $\text{CaCO}_3$  Calcium Carbonate
- ~~7.  $\text{CS}_2$  Car~~
8.  $\text{SnBr}_4$  Tin (IV) Bromide
9.  $(\text{NH}_4)_2\text{CrO}_4$  Ammonium Chromate
10.  $\text{Mg}(\text{NO}_3)_2$  magnesium nitrate
11.  $\text{Li}_2\text{O}$  Lithium Oxide
12.  $\text{FeS}$  Iron (II) sulfide
- ~~13.  $\text{NI}_3$  I~~
14.  $\text{H}_2\text{SO}_4$  Hydrogen Sulfate
15.  $\text{K}_2\text{C}_2\text{O}_4$  Potassium Oxalate

## Part III

Write the formulas for the following compounds

1. copper (II) sulfate  $\text{CuSO}_4$
2. sodium chromate  $\text{Na}_2\text{CrO}_4$
3. iron (III) chloride  $\text{FeCl}_3$
4. silver sulfide  $\text{Ag}_2\text{S}$
5. aluminum oxide  $\text{Al}_2\text{O}_3$
6. zinc nitrate  $\text{Zn}(\text{NO}_3)_2$
7. potassium phosphate  $\text{K}_3\text{PO}_4$
8. strontium fluoride  $\text{SrF}_2$
9. ammonium carbonate  $(\text{NH}_4)_2\text{CO}_3$
10. magnesium hydroxide  $\text{Mg}(\text{OH})_2$
- ~~11. carbon tetrachloride \_\_\_\_\_~~
- ~~12. phosphorus tribromide \_\_\_\_\_~~
- ~~13. sulfur hexafluoride \_\_\_\_\_~~
- ~~14. sulfur dioxide \_\_\_\_\_~~
15. chromium (III) oxide  $\text{Cr}_2\text{O}_3$
- ~~16. nitric acid \_\_\_\_\_~~
- ~~17. hydrochloric acid \_\_\_\_\_~~
18. lead(II) iodide  $\text{PbI}_2$
19. ammonium nitrite  $\text{NH}_4\text{NO}_2$
20. potassium hydrogen carbonate  $\text{KHCO}_3$