

# Types of Compounds

## N A M I N G

Type of Compound	Ionic	Acids	Molecular
How To Recognize	metal + non-metal	starts with H + anion	two non-metals
How To Name	names of + ion then - ion	"ides" → hydro---ic acid "ates" → ---ic acid S (add "ur") P (add "or")	mono, di, tri, tetra, penta, hexa, hepta, octa, nona, deca names ends with "ide" pentaoxide → pentoxide, etc.

Indicate the Type of Compound and then name the compound using the appropriate rules:

- |  |   |
|--|---|
| 1. NaF <u>I</u> <u>sodium fluoride</u>   | 21. CuCl <sub>2</sub> <u>I</u> <u>copper(II) chloride, cupric</u>       |
| 2. FeCl <sub>3</sub> <u>I</u> <u>iron(III) chloride, ferric</u>                                    | 22. AgNO <sub>3</sub> <u>I</u> <u>silver nitrate</u>                    |
| 3. CO <sub>2</sub> <u>M</u> <u>carbon <del>mon</del><sup>di</sup>oxide</u>                         | 23. CO <u>M</u> <u>carbon monoxide</u>                                  |
| 4. MgCl <sub>2</sub> <u>I</u> <u>magnesium chloride</u>  | 24. H <sub>3</sub> PO <sub>4(aq)</sub> <u>I</u> <u>phosphoric acid</u>  |
| 5. HF <sub>(aq)</sub> <u>I</u> <u>hydrofluoric acid</u>  | 25. NaCl <u>I</u> <u>sodium chloride</u>                                |
| 6. SF <sub>4</sub> <u>M</u> <u>sulphur tetrafluoride</u>   | 26. N <sub>2</sub> O <sub>5</sub> <u>M</u> <u>dinitrogen pentaoxide</u> |
| 7. HC <sub>2</sub> H <sub>3</sub> O <sub>2(aq)</sub> <u>I</u> <u>acetic acid</u>                   | 27. NO <sub>2</sub> <u>M</u> <u>nitrogen dioxide</u>                    |
| 8. H <sub>2</sub> O <u>M</u> <u>dihydrogen monoxide</u>  | 28. HNO <sub>3(aq)</sub> <u>I</u> <u>nitric acid</u>                    |
| 9. NH <sub>3</sub> <u>M</u> <u>nitrogen trihydride</u>   | 29. NaOH <u>I</u> <u>sodium hydroxide</u>                               |
| 10. CaO <u>I</u> <u>calcium oxide</u>  | 30. SnCl <sub>2</sub> <u>I</u> <u>tin(II) chloride, stannous</u>        |
| 11. NH <sub>4</sub> NO <sub>3</sub> <u>I</u> <u>ammonium nitrate</u>                               | 31. CaSO <sub>4</sub> <u>I</u> <u>calcium sulphate</u>                  |
| 12. NaI <u>I</u> <u>sodium iodide</u>  | 32. HBr <sub>(aq)</sub> <u>I</u> <u>hydrobromic acid</u>                |
| 13. PbCO <sub>3</sub> <u>I</u> <u>lead(II) carbonate, plumbous</u>                                 | 33. Cu(OH) <sub>2</sub> <u>I</u> <u>copper(II) hydroxide, cupric</u>    |
| 14. Na <sub>2</sub> O <u>I</u> <u>sodium oxide</u>   | 34. Zn(OH) <sub>2</sub> <u>I</u> <u>zinc hydroxide</u>                  |
| 15. Ba(NO <sub>3</sub> ) <sub>2</sub> <u>I</u> <u>barium nitrate</u>                               | 35. BaCl <sub>2</sub> <u>I</u> <u>barium chloride</u>                   |
| 16. K <sub>2</sub> CrO <sub>4</sub> <u>I</u> <u>potassium chromate</u>                             | 36. PCl <sub>5</sub> <u>M</u> <u>phosphorous pentachloride</u>          |
| 17. NO <u>M</u> <u>nitrogen monoxide</u>   | 37. PCl <sub>3</sub> <u>M</u> <u>phosphorous trichloride</u>            |
| 18. HCl <sub>(aq)</sub> <u>I</u> <u>hydrochloric acid</u>  | 38. AsF <sub>5</sub> <u>M</u> <u>arsenic pentafluoride</u>              |
| 19. MnO <sub>2</sub> <u>I</u> <u>manganese(IV) oxide</u>   | 39. H <sub>2</sub> CO <sub>3</sub> <u>I</u> <u>hydrogen carbonate</u>   |
| 20. H <sub>2</sub> S <u>M</u> <u>dihydrogen sulphide</u><br><u>(aq)</u> <u>hydrosulphuric acid</u> | 40. OF <sub>2</sub> <u>M</u> <u>oxygen difluoride</u>                   |



Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

## Naming WS : Ionic Compounds with Transition Metals

Part A Write the formula for each ionic compound.

	Name	Formula
1.	Tin (II) Hydroxide	$\text{Sn}(\text{OH})_2$
2.	Iron (III) oxalate	$\text{Fe}_2(\text{C}_2\text{O}_4)_3$
3.	Cobalt (II) bromide	$\text{CoBr}_2$
4.	Chromium (III) Chloride	$\text{CrCl}_3$
5.	Iron (II) Oxide	$\text{FeO}$
6.	Mercury (II) Chloride	$\text{HgCl}_2$
7.	Tin (IV) Sulfide	$\text{SnS}_2$
8.	Silver (I) Phosphide	$\text{Ag}_3\text{P}$
9.	Lead (IV) Iodide	$\text{PbI}_4$

Part B Write the Name for each formula  
Be sure to include the roman numeral.

	Formula	Name
1.	$\text{Fe}(\text{NO}_3)_3$	iron (III) nitrate, ferric
2.	$\text{Mn}(\text{OH})_2$	manganese (II) hydroxide
3.	$\text{Ti}(\text{NO}_3)_4$	titanium (IV) nitrate
4.	$\text{PbS}_2$	lead (IV) sulphide, plumbic
5.	$\text{CuCl}$	copper (I) chloride, cuprous
6.	$\text{PbSO}_4$	lead (II) sulphate, plumbous
7.	$\text{ZnCl}_2$	zinc chloride
8.	$\text{Hg}_2\text{O}$	mercury (I) oxide
9.	$\text{Cr}_2\text{O}_3$	chromium (III) oxide

Part C: Fill in the following table. Polyatomic ions and transition metals are mixed up.

	Ionic Formula	Ionic Compound Name	Balanced Ion Pairs
1.	$\text{Na}_2\text{CrO}_4$	Sodium Chromate	
2.	$\text{CuCl}$	copper (I) chloride, cuprous	
3.	$\text{NaNO}_3$	Sodium Nitrate	
4.	$\text{ZnSO}_4$	zinc sulphate	
5.	$\text{KCN}$	Potassium cyanide	
6.	$\text{Al}_2\text{O}_3$	aluminium oxide (aluminum)	
7.	$\text{Cu}(\text{NO}_3)_2$	Copper(II) nitrate	
8.	$\text{FePO}_4$	iron (III) phosphate, ferric	
9.	$\text{PbS}$	Lead(II) sulfide	
10.	$\text{NaClO}$	Sodium hypochlorite	
11.	$\text{Na}_2\text{CO}_3$	Sodium Carbonate	
12.	<del><math>\text{Na}_2\text{SeO}_4</math></del>		
13.	$\text{NH}_4\text{BrO}_3$	Ammonium Bromate	
14.	$\text{Au}(\text{ClO}_4)_3$	gold (III) perchlorate	
15.	$\text{Fe}_2(\text{SO}_4)_3$	Iron(III) Sulfate	



Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

## Naming WS #2: Ionic Compounds with Polyatomic Ions

Part A - Complete the following table.

	Ionic Compound:	Ion Pairs:	Name of Ionic Compound:
Ex.	$\text{AlCl}_3$	$\text{Al}^{3+} + 3\text{Cl}^-$	Aluminum chloride
1.	$\text{NH}_4\text{ClO}_4$		ammonium perchlorate
2.	$\text{LiNO}_2$	$\text{Li}^+ + \text{NO}_2^-$	lithium nitrite
3.	$\text{Ga}_2(\text{SO}_3)_3$		gallium(III) sulphite
4.	$\text{Li}_2\text{CO}_3$	$2\text{Li}^+ + \text{CO}_3^{2-}$	lithium carbonate
5.	$\text{Ca}(\text{ClO}_3)_2$		calcium chlorate
6.	$\text{Na}_2\text{SiO}_3$		sodium silicate
7.	$\text{Ba}(\text{OH})_2$		barium hydroxide
8.	$\text{BeC}_2\text{O}_4$	$\text{Be}^{2+} + \text{C}_2\text{O}_4^{2-}$	beryllium oxalate
9.	$\text{LiCN}$		lithium cyanide
10.	$(\text{NH}_4)_3\text{PO}_4$		ammonium phosphate

Part B- Indicate the names of the ions used to form the following ionic compounds and give the ionic compound name of each.

	Formula	Cation name		Anion Name		Compound name
Ex	$\text{NH}_4\text{NO}_3$	Ammonium ion	+	Nitrate ion	=	Ammonium Nitrate
11.	$\text{Na}_2\text{SO}_4$	sodium	+	sulphate	=	sodium sulphate
12.	$\text{K}_3\text{PO}_4$	potassium	+	phosphate	=	potassium phosphate
13.	$\text{Ba}(\text{NO}_3)_2$	barium	+	nitrate	=	barium nitrate
14.	$\text{Al}(\text{OH})_3$	aluminum	+	hydroxide	=	aluminum hydroxide
15.	$\text{Na}_2\text{SO}_3$	sodium	+	sulphite	=	sodium sulphite
16.	$\text{NaHCO}_3$	sodium	+	hydrogencarbonate	=	sodium hydrogen carbonate
17.	$\text{CsClO}_4$	cesium	+	perchlorate	=	cesium perchlorate