

## Laboratory: Naming Compounds

### Part A: Nomenclature of Binary Compounds:

#### Ionic Compounds (Metal + Non-Metal)

	Compound Formula	Cation Formula and name	Anion Formula and name	Compound Name
<b>Example:</b>	NaCl	Na <sup>+</sup> , sodium ion	Cl <sup>-</sup> , chloride ion	Sodium chloride
<b>1.</b>		Ca <sup>2+</sup> , calcium ion		Calcium bromide
<b>2.</b>				Magnesium nitride
<b>3.</b>		K <sup>+</sup> , potassium ion	S <sup>2-</sup> , sulfide ion	
<b>4.</b>	ZnO			
<b>5.</b>		Sn <sup>4+</sup> , tin(IV) ion	O <sup>2-</sup> , oxide ion	
<b>6.</b>	Cr <sub>2</sub> S <sub>3</sub>			
<b>7.</b>				Copper(I) phosphide

#### Molecular Compounds (Non-Metal + Non-Metal)

	Compound Formula	Compound Name
<b>Example:</b>	N <sub>2</sub> O <sub>3</sub>	Dinitrogen trioxide
<b>1.</b>	SF <sub>6</sub>	
<b>2.</b>		Carbon monoxide
<b>3.</b>	C <sub>2</sub> H <sub>6</sub>	

**Ionic Compounds (Metal + Non-Metal)**

	Compound Formula	Cation Formula and name	Anion Formula and name	Compound Name
1.	RbI	Rb <sup>+</sup> , rubidium ion		
2.				Calcium nitride
3.				Titanium(IV) chloride
4.	SrS			
5.	Au <sub>2</sub> O <sub>3</sub>			
6.		Hg <sup>2+</sup> , mercury(II) ion		Mercury(II) oxide
7.			P <sup>3-</sup> , phosphide ion	Cadmium phosphide

**Molecular Compounds (Non-Metal + Non-Metal)**

	Compound Formula	Compound Name
1.	ICl	
2.		Dinitrogen pentoxide
3.	BrF <sub>5</sub>	
4.		Tricarbon octahydride

**Part B: Nomenclature of Ionic Compounds with Polyatomic Ions:**

	<b>Compound Formula</b>	<b>Cation Formula and name</b>	<b>Anion Formula and name</b>	<b>Compound Name</b>
<b>1.</b>	NaNO <sub>3</sub>	Na <sup>+</sup> , sodium ion		
<b>2.</b>				Calcium nitrite
<b>3.</b>				Ammonium chloride
<b>4.</b>	SrSO <sub>4</sub>			
<b>5.</b>	Ag <sub>2</sub> SO <sub>3</sub>			
<b>6.</b>		K <sup>+</sup> , potassium ion		Potassium acetate
<b>7.</b>			PO <sub>4</sub> <sup>3-</sup> , phosphate ion	Cadmium phosphate
<b>8.</b>	Cu(OH) <sub>2</sub>	Cu <sup>2+</sup> , copper(II) ion		
<b>9.</b>				Sodium cyanide

## Chemical Formulas

### Part C:

#### 1. Name the following compounds:

- a) NaF
- b) PbS<sub>2</sub>
- c) TiO<sub>2</sub>
- d) Cr<sub>2</sub>O<sub>3</sub>
- e) Zn<sub>3</sub>P<sub>2</sub>
- f) MnO<sub>2</sub>
- g) PI<sub>3</sub>
- h) S<sub>2</sub>Br<sub>2</sub>
- i) IBr<sub>5</sub>
- j) XeF<sub>4</sub>

#### 2. Write the formulas for the following compounds:

- a) Barium iodide
- b) Palladium (II) bromide
- c) Zinc arsenide
- d) Gold (III) oxide
- e) Lead (IV) oxide
- f) Copper (I) sulfide
- g) Sulfur hexafluoride
- h) Nitrogen trichloride
- i) Chlorine Dioxide
- j) Phosphorus pentachloride

**Name the following compounds:**

- |   |  |
|---|--|
| 1. ZnS  | 26. NH <sub>3</sub>                                  |
| 2. Mg (ClO <sub>2</sub> ) <sub>2</sub>                | 27. PCl <sub>5</sub>                                 |
| 3. Ca (OH) <sub>2</sub>                               | 28. Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>    |
| 4. KMnO <sub>4</sub>                                  | 29. KH <sub>2</sub> PO <sub>4</sub>                  |
| 5. Ag <sub>3</sub> PO <sub>4</sub>                    | 30. CoS  |
| 6. H <sub>2</sub> S                                   | 31. Cd <sub>3</sub> (AsO <sub>4</sub> ) <sub>2</sub> |
| 7. CaO  | 32. NaHSO <sub>3</sub>                               |
| 8. H <sub>2</sub> CO <sub>3</sub>                     | 33. Li <sub>2</sub> HPO <sub>4</sub>                 |
| 9. Ni (NO <sub>3</sub> ) <sub>2</sub>                 | 34. H <sub>3</sub> PO <sub>3</sub>                   |
| 10. KCl   | 35. MnSO <sub>4</sub>                                |
| 11. Li <sub>2</sub> O                                 | 36. Ca (IO) <sub>2</sub>                             |
| 12. Al (H <sub>2</sub> PO <sub>4</sub> ) <sub>3</sub> | 37. SiO <sub>2</sub>                                 |
| 13. MgO   | 38. CuCl   |
| 14. SnF <sub>2</sub>                                  | 39. CrCl <sub>3</sub>                                |
| 15. AsCl <sub>5</sub>                                 | 40. CaSO <sub>4</sub> · 2H <sub>2</sub> O            |
| 16. Hg (OH) <sub>2</sub>                              | 41. Hg <sub>2</sub> Cl <sub>2</sub>                  |
| 17. HF  | 42. P <sub>2</sub> O <sub>3</sub>                    |
| 18. FeSO <sub>4</sub>                                 | 43. HClO   |
| 19. SnCl <sub>4</sub>                                 | 44. NO <sub>2</sub>                                  |
| 20. AsBr <sub>3</sub>                                 | 45. NaH  |
| 21. KCN   | 46. H <sub>2</sub> O <sub>2</sub>                    |
| 22. NH <sub>4</sub> OH                                | 47. Pb (NO <sub>3</sub> ) <sub>2</sub>               |
| 23. NaHCO <sub>3</sub>                                | 48. H <sub>2</sub> Se                                |
| 24. HNO <sub>2</sub>                                  | 49. H <sub>3</sub> PO <sub>2</sub>                   |
| 25. CS <sub>2</sub>                                   | 50. CaH <sub>2</sub>                                 |

**Write the formulas for the following compounds:**

- |                                     |                                     |
|-------------------------------------|-------------------------------------|
| 51. lithium fluoride                | 76. strontium carbonate             |
| 52. phosphoric acid                 | 77. calcium nitrate                 |
| 53. boron trichloride               | 78. sulfur dichloride               |
| 54. ferric phosphate                | 79. tin(IV) oxide                   |
| 55. carbon tetrachloride            | 80. sodium bisulfite                |
| 56. silver sulfide                  | 81. strontium chlorate              |
| 57. antimony trichloride            | 82. aluminum hydroxide              |
| 58. barium carbonate                | 83. cadmium nitrate                 |
| 59. magnesium                       | 84. phosphorus trioxide             |
| 60. lead (IV) sulfate               | 85. potassium hydride               |
| 61. magnesium chloride pentahydrate | 86. calcium nitride                 |
| 62. ammonium sulfate                | 87. sulfur trioxide                 |
| 63. hydrogen fluoride               | 88. aluminum nitrite                |
| 64. hydrobromic acid                | 89. silver oxide                    |
| 65. tin(II) sulfide                 | 90. ammonium phosphate              |
| 66. beryllium chloride              | 91. cupric bromate                  |
| 67. calcium bicarbonate             | 92. lithium fluoride                |
| 68. copper(II) cyanide              | 93. sodium bisulfate                |
| 69. cesium iodite                   | 94. radium carbonate                |
| 70. zinc phosphate                  | 95. copper(II) oxide                |
| 71. nitrogen pentoxide              | 96. iron(III) sulfate               |
| 72. ferrous chromate                | 97. magnesium perchlorate           |
| 73. bromous acid                    | 98. potassium hypochlorite          |
| 74. perchloric acid                 | 99. disodium monohydrogen phosphate |
| 75. potassium cyanide               | 100. hydrosulfuric acid             |