# Ionic Compound Formula Writing Worksheet

*Write chemical formulas for the compounds in each box. The names are found by finding the intersection between the cations and anions. Example: The first box is the intersection between the "zinc" cation and the "chloride" anion, so you should write "$ZnCl_2$", as shown.*

| | *zinc* | *iron (II)* | *iron (III)* | *gallium* | *silver* | *lead (IV)* |
|---|---|---|---|---|---|---|
| *chloride* | $ZnCl_2$ | | | | | |
| *acetate* | | | | | | |
| *nitrate* | | | | | | |
| *oxide* | | | | | | |
| *nitride* | | | | | | |
| *sulfate* | | | | | | |

*Write the formulas for the following compounds:*

1) copper (II) chloride _____

2) lithium acetate _____

3) vanadium (III) selenide _____

4) manganese (IV) nitride _____

5) beryllium oxide _____

6) sodium sulfate _____

7) aluminum arsenide _____

8) potassium permanganate _____

9) chromium (VI) cyanide _____

10) tin (II) sulfite _____

11) vanadium (V) fluoride _____

12) ammonium nitrate _____

# Chemical Formula Writing Worksheet Solutions

*Write chemical formulas for the compounds in each box. The names are found by finding the intersection between the cations and anions. Example: The first box is the intersection between the "zinc" cation and the "chloride" anion, so you should write "$ZnCl_2$", as shown.*

| | *zinc* | *iron (II)* | *iron (III)* | *gallium* | *silver* | *lead (IV)* |
|---|---|---|---|---|---|---|
| *chloride* | **$ZnCl_2$** | **$FeCl_2$** | **$FeCl_3$** | **$GaCl_3$** | **$AgCl$** | **$PbCl_4$** |
| *acetate* | **$Zn(C_2H_3O_2)_2$** | **$Fe(C_2H_3O_2)_2$** | **$Fe(C_2H_3O_2)_3$** | **$Ga(C_2H_3O_2)_3$** | **$Ag\ C_2H_3O_2$** | **$Pb(C_2H_3O_2)_4$** |
| *nitrate* | **$Zn(NO_3)_2$** | **$Fe(NO_3)_2$** | **$Fe(NO_3)_3$** | **$Ga(NO_3)_3$** | **$AgNO_3$** | **$Pb(NO_3)_4$** |
| *oxide* | **$ZnO$** | **$FeO$** | **$Fe_2O_3$** | **$Ga_2O_3$** | **$Ag_2O$** | **$PbO_2$** |
| *nitride* | **$Zn_3N_2$** | **$Fe_3N_2$** | **$FeN$** | **$GaN$** | **$Ag_3N$** | **$Pb_3N_4$** |
| *sulfate* | **$ZnSO_4$** | **$FeSO_4$** | **$Fe_2(SO_4)_3$** | **$Ga_2(SO_4)_3$** | **$Ag_2SO_4$** | **$Pb(SO_4)_2$** |

*Write the formulas for the following compounds:*

1) copper (II) chloride **$CuCl_2$**

2) lithium acetate **$LiC_2H_3O_2$**

3) vanadium (III) selenide **$V_2Se_3$**

4) manganese (IV) nitride **$Mn_3N_4$**

5) beryllium oxide **$BeO$**

6) sodium sulfate **$Na_2SO_4$**

7) aluminum arsenide **$AlAs$**

8) potassium permanganate **$KMnO_4$**

9) chromium (VI) cyanide **$Cr(CN)_6$**

10) tin (II) sulfite **$SnSO_3$**

11) vanadium (V) fluoride **$VF_5$**

12) ammonium nitrate **$NH_4NO_3$**

# Names & Formulas for Ionic Compounds

*Give the name or formula of the following ionic compounds:*

| | Name | | Formula |
|---|---|---|---|
| 1) | $Na_2CO_3$ _____ | 21) | sodium phosphide _____ |
| 2) | NaOH _____ | 22) | magnesium nitrate _____ |
| 3) | $MgBr_2$ _____ | 23) | lead (II) sulfite _____ |
| 4) | KCl _____ | 24) | calcium phosphate _____ |
| 5) | $FeCl_2$ _____ | 25) | ammonium sulfate _____ |
| 6) | $FeCl_3$ _____ | 26) | silver cyanide _____ |
| 7) | $Zn(OH)_2$ _____ | 27) | aluminum sulfide _____ |
| 8) | $Be_2SO_4$ _____ | 28) | beryllium chloride _____ |
| 9) | $CrF_2$ _____ | 29) | copper (I) arsenide _____ |
| 10) | $Al_2S_3$ _____ | 30) | iron (III) oxide _____ |
| 11) | PbO _____ | 31) | gallium nitride _____ |
| 12) | $Li_3PO_4$ _____ | 32) | iron (II) bromide _____ |
| 13) | $TiI_4$ _____ | 33) | vanadium (V) phosphate _____ |
| 14) | $Co_3N_2$ _____ | 34) | calcium oxide _____ |
| 15) | $Mg_3P_2$ _____ | 35) | magnesium acetate _____ |
| 16) | $Ga(NO_2)_3$ _____ | 36) | aluminum sulfate _____ |
| 17) | $Ag_2SO_3$ _____ | 37) | copper (I) carbonate _____ |
| 18) | $NH_4OH$ _____ | 38) | barium oxide _____ |
| 19) | $Al(CN)_3$ _____ | 39) | ammonium sulfite _____ |
| 20) | $Be(CH_3COO)_2$ _____ | 40) | silver bromide _____ |

# Naming Ionic Compounds – Answer Key

*Give the name and molar mass of the following ionic compounds:*

| | | **Name** |
|---|---|---|
| 1) | $Na_2CO_3$ | **sodium carbonate** |
| 2) | NaOH | **sodium hydroxide** |
| 3) | $MgBr_2$ | **magnesium bromide** |
| 4) | KCl | **potassium chloride** |
| 5) | $FeCl_2$ | **iron (II) chloride** |
| 6) | $FeCl_3$ | **iron (III) chloride** |
| 7) | $Zn(OH)_2$ | **zinc hydroxide** |
| 8) | $Be_2SO_4$ | **beryllium sulfate** |
| 9) | $CrF_2$ | **chromium (II) fluoride** |
| 10) | $Al_2S_3$ | **aluminum sulfide** |
| 11) | PbO | **lead (II) oxide** |
| 12) | $Li_3PO_4$ | **lithium phosphate** |
| 13) | $TiI_4$ | **titanium (IV) iodide** |
| 14) | $Co_3N_2$ | **cobalt (II) nitride** |
| 15) | $Mg_3P_2$ | **magnesium phosphide** |
| 16) | $Ga(NO_2)_3$ | **gallium nitrite** |
| 17) | $Ag_2SO_3$ | **silver sulfite** |
| 18) | $NH_4OH$ | **ammonium hydroxide** |
| 19) | $Al(CN)_3$ | **aluminum cyanide** |
| 20) | $Be(CH_3COO)_2$ | **beryllium acetate** |

*For the following compounds, give the formulas and the molar masses:*

| | | Formula |
|---|---|---|
| 21) | sodium phosphide | **$Na_3P$** |
| 22) | magnesium nitrate | **$Mg(NO_3)_2$** |
| 23) | lead (II) sulfite | **$PbSO_3$** |
| 24) | calcium phosphate | **$Ca_3(PO_4)_3$** |
| 25) | ammonium sulfate | **$(NH_4)_2SO_4$** |
| 26) | silver cyanide | **AgCN** |
| 27) | aluminum sulfide | **$Al_2S_3$** |
| 28) | beryllium chloride | **$BeCl_2$** |
| 29) | copper (I) arsenide | **$Cu_3As$** |
| 30) | iron (III) oxide | **$Fe_2O_3$** |
| 31) | gallium nitride | **GaN** |
| 32) | iron (II) bromide | **$FeBr_2$** |
| 33) | vanadium (V) phosphate | **$V_3(PO_4)_5$** |
| 34) | calcium oxide | **CaO** |
| 35) | magnesium acetate | **$Mg(CH_3COO)_2$** |
| 36) | aluminum sulfate | **$Al_2(SO_4)_3$** |
| 37) | copper (I) carbonate | **$Cu_2CO_3$** |
| 38) | barium oxide | **BaO** |
| 39) | ammonium sulfite | **$(NH_4)_2SO_3$** |
| 40) | silver bromide | **AgBr** |