

NOMENCLATURE PACKET PRACTICE

Ionic Compounds

Ionic compounds form between a cation and an anion. At its simplest, this is a metal and a nonmetal.

Write the correct chemical formula for the following compounds.

1. Aluminum Chloride
2. Barium nitride
3. Boron oxide
4. Aluminum oxide
5. Strontium phosphide
6. Potassium sulfide
7. Sodium oxide
8. Lithium bromide
9. Calcium fluoride
10. Magnesium chloride

Name the following compounds.

1. CsCl
2. Rb₂S
3. BaO
4. BN
5. Al₂O₃
6. NaI
7. Ca₃P₂
8. KBr
9. AlP
10. Li₂O

Polyatomic Ions

Polyatomic ions are two or more atoms that are covalently bonded and have a charge remaining. They act as an ion when writing or naming the formulas.

Provide the correct formula to the following set of named compounds.

1. Sodium chlorate
2. Ammonium chloride
3. Aluminum sulfate
4. Cesium phosphate
5. Potassium dichromate
6. Ammonium hydroxide
7. Hydrogen cyanide
8. Potassium nitrate
9. Lithium bromite
10. Sodium thiosulfate

Name the following compounds.

1. NaNO_2
2. NH_4Br
3. KClO_4
4. $\text{Ca}_3(\text{PO}_4)_2$
5. H_2O_2
6. NaHCO_3
7. $\text{NaC}_2\text{H}_3\text{O}_2$
8. KNO_2
9. $\text{Al}(\text{OH})_3$
10. KMnO_4

Transition Metals

We will use the Stock System for naming transition metals. Multiple oxidation numbers exist for MOST of the transition metals. Refer to your periodic table to determine if a metal has more than one possible charge.

Provide the correct formula to the following set of named compounds.

1. Copper (I) oxide
2. Nickel (II) chloride
3. Silver chloride
4. Zinc oxide
5. Aluminum hydroxide
6. Tin (III) acetate
7. Tin (II) sulfide
8. Chromium (III) nitrate
9. Cobalt (II) cyanide
10. Cadmium sulfate

Name the following compounds.

1. Ag_2S
2. $\text{Co}(\text{ClO})_3$
3. CuO
4. ZnSO_4
5. $\text{Cd}(\text{OH})_2$
6. $\text{Cr}_2(\text{SO}_4)_3$
7. FeCl_3
8. FeSO_4
9. Cu_2O
10. SnO_2

Covalent

Covalent bonds occur between two nonmetals. There are no charges involved so prefixes are used to designate the number of atoms.

PREFIXES:

| | |
|------------|------------|
| 1 = mono- | 6 = hexa- |
| 2 = di- | 7 = hepta- |
| 3 = tri- | 8 = octa- |
| 4 = tetra- | 9 = nona- |
| 5 = penta- | 10 = deca- |

Provide the correct formula to the following set of named molecules.

1. Carbon dioxide _____
2. Phosphorous pentachloride _____
3. Xenon hexafluoride _____
4. Fluorine monochloride _____
5. Carbon tetrachloride _____
6. Chlorine gas _____
7. Dinitrogen monoxide _____

Name the following molecules.

1. SO_2 _____
2. Br_2 _____
3. N_2O_5 _____
4. CH_4 _____
5. H_2O _____
6. NO_3 _____
7. SiO_2 _____

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|-------------------------|--|----------------------|--|
| Sodium chloride | | Ammonium acetate | |
| Potassium chloride | | Zinc oxide | |
| Lithium bromide | | Hydrogen phosphate | |
| Magnesium bromide | | Iron (II) chloride | |
| Calcium fluoride | | Silver nitrate | |
| Hydrogen sulfate | | Rubidium carbonate | |
| Sodium hydroxide | | Potassium chromate | |
| Barium chloride | | Calcium bicarbonate | |
| Dihydrogen monosulfide | | Hydrogen peroxide | |
| Cadmium sulfide | | Lithium sulfate | |
| Calcium carbide | | Zinc chloride | |
| Silicon dioxide | | Copper (I) phosphate | |
| Hydrogen monochloride | | Silver thiosulfate | |
| Potassium hydroxide | | Cesium hydroxide | |
| Mercury (II) chloride | | Ammonium nitrite | |
| Iron (II) sulfide | | Potassium dichromate | |
| Copper (I) sulfate | | Sodium fluoride | |
| Manganese (IV) peroxide | | Aluminum oxide | |
| Potassium permanganate | | Sodium cyanide | |
| Ammonium hydroxide | | Carbon disulfide | |
| Nitrogen trihydride | | Silver sulfate | |
| Cobalt (II) sulfate | | Tin (II) nitrate | |
| Sodium nitrate | | Dihydrogen monoxide | |
| Tin (IV) chloride | | Hydrogen gas | |
| Hydrogen nitrite | | Hydrogen monoiodide | |

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|---|--|------------------------------|--|
| $\text{Al}(\text{NO}_3)_3$ | | ClF | |
| Ca_3P_2 | | AsBr_3 | |
| $\text{Pt}(\text{OH})_2$ | | BaCO_3 | |
| CoBr_2 | | $\text{Cu}(\text{ClO}_4)_2$ | |
| NH_4Br | | SbN | |
| BBr_3 | | CsNO_3 | |
| $\text{Ba}(\text{C}_2\text{H}_3\text{O}_2)_2$ | | Cr_2O_3 | |
| N_2 | | B_4C | |
| $\text{Cd}(\text{CN})_2$ | | AuCN | |
| KCl | | FeCl_3 | |
| N_2O | | BaSO_4 | |
| SO_3 | | ClO_2 | |
| Be_3N_2 | | Ag_2CrO_4 | |
| $\text{Ca}(\text{ClO}_2)_2$ | | MnCO_3 | |
| AsI_2 | | Al_2O_3 | |
| CrF_3 | | NH_4ClO_3 | |
| KMnO_4 | | Ba_3As_2 | |
| PbCr_2O_7 | | $\text{Zn}_3(\text{PO}_4)_2$ | |
| CS_2 | | CO | |
| AuBr_3 | | Cd_3As_2 | |
| NaNO_2 | | SiO_2 | |
| Al_2S_3 | | $\text{Fe}(\text{ClO})_2$ | |
| SnSO_4 | | MoF_6 | |
| $\text{Pt}(\text{CN})_2$ | | As_2O_5 | |
| BaF_2 | | SiS | |

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|--------------------------|--|-------------------------|--|
| Iron (II) chloride | | Molybdenum (VI) acetate | |
| Potassium oxide | | Zinc peroxide | |
| Lithium sulfide | | Beryllium phosphate | |
| Magnesium phosphide | | Hydrogen monobromide | |
| Beryllium fluoride | | Gold (III) chloride | |
| Lithium sulfite | | Silver dichromate | |
| Calcium hydroxide | | Rubidium sulfate | |
| Barium thiosulfate | | Potassium thiocyanate | |
| Dinitrogen monosulfide | | Magnesium carbonate | |
| Zinc sulfide | | Sodium peroxide | |
| Calcium silicide | | Lithium chloride | |
| Carbon dioxide | | Cadmium oxide | |
| Hydrogen disulfide | | Copper (II) perchlorate | |
| Sodium hydroxide | | Silver cyanide | |
| Palladium (II) chloride | | Rubidium hydroxide | |
| Iron (III) phosphide | | Calcium nitrite | |
| Copper (II) carbonate | | Sodium nitrate | |
| Manganese (VII) chloride | | Aluminum fluoride | |
| Rubidium permanganate | | Manganese (IV) oxide | |
| Ammonium acetate | | Sodium silicide | |
| Phosphorus trihydride | | Phosphorus trichloride | |
| Cobalt (III) sulfite | | Antimony (III) sulfate | |
| Sodium cyanide | | Tin (IV) nitrite | |
| Tin (II) oxalate | | Dihydrogen monosulfide | |
| Iron (III) nitrite | | Oxygen gas | |

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|---|--|------------------------------------|--|
| $\text{Al}_2(\text{SO}_4)_3$ | | F_2 | |
| Ca_3N_2 | | SeBr_3 | |
| $\text{Pd}(\text{CN})_2$ | | $\text{Ba}(\text{HCO}_3)_2$ | |
| CoCl_2 | | CuClO_2 | |
| NH_4NO_3 | | SbCl_5 | |
| CBr_4 | | LiNO_3 | |
| $\text{Sr}(\text{C}_2\text{H}_3\text{O}_2)_2$ | | N_2O_3 | |
| O_2 | | CCl_4 | |
| $\text{Cd}(\text{OH})_2$ | | $\text{Mo}(\text{CN})_3$ | |
| RbF | | PbCl_2 | |
| H_2O | | Na_3AsO_4 | |
| P_2O_5 | | ClO_3 | |
| Be_3P_2 | | $\text{Ag}_2\text{Cr}_2\text{O}_7$ | |
| $\text{Mg}(\text{ClO}_3)_2$ | | MgSO_3 | |
| SeCl_3 | | AlP | |
| FeF_3 | | NH_4ClO | |
| LiMnO_4 | | Ca_3As_2 | |
| CoCrO_4 | | $\text{Cd}_3(\text{PO}_4)_2$ | |
| SiO_2 | | PO_3 | |
| AgI | | Zn_3As_2 | |
| KNO_3 | | CO_2 | |
| Al_2O_3 | | $\text{Ca}(\text{ClO}_2)_2$ | |
| PdSO_3 | | MoO_3 | |
| PtCl_2 | | K_2O | |
| $\text{Mg}(\text{NO}_2)_2$ | | CS_2 | |

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|--------------------------|--|--------------------------|--|
| Ytterbium (III) chloride | | Mercury (I) iodate | |
| Erbium acetate | | Phosphorus pentabromide | |
| Germanium tetrachloride | | Selenium tetrafluoride | |
| Lanthanum oxide | | Tin (IV) chloride | |
| Osmium (IV) chloride | | Lead (II) hydroxide | |
| Hydrogen permanganate | | Mercury (II) nitride | |
| Sodium cyanide | | Lead (II) acetate | |
| Potassium thiosulfate | | Nickel (II) chloride | |
| Rubidium carbonate | | Manganese (II) oxide | |
| Bromine monoiodide | | Strontium carbonate | |
| Scandium bromide | | Copper (I) carbonate | |
| Ammonium hypochlorite | | Lithium oxide | |
| Hydrogen carbonate | | Nickel (III) selenide | |
| Tin (II) hydroxide | | Iron (II) fluoride | |
| Lead (II) nitrate | | Zinc iodide | |
| Copper (II) sulfate | | Chromium (III) phosphide | |
| Strontium hydroxide | | Magnesium sulfite | |
| Hydrogen nitrite | | Silver chromate | |
| Zinc acetate | | Cesium carbonate | |
| Cadmium nitrite | | Calcium phosphate | |
| Magnesium nitride | | Antimony (V) sulfide | |
| Potassium antimonide | | Nitrogen pentoxide | |
| Lithium phosphate | | Ammonium sulfide | |
| Silicon dioxide | | Calcium hypochlorite | |
| Nickel (II) sulfate | | Bromine liquid | |

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|-----------------|--|-------------------|--|
| V_2O_5 | | Co_4Si_3 | |
| Dy_2O_3 | | $KClO_4$ | |
| $La(NO_3)_3$ | | Bi_2Te_3 | |
| $MoCl_6$ | | CaS | |
| Ni_3 | | PbI_2 | |
| PtI_4 | | $NaMnO_4$ | |
| K_2S | | $RaBr_2$ | |
| $SmCl_3$ | | $Be(NO_3)_2$ | |
| NaF | | $Mg(C_2H_3O_2)_2$ | |
| $Pb(NO_3)_2$ | | $Pd(CN)_2$ | |
| SnI_4 | | SbF_3 | |
| Ag_3N | | $Al(ClO_3)_3$ | |
| $NH_4C_2H_3O_2$ | | SrS | |
| $NaHCO_3$ | | $NaClO$ | |
| PbS | | ZnO | |
| $Ba(OH)_2$ | | K_2O | |
| H_2SO_3 | | $KHCO_3$ | |
| ZnF_2 | | NH_4F | |
| $Cd(HCO_3)_2$ | | N_2O | |
| $Zn_3(PO_4)_2$ | | $SnBr_2$ | |
| TeI_4 | | $MgCl_2$ | |
| $HgNO_3$ | | CO | |
| $PbTe$ | | LiH | |
| $FePO_4$ | | $CaBr_2$ | |
| P_3N_5 | | HF | |