

### Periodic Table of Ions

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; padding: 5px;"> <b>Table of Polyatomic Ions</b>                  Acetate <math>\text{CH}_3\text{COO}^-</math>                  Ammonium <math>\text{NH}_4^+</math>                  Benzoate <math>\text{C}_6\text{H}_5\text{COO}^-</math>                  Borate <math>\text{BO}_3^{3-}</math>                  Tetraborate <math>\text{B}_4\text{O}_7^{2-}</math>                  Bromate <math>\text{BrO}_3^-</math>                  Carbonate <math>\text{CO}_3^{2-}</math>                  Hydrogen carbonate <math>\text{HCO}_3^-</math>                  Chlorate <math>\text{ClO}_3^-</math>                  Perchlorate <math>\text{ClO}_4^-</math>                  Chlorite <math>\text{ClO}_2^-</math>                  Hypochlorite <math>\text{ClO}^-</math> </td> <td style="width: 33%; padding: 5px;">                 Chromate <math>\text{CrO}_4^{2-}</math>                  Dichromate <math>\text{Cr}_2\text{O}_7^{2-}</math>                  Cyanide <math>\text{CN}^-</math>                  Glutamate <math>\text{C}_6\text{H}_5\text{NO}_4^-</math>                  Hydroxide <math>\text{OH}^-</math>                  Iodate <math>\text{IO}_3^-</math>                  Nitrate <math>\text{NO}_3^-</math>                  Nitrite <math>\text{NO}_2^-</math>                  Oxalate <math>\text{C}_2\text{O}_4^{2-}</math>                  Permanganate <math>\text{MnO}_4^-</math>                  Phosphate <math>\text{PO}_4^{3-}</math>                  Hydrogen phosphate <math>\text{HPO}_4^{2-}</math>                  Dihydrogen phosphate <math>\text{H}_2\text{PO}_4^-</math>                  Silicate <math>\text{SiO}_3^{2-}</math>                  Stearate <math>\text{C}_{18}\text{H}_{35}\text{O}_2^-</math> </td> <td style="width: 33%; padding: 5px;"> <b>Strong Acids</b>                  HCl(aq)                  HI(aq)                  HBr(aq)                  HClO(aq)                  HNO<sub>3</sub>(aq)                  H<sub>2</sub>SO<sub>4</sub>(aq)             </td> </tr> <tr> <td colspan="3" style="padding: 5px;"> <b>Rules for Naming Acids</b>                  1. Hydrogen ___ide becomes hydro ___ic acid                  2. Hydrogen ___ate becomes ___ic acid                  3. Hydrogen ___ite becomes ___ous acid             </td> </tr> </table>																		<b>Table of Polyatomic Ions</b> Acetate $\text{CH}_3\text{COO}^-$ Ammonium $\text{NH}_4^+$ Benzoate $\text{C}_6\text{H}_5\text{COO}^-$ Borate $\text{BO}_3^{3-}$ Tetraborate $\text{B}_4\text{O}_7^{2-}$ Bromate $\text{BrO}_3^-$ Carbonate $\text{CO}_3^{2-}$ Hydrogen carbonate $\text{HCO}_3^-$ Chlorate $\text{ClO}_3^-$ Perchlorate $\text{ClO}_4^-$ Chlorite $\text{ClO}_2^-$ Hypochlorite $\text{ClO}^-$	Chromate $\text{CrO}_4^{2-}$ Dichromate $\text{Cr}_2\text{O}_7^{2-}$ Cyanide $\text{CN}^-$ Glutamate $\text{C}_6\text{H}_5\text{NO}_4^-$ Hydroxide $\text{OH}^-$ Iodate $\text{IO}_3^-$ Nitrate $\text{NO}_3^-$ Nitrite $\text{NO}_2^-$ Oxalate $\text{C}_2\text{O}_4^{2-}$ Permanganate $\text{MnO}_4^-$ Phosphate $\text{PO}_4^{3-}$ Hydrogen phosphate $\text{HPO}_4^{2-}$ Dihydrogen phosphate $\text{H}_2\text{PO}_4^-$ Silicate $\text{SiO}_3^{2-}$ Stearate $\text{C}_{18}\text{H}_{35}\text{O}_2^-$	<b>Strong Acids</b> HCl(aq) HI(aq) HBr(aq) HClO(aq) HNO <sub>3</sub> (aq) H <sub>2</sub> SO <sub>4</sub> (aq)	<b>Rules for Naming Acids</b> 1. Hydrogen ___ide becomes hydro ___ic acid 2. Hydrogen ___ate becomes ___ic acid 3. Hydrogen ___ite becomes ___ous acid														
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1	H <sup>+</sup> Hydrogen																2	He Helium																	
3	Li <sup>+</sup> Lithium	4	Be <sup>2+</sup> Beryllium																																
11	Na <sup>+</sup> Sodium	12	Mg <sup>2+</sup> Magnesium																																
19	K <sup>+</sup> Potassium	20	Ca <sup>2+</sup> Calcium	21	Sc <sup>3+</sup> Scandium	22	Ti <sup>4+</sup> Titanium (IV)	23	V <sup>5+</sup> Vanadium (V)	24	Cr <sup>3+</sup> Chromium (III)	25	Mn <sup>2+</sup> Manganese(II)	26	Fe <sup>3+</sup> Iron(III) Ferric	27	Co <sup>2+</sup> Cobalt (II)	28	Ni <sup>2+</sup> Nickel (II)	29	Cu <sup>2+</sup> Copper (II) Cupric	30	Zn <sup>2+</sup> Zinc	31	Ga <sup>3+</sup> Gallium	32	Ge <sup>4+</sup> Germanium	33	As <sup>3-</sup> Arsenic	34	Se <sup>2-</sup> Selenium	35	Br <sup>-</sup> Bromine	36	Kr Krypton
37	Rb <sup>+</sup> Rubidium	38	Sr <sup>2+</sup> Strontium	39	Y Yttrium	40	Zr Zirconium	41	Nb Niobium	42	Mo Molybdenum	43	Tc Technetium	44	Ru Ruthenium	45	Rh Rhodium	46	Pd <sup>2+</sup> Palladium (II)	47	Ag <sup>+</sup> Silver	48	Cd <sup>2+</sup> Cadmium	49	In <sup>3+</sup> Indium	50	Sn <sup>4+</sup> Tin (IV) Stannic	51	Sb <sup>3-</sup> Antimony (III) Stibnic	52	Te <sup>2-</sup> Tellurium	53	I <sup>-</sup> Iodine	54	Xe Xenon
55	Cs <sup>+</sup> Cesium	56	Ba <sup>2+</sup> Barium	57	La <sup>3+</sup> Lanthanum	72	Hf Hafnium	73	Ta Tantalum	74	W Tungsten	75	Re Rhenium	76	Os Osmium	77	Ir Iridium	78	Pt <sup>4+</sup> Platinum (IV)	79	Au <sup>3+</sup> Gold(III)	80	Hg <sup>2+</sup> Mercury (II) Mercuric	81	Tl <sup>+</sup> Thallium (I)	82	Pb <sup>2+</sup> Lead (II) Plumbic	83	Bi <sup>3+</sup> Bismuth (III)	84	Po <sup>2+</sup> Polonium (II)	85	At Astatine	86	Rn Radon
87	Fr <sup>+</sup> Francium	88	Ra <sup>2+</sup> Radium	89	Ac <sup>3+</sup> Actinium	104	Rf Rutherfordium	105	Db Dubnium	106	Sg Seaborgium	107	Bh Bohrium	108	Hs Hassium	109	Mt Meitnerium	110	Ds Darmstadtium	111	Rg Roentgenium	112	Uub Ununbium	113	Uut Ununtrium	114	Uuq Ununquadium	115	Uup Ununpentium	116	Uuh Ununhexium	117		118	Uuo Ununoctium

Mar 26-8:58 AM

### Binary Ionic Compounds

	Empirical Formula	Name
1	CaCl <sub>2</sub>	Calcium Chloride
2	MgO	Magnesium Oxide
3	NaBr	Sodium Bromide
4	Al <sub>2</sub> O <sub>3</sub>	Aluminum Oxide
5	CaO	Calcium Oxide
6	ZnO	Zinc Oxide
7	Ag <sub>2</sub> S	Silver Sulfide
8	CaF <sub>2</sub>	Calcium Fluoride
9	CaH <sub>2</sub>	Calcium Hydride
10		

Mar 23-10:20 AM

10	KI	potassium iodide
11	AlCl <sub>3</sub>	aluminum chloride
12	Li <sub>3</sub> N	lithium nitride
13	BaCl <sub>2</sub>	barium chloride
14	NaCl	sodium chloride
15	AgCl	silver bromide
16	MgH <sub>2</sub>	magnesium hydride

Mar 23-10:20 AM

17	MgCl <sub>2</sub>	magnesium chloride
18	ZnCl <sub>2</sub>	zinc chloride
19	KCl	potassium chloride
20	Na <sub>2</sub> S	sodium sulphide
21	ZnS	zinc sulphide
22	AlCl <sub>3</sub>	aluminum chloride
23	ScBr <sub>3</sub>	scandium bromide
24	CsI	cesium iodide
25	SrF <sub>2</sub>	strontium fluoride

Mar 23-10:20 AM

## Review- Naming Chemical Compounds

The following are a good mix of naming and formula writing problems to help you get some practice. I will expect that you know how to name both ionic and covalent compounds in your work.

Name the following chemical compounds:

- 1) NaBr \_\_\_\_\_
- 2)  $\text{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2$  \_\_\_\_\_
- 3)  $\text{P}_2\text{O}_5$  \_\_\_\_\_
- 4)  $\text{Ti}(\text{SO}_4)_2$  \_\_\_\_\_
- 5)  $\text{FePO}_4$  \_\_\_\_\_
- 6)  $\text{K}_3\text{N}$  \_\_\_\_\_
- 7)  $\text{SO}_2$  \_\_\_\_\_
- 8)  $\text{CuOH}$  \_\_\_\_\_
- 9)  $\text{Zn}(\text{NO}_2)_2$  \_\_\_\_\_
- 10)  $\text{V}_2\text{S}_3$  \_\_\_\_\_

Write the formulas for the following chemical compounds:

- 11) silicon dioxide \_\_\_\_\_
- 12) nickel (III) sulfide \_\_\_\_\_
- 13) manganese (II) phosphate \_\_\_\_\_
- 14) silver acetate \_\_\_\_\_
- 15) diboron tetrabromide \_\_\_\_\_
- 16) magnesium sulfate heptahydrate \_\_\_\_\_
- 17) potassium carbonate \_\_\_\_\_
- 18) ammonium oxide \_\_\_\_\_
- 19) tin (IV) selenide \_\_\_\_\_
- 20) carbon tetrachloride \_\_\_\_\_

May 6-10:30 AM

Name the following chemical compounds:

- 1)  $\overset{m}{I}$   $\overset{nm}{NaBr}$   $\text{Na}^+ \text{Br}^-$  Sodium Bromide
- 2)  $\overset{I}{Ca}(\text{C}_2\text{H}_3\text{O}_2)_2$  Calcium Acetate
- 3)  $\overset{C}{P}_2\text{O}_5$  Diphosphorus pentoxide
- 4)  $\overset{I}{Ti}(\text{SO}_4)_2$  Titanium (IV) Sulphate
- 5)  $\overset{I}{Fe}PO_4$  Iron (III) phosphate
- 6)  $\overset{I}{K}_3\text{N}$  Potassium Nitride
- 7)  $\overset{C}{SO}_2$  Sulfur dioxide
- 8)  $\overset{I}{Cu}OH$  Copper (I) hydroxide
- 9)  $\text{Zn}(\text{NO}_2)_2$  \_\_\_\_\_
- 10)  $\text{V}_2\text{S}_3$  \_\_\_\_\_

May 6-10:30 AM

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- 11) silicon dioxide \_\_\_\_\_
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- 18) ammonium oxide \_\_\_\_\_
- 19) tin (IV) selenide \_\_\_\_\_
- 20) carbon tetrachloride \_\_\_\_\_

May 6-10:30 AM

IUPAC	Common Molecular Compound	Molecular Formula
Water		$H_2O(l)$
Hydrogen Peroxide		$H_2O_2(l)$
Ammonia		$NH_3(g)$
Glucose		$C_6H_{12}O_6(s)$
Sucrose		$C_{12}H_{22}O_{11}(s)$
Methane		$CH_4(g)$
Propane		$C_3H_8(g)$
Octane		$C_8H_{18}(l)$
Methanol		$CH_3OH(l)$
Ethanol		$C_2H_5OH(l)$
Hydrogen Sulfide		$H_2S(g)$

May 11-9:02 AM

**Part I: Name the following chemical compounds and indicate if it a molecular (covalent) compound or an ionic compound. (Value 10)**

1.  $K^+ N^{3-}$   $K_3N$  Potassium Nitride (I)

2.  $SO_2$  Sulfur dioxide (m)

3.  $Cu^+ OH^-$  Copper(I) hydroxide (I)

4.  $Zn^{2+} (NO_2^-)_2$  Zinc Nitrite (I)

5.  $V^{3+} S^{2-}$  Vanadium(III) Sulphide (I)

↑  
↙

May 6-10:30 AM