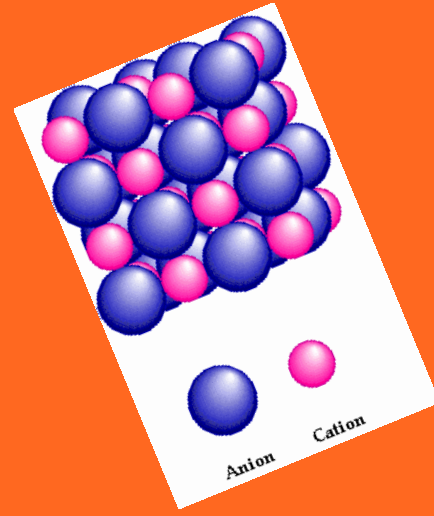


Tables Of Common Ions

Googled Feb 2007



COMMON IONS

Positive Ions (Cations)

1+

Ammonium (NH_4^+)
Cesium (Cs^+)
Copper(I) or cuprous (Cu^+)
Hydrogen (H^+)
Lithium (Li^+)
Potassium (K^+)
Silver (Ag^+)
Sodium (Na^+)

2+

Barium (Ba^{2+})
Cadmium (Cd^{2+})
Calcium (Ca^{2+})
Chromium(II) or chromous (Cr^{2+})
Cobalt(II) or cobaltous (Co^{2+})
Copper(II) or cupric (Cu^{2+})
Iron(II) or ferrous (Fe^{2+})
Lead(II) or plumbous (Pb^{2+})
Magnesium (Mg^{2+})
Manganese(II) or manganous (Mn^{2+})
Mercury(I) or mercurous (Hg_2^{2+})

Mercury(II) or mercuric (Hg^{2+})
Strontium (Sr^{2+})
Nickel(II) (Ni^{2+})
Tin(II) or stannous (Sn^{2+})
Zinc (Zn^{2+})

3+

Aluminum (Al^{3+})
Chromium(III) or chromic (Cr^{3+})
Iron(III) or ferric (Fe^{3+})

Negative Ions (Anions)

1-

Acetate ($\text{C}_2\text{H}_3\text{O}_2^-$)
Bromide (Br^-)
Chlorate (ClO_3^-)
Chloride (Cl^-)
Cyanide (CN^-)
Dihydrogen phosphate (H_2PO_4^-)
Fluoride (F^-)
Hydride (H^-)
Hydrogen carbonate or bicarbonate (HCO_3^-)

Hydrogen sulfite or bisulfite (HSO_3^-)
Hydroxide (OH^-)
Iodide (I^-)
Nitrate (NO_3^-)
Nitrite (NO_2^-)
Perchlorate (ClO_4^-)
Permanganate (MnO_4^-)
Thiocyanate (SCN^-)

2-

Carbonate (CO_3^{2-})
Chromate (CrO_4^{2-})
Dichromate ($\text{Cr}_2\text{O}_7^{2-}$)
Hydrogen phosphate (HPO_4^{2-})
Oxide (O^{2-})
Peroxide (O_2^{2-})
Sulfate (SO_4^{2-})
Sulfide (S^{2-})
Sulfite (SO_3^{2-})

3-

Arsenate (AsO_4^{3-})
Phosphate (PO_4^{3-})

COMMON IONS AND THEIR CHARGES

| Name | Symbol & charge | Name | Symbol & charge |
|-----------------------------|----------------------------|---------------------------------------|--|
| Ammonium | NH_4^+ | Acetate | $\text{C}_2\text{H}_3\text{O}_2^{-1}$ |
| Antimony(III) or antimonous | Sb^{3+} | Arsenate | AsO_4^{3-} |
| Arsenic(III) or arsenious | As^{3+} | Arsenite | AsO_3^{3-} |
| Bismuth | Bi^{3+} | Benzoate | $\text{C}_7\text{H}_5\text{O}_2^{-2}$ |
| Cadmium | Cd^{2+} | Borate | BO_3^{3-} |
| Cerium(IV) or ceric | Ce^{4+} | Bromate | BrO_3^{-1} |
| Cerium(III) or cerous | Ce^{3+} | Carbonate | CO_3^{-2} |
| Chromium(III) or chromic | Cr^{3+} | Chlorate | ClO_3^{-1} |
| Chromium(II) or chromous | Cr^{2+} | Chlorite | ClO_2^{-1} |
| Cobalt(III) or cobaltic | Co^{3+} | Chromate | CrO_4^{-2} |
| Cobalt(II) or cobaltous | Co^{2+} | Cyanate | CNO^{-1} |
| Copper(II) or cupric | Cu^{2+} | Cyanide | CN^{-1} |
| Copper(I) or cuprous | Cu^{1+} | Dichromate | $\text{Cr}_2\text{O}_7^{-2}$ |
| Gallium(III) | Ga^{3+} | Dihydrogen phosphate | $\text{H}_2\text{PO}_4^{-1}$ |
| Gold(III) or auric | Au^{3+} | Hydride | H^{-1} |
| Gold(I) or aurous | Au^{1+} | Hexacyanoferrate(III) or ferricyanide | $\text{Fe}(\text{CN})_6^{3-}$ |
| Hydrogen | H^{1+} | Hexacyanoferrate(II) or ferrocyanide | $\text{Fe}(\text{CN})_6^{4-}$ |
| Hydronium | H_3O^{+} | Hydrogen carbonate or bicarbonate | HCO_3^{-1} |
| Iron(III) or ferric | Fe^{3+} | Hydrogen oxalate or bioxalate | $\text{HC}_2\text{O}_4^{-1}$ |
| Iron(II) or ferrous | Fe^{2+} | Hydrogen phthalate or biphthalate | $\text{HC}_8\text{H}_4\text{O}_4^{-1}$ |
| Lead(II) or plumbous | Pb^{2+} | Hydrogen sulfate or bisulfate | HSO_4^{-1} |
| Mercury(II) or mercuric | Hg^{2+} | Hydrogen sulfide or bisulfide | HS^{-1} |
| Mercury(I) or mercurous | Hg_2^{2+} | Hydrogen sulfite or bisulfite | HSO_3^{-1} |
| Nickel(II) | Ni^{2+} | Hydroxide | OH^{-1} |
| Silver | Ag^{1+} | Hypochlorite | ClO^{-1} |
| Thallium(III) or thallic | Tl^{3+} | Iodate | IO_3^{-1} |
| Thallium(I) or thallos | Tl^{1+} | Monohydrogen phosphate | HPO_4^{-2} |
| Tin(IV) or stannic | Sn^{4+} | Nitrate | NO_3^{-1} |
| Tin(II) or stannous | Sn^{2+} | Nitrite | NO_2^{-1} |
| Titanium(IV) or titanic | Ti^{4+} | Orthosilicate | SiO_4^{-4} |
| Titanium(III) or titanous | Ti^{3+} | Oxalate | $\text{C}_2\text{O}_4^{-2}$ |
| Vanadium | V^{3+} | Perchlorate | ClO_4^{-1} |
| Zinc | Zn^{2+} | Periodate | IO_4^{-1} |
| | | Permanganate | MnO_4^{-1} |
| | | Peroxide | O_2^{-2} |
| | | Phosphate | PO_4^{3-} |
| | | Phosphite | PO_3^{3-} |
| | | Pyrophosphate | $\text{P}_2\text{O}_7^{-4}$ |
| | | Silicate | SiO_3^{-2} |
| | | Sulfate | SO_4^{-2} |
| | | Sulfite | SO_3^{-2} |
| | | Thiocyanate | SCN^{-1} |
| | | Thiosulfate | $\text{S}_2\text{O}_3^{-2}$ |

Note: Ions that are easily predicted using the periodic table are not included in this list.

Table 4-4

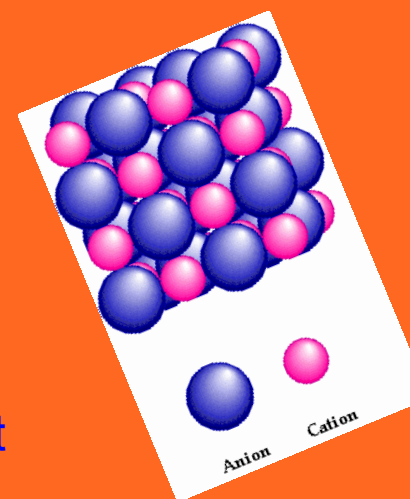
Charges of Common Polyatomic Ions*

| | | |
|--|---|--|
| 1+ ammonium, NH_4^+ | | |
| <p style="text-align: center;">1-</p> <p>acetate, $\text{C}_2\text{H}_3\text{O}_2^-$ chlorate, ClO_3^- cyanide, CN^- hydroxide, OH^- hypochlorite, ClO^- iodate, IO_3^- nitrate, NO_3^- nitrite, NO_2^- perchlorate, ClO_4^-</p> | <p style="text-align: center;">2-</p> <p>carbonate, CO_3^{2-} hexafluorosilicate, SiF_6^{2-} oxalate, $\text{C}_2\text{O}_4^{2-}$ selenate, SeO_4^{2-} silicate, SiO_3^{2-} sulfate, SO_4^{2-} tartrate, $\text{C}_4\text{H}_4\text{O}_6^{2-}$</p> | <p style="text-align: center;">3-</p> <p>arsenate, AsO_4^{3-} phosphate, PO_4^{3-}</p> |

*Table A-4 of the Appendix lists additional polyatomic ions and their charges.

Writing a correct ionic formula

1. Positive ions (cations) can join to negative ions.
2. Positive ions usually form the first part of the name (99% of cases)
3. The formula is correct if there is no overall charge
4. If you have more than one polyatomic ion it is placed in brackets



Please refer to the lego block method in class.....patent pending