

**Table 2.4** Some Metals That Form More Than One Monatomic Ion\*

Element	Ion Formula	Systematic Name	Common (Trivial) Name
Chromium	Cr <sup>2+</sup>	chromium(II)	chromous
	<b>Cr<sup>3+</sup></b>	<b>chromium(III)</b>	chromic
Cobalt	Co <sup>2+</sup>	cobalt(II)	
	Co <sup>3+</sup>	cobalt(III)	
Copper	<b>Cu<sup>+</sup></b>	<b>copper(I)</b>	cuprous
	<b>Cu<sup>2+</sup></b>	<b>copper(II)</b>	cupric
Iron	<b>Fe<sup>2+</sup></b>	<b>iron(II)</b>	ferrous
	<b>Fe<sup>3+</sup></b>	<b>iron(III)</b>	ferric
Lead	<b>Pb<sup>2+</sup></b>	<b>lead(II)</b>	
	Pb <sup>4+</sup>	lead(IV)	
Mercury	Hg <sub>2</sub> <sup>2+</sup>	mercury(I)	mercurous
	<b>Hg<sup>2+</sup></b>	<b>mercury(II)</b>	mercuric
Tin	<b>Sn<sup>2+</sup></b>	<b>tin(II)</b>	stannous
	Sn <sup>4+</sup>	tin(IV)	stannic

\*Listed alphabetically by metal name; those in **boldface** are most common.

Common Ion Chart

Positive Ions (Cations)		Negative Ions (Anions)	
Aluminum	Al <sup>+3</sup>	Acetate	C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> <sup>-</sup> / CH <sub>3</sub> COO <sup>-</sup>
Ammonium	NH <sub>4</sub> <sup>+</sup>	Bromide	Br <sup>-</sup>
Barium	Ba <sup>+2</sup>	Carbonate	CO <sub>3</sub> <sup>-2</sup>
Cadmium	Cd <sup>+2</sup>	Hydrogen Carbonate Ion / Bicarbonate	HCO <sub>3</sub> <sup>-</sup>
Calcium	Ca <sup>+2</sup>	Chlorate	ClO <sub>3</sub> <sup>-</sup>
Chromium (II)	Cr <sup>+2</sup>	Chloride	Cl <sup>-</sup>
Chromium (III)	Cr <sup>+3</sup>	Chlorite	ClO <sub>2</sub> <sup>-</sup>
Cobalt (II)	Co <sup>+2</sup>	Chromate	CrO <sub>4</sub> <sup>2-</sup>
Copper (I)	Cu <sup>+</sup>	Cyanide	CN <sup>-</sup>
Copper (II)	Cu <sup>+2</sup>	Dichromate	Cr <sub>2</sub> O <sub>7</sub> <sup>-2</sup>
Hydrogen	H <sup>+</sup>	Fluoride	F <sup>-</sup>
Hydronium	H <sub>3</sub> O <sup>+</sup>	Hydride	H <sup>-</sup>
Iron (II)	Fe <sup>+2</sup>	Hydroxide	OH <sup>-</sup>
Iron (III)	Fe <sup>+3</sup>	Hypochlorite	ClO <sup>-</sup>
Lead (II)	Pb <sup>+2</sup>	Iodate	IO <sub>3</sub> <sup>-</sup>
Lead (IV)	Pb <sup>+4</sup>	Iodide	I <sup>-</sup>
Lithium	Li <sup>+</sup>	Nitrate	NO <sub>3</sub> <sup>-</sup>
Magnesium	Mg <sup>+2</sup>	Nitride	N <sup>-3</sup>
Manganese (II)	Mn <sup>+2</sup>	Nitrite	NO <sub>2</sub> <sup>-</sup>
Mercury (I)	Hg <sub>2</sub> <sup>+2</sup>	Oxalate	C <sub>2</sub> O <sub>4</sub> <sup>-2</sup>
Mercury (II)	Hg <sup>+2</sup>	Oxide	O <sup>-2</sup>
Potassium	K <sup>+</sup>	Hydrogen Oxalate Ion	HC <sub>2</sub> O <sub>4</sub> <sup>-</sup>
Silver	Ag <sup>+</sup>	Perchlorate	ClO <sub>4</sub> <sup>-</sup>
Strontium	Sr <sup>+2</sup>	Permanganate	MnO <sub>4</sub> <sup>-</sup>
Sodium	Na <sup>+</sup>	Peroxide Ion	O <sub>2</sub> <sup>-2</sup>
Tin (II)	Sn <sup>+2</sup>	Phosphate	PO <sub>4</sub> <sup>-3</sup>
Tin (IV)	Sn <sup>+4</sup>	Monohydrogen Phosphate	HPO <sub>4</sub> <sup>-2</sup>
Zinc	Zn <sup>+2</sup>	Dihydrogen Phosphate	H <sub>2</sub> PO <sub>4</sub> <sup>-</sup>
		Silicate	SiO <sub>3</sub> <sup>-2</sup>
		Sulfate	SO <sub>4</sub> <sup>-2</sup>
		Hydrogen Sulfate Ion / Bisulfate	HSO <sub>4</sub> <sup>-</sup>
		Thiosulfate	S <sub>2</sub> O <sub>3</sub> <sup>-2</sup>
		Sulfide	S <sup>-2</sup>
		Hydrogen Sulfide Ion / Bisulfide	HS <sup>-</sup>
		Sulfite	SO <sub>3</sub> <sup>-2</sup>
		Hydrogen Sulfite Ion / Bisulfite	HSO <sub>3</sub> <sup>-</sup>

  

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