

## Polyatomic Ions and Their Charges

| +1  | +2  | +3   | +4                          |
|---|---|--|-----------------------------|
| ammonium, $\text{NH}_4^+$<br>copper (I), $\text{Cu}^+$<br>silver, $\text{Ag}^+$   | copper (II), $\text{Cu}^{2+}$<br>iron (II), $\text{Fe}^{2+}$<br>lead (II), $\text{Pb}^{2+}$<br>mercury (I), $\text{Hg}_2^{2+}$<br>mercury (II), $\text{Hg}^{2+}$<br>nickel (II), $\text{Ni}^{2+}$       | aluminum, $\text{Al}^{3+}$<br>chromium (III), $\text{Cr}^{3+}$<br>iron (III), $\text{Fe}^{3+}$ | lead (IV), $\text{Pb}^{4+}$ |
| -1  | -2  | -3   |                             |
| acetate, $\text{C}_2\text{H}_3\text{O}_2^-$<br>chlorate, $\text{ClO}_3^-$<br>hydrogen carbonate, $\text{HCO}_3^-$<br>hydrogen sulfate, $\text{HSO}_4^-$<br>hydroxide, $\text{OH}^-$<br>nitrate, $\text{NO}_3^-$<br>nitrite, $\text{NO}_2^-$ | carbonate, $\text{CO}_3^{2-}$<br>chromate, $\text{CrO}_4^{2-}$<br>dichromate, $\text{Cr}_2\text{O}_7^{2-}$<br>peroxide, $\text{O}_2^{2-}$<br>sulfate, $\text{SO}_4^{2-}$<br>sulfite, $\text{SO}_3^{2-}$ | phosphate, $\text{PO}_4^{3-}$  |                             |

**Note:** All column IA elements form 1+ ions; All column IIA elements form 2+ ions;  
All column VIIA elements form 1- ions; All column VIA elements form 2- ions;

## Metallic Ion Name Equivalents

| <i>Old System</i> |                  | <i>New System</i> |                    |
|-------------------|------------------|-------------------|--------------------|
| chromic           | $\text{Cr}^{3+}$ | chromium (III)    | $\text{Cr}^{3+}$   |
| cobaltous         | $\text{Co}^{2+}$ | cobalt (II)       | $\text{Co}^{2+}$   |
| ferrous           | $\text{Fe}^{2+}$ | iron (II)         | $\text{Fe}^{2+}$   |
| ferric            | $\text{Fe}^{3+}$ | iron (III)        | $\text{Fe}^{3+}$   |
| cuprous           | $\text{Cu}^+$    | copper (I)        | $\text{Cu}^+$      |
| cupric            | $\text{Cu}^{2+}$ | copper (II)       | $\text{Cu}^{2+}$   |
| mercurous         | $\text{Hg}^+$    | mercury (I)       | $\text{Hg}_2^{2+}$ |
| mercuric          | $\text{Hg}^{2+}$ | mercury (II)      | $\text{Hg}^{2+}$   |
| plumbous          | $\text{Pb}^{2+}$ | lead (II)         | $\text{Pb}^{2+}$   |
| plumbic           | $\text{Pb}^{4+}$ | lead (IV)         | $\text{Pb}^{4+}$   |
| stannous          | $\text{Sn}^{2+}$ | tin (II)          | $\text{Sn}^{2+}$   |
| stannic           | $\text{Sn}^{4+}$ | tin (IV)          | $\text{Sn}^{4+}$   |