

## Chart F: Solubility Rules

### Always soluble:

alkali metal ions ( $\text{Li}^+$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Rb}^+$ ,  $\text{Cs}^+$ ),  $\text{NH}_4^+$  (ammonium)  
 $\text{NO}_3^-$ ,  $\text{ClO}_3^-$ ,  $\text{ClO}_4^-$ ,  $\text{CH}_3\text{COO}^-$  ( $\text{C}_2\text{H}_3\text{O}_2^-$ )

### Generally soluble:

$\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$  Soluble except  $\text{Ag}^+$ ,  $\text{Pb}^{2+}$ ,  $\text{Hg}_2^{2+}$  ( *$\text{CuI}_2$  is insoluble*)  
 $\text{F}^-$  Soluble except  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Pb}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{H}^+$   
 $\text{SO}_4^{2-}$  Soluble except  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Pb}^{2+}$ ,  $\text{Hg}_2^{2+}$

### Generally insoluble:

$\text{O}^{2-}$ ,  $\text{OH}^-$  Insoluble except alkali metals, and  $\text{NH}_4^+$   
Somewhat soluble  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Ba}^{2+}$

$\text{CO}_3^{2-}$ ,  $\text{PO}_4^{3-}$ ,  $\text{S}^{2-}$ ,  $\text{SO}_3^{2-}$ ,  $\text{C}_2\text{O}_4^{2-}$ ,  $\text{CrO}_4^{2-}$   
Insoluble except alkali metal ions and  $\text{NH}_4^+$