

# Solubility Rules

## Soluble Compounds

Ion	Formula	Solubility in Water
Nitrates	$\text{NO}_3^{-1}$	All compounds are soluble
Ammonium	$\text{NH}_4^{+1}$	All compounds are soluble
Alkali Metals	$\text{Li}^{+1}$ $\text{Na}^{+1}$ $\text{K}^{+1}$	All compounds are soluble
Acetate	$\text{C}_2\text{H}_3\text{O}_2^{-1}$	All compounds are soluble
Sulfates	$\text{SO}_4^{-2}$	Exceptions: $\text{BaSO}_4$ , $\text{SrSO}_4$ , $\text{CaSO}_4$ , $\text{Ag}_2\text{SO}_4$ , $\text{PbSO}_4$
Halides	$\text{Cl}^{-1}$ $\text{Br}^{-1}$ $\text{I}^{-1}$	Exceptions: Compounds with silver, lead, and mercury

## Insoluble Compounds (precipitates)

Ion	Formula	Solubility in Water
Carbonates	$\text{CO}_3^{-2}$	Exceptions: Carbonates of Alkali Metals and Ammonium
Hydroxides	$\text{OH}^{-1}$	Exceptions: Hydroxides of Alkali Metals, $\text{Ba}(\text{OH})_2$ , $\text{Sr}(\text{OH})_2$
Oxides	$\text{O}^{-2}$	Exceptions: Oxides of Alkali Metals
Phosphates	$\text{PO}_4^{-3}$	Exceptions: Phosphates of Alkali Metals and Ammonium
Sulfides	$\text{S}^{-2}$	Exceptions: Sulfides of Alkali Metals and Ammonium
Sulfites	$\text{SO}_3^{-2}$	Exceptions: Sulfites of Alkali Metals and Ammonium