

SOLUBILITY RULES

These “rules” (generalizations) are a compilation of the findings from many precipitation reactions.

Rule	Exceptions
All compounds containing: sodium ion Na^{1+} potassium ion K^{1+} lithium ion Li^{1+} ammonium ion NH_4^{1+} are soluble .	None
All compounds containing: nitrate ion NO_3^{1-} acetate ion $\text{CH}_3\text{COO}^{1-}$ chlorate ion ClO_3^{1-} are soluble .	None
Compounds containing: chloride ion Cl^{1-} bromide ion Br^{1-} iodide ion I^{1-} are soluble .	Ag^{1+} , Pb^{2+} , Hg^{1+}
Compounds containing: sulfate ion SO_4^{2-} are soluble .	Ca^{2+} , Ba^{2+} , Sr^{2+} , Pb^{2+} , Hg^{1+}
Compounds containing: carbonate ion CO_3^{2-} phosphate ion PO_4^{3-} are insoluble .	Na^{1+} , K^{1+} , Li^{1+} , NH_4^{1+}
Compounds containing: hydroxide ion OH^{1-} are insoluble .	Na^{1+} , K^{1+} , Li^{1+} , NH_4^{1+} , Ca^{2+} , Ba^{2+} , Sr^{2+}
Compounds containing: sulfide ion S^{2-} are insoluble .	Na^{1+} , K^{1+} , Li^{1+} , NH_4^{1+} , Ca^{2+} , Mg^{2+} , Ba^{2+} , Sr^{2+}