

General Rules for Water Solubility of Simple Ionic Compounds¹

Soluble Compounds

1. All nitrates and acetates.
2. All compounds with alkali-metal (Li^+ , Na^+ , K^+ , etc.) and ammonium (NH_4^+) cations.
3. The halides Cl^- , Br^- , and I^- , *except* those of Pb^{2+} , Ag^+ , Hg_2^{2+} , which are insoluble.
4. Sulfates, *except* those of Sr^{2+} , Ba^{2+} , Pb^{2+} , and Hg_2^{2+} , which are insoluble. (CaSO_4 is slightly soluble.)

Insoluble Compounds

1. Carbonates and phosphates, *except* those with alkali-metal and ammonium cations, which are soluble.
2. Hydroxides, *except* those with alkali-metal cations, which are soluble, and $\text{Ca}(\text{OH})_2$, $\text{Sr}(\text{OH})_2$, and $\text{Ba}(\text{OH})_2$, which are sparingly soluble.
3. Sulfides, *except* those with alkali-metal, calcium, and ammonium cations, which are soluble.

¹The following cations are considered in these general rules: group 1A (1), group 2A (2), NH_4^+ , Ag^+ , Al^{3+} , Cd^{2+} , Co^{2+} , Cr^{3+} , Cu^{2+} , Fe^{2+} , Fe^{3+} , Hg_2^{2+} , Hg^{2+} , Mn^{2+} , Ni^{2+} , Pb^{2+} , Sn^{2+} , Zn^{2+} .