

Solubility Rules

- 1) Salts of ammonium (NH_4^+) and Group IA (alkali metals) are always soluble.
- 2) (a) All chlorides (Cl^-) are soluble except AgCl , Hg_2Cl_2 , and PbCl_2 .
(b) All bromides (Br^-) are soluble except AgBr , Hg_2Br_2 , and PbBr_2 .
(c) All iodides (I^-) are soluble except AgI , Hg_2I_2 , HgI_2 , and PbI_2 .
- 3) Chlorates (ClO_3^-), nitrates (NO_3^-), and acetates ($\text{C}_2\text{H}_3\text{O}_2^-$) are soluble.
- 4) Sulfates (SO_4^{2-}) are soluble except CaSO_4 , SrSO_4 , BaSO_4 , Hg_2SO_4 , HgSO_4 , PbSO_4 , and Ag_2SO_4 .
- 5) Phosphates (PO_4^{3-}) and carbonates (CO_3^{2-}) are insoluble except NH_4^+ and Group IA (alkali metals) compounds.
- 6) All metallic oxides (O^{2-}) are insoluble except NH_4^+ and Group IA (alkali metals) compounds.
- 7) All metallic hydroxides (OH^-) are insoluble except NH_4^+ and Group IA (alkali metals) and Group IIA (alkaline metals) from calcium down.
- 8) All sulfides (S^{2-}) are insoluble except NH_4^+ and Groups IA (alkali metals) and Group IIA (alkaline metals).