

Solubility of Ionic Compounds

Classes of soluble compounds

- compounds of the alkali metals (1A)
- ammonium (NH_4^+) compounds
- nitrates (NO_3^-), chlorates (ClO_3^-), perchlorates (ClO_4^-), acetates (CH_3CO_2^-)
- chlorides (Cl^-), bromides (Br^-), iodides (I^-), **except:** Pb^{2+} , Ag^+ , Hg_2^{2+}
- sulfates (SO_4^{2-}), **except:** Sr^{2+} , Ba^{2+} , Pb^{2+} , Ca^{2+} , Hg_2^{2+} , Ag^+ (the last three are slightly soluble)

Classes of insoluble compounds

- carbonates (CO_3^{2-}), phosphates (PO_4^{3-}), oxalates ($\text{C}_2\text{O}_4^{2-}$), chromates (CrO_4^{2-}), **except:** alkali metals, NH_4^+
- sulfides (S^{2-}), **except:** alkali metals, NH_4^+ , alkaline earth metals (2A) (CaS , SrS , and BaS are slightly to moderately soluble),
- hydroxides (OH^-), oxides (O^{2-}), **except:** alkali metals, alkaline earth metals ($\text{Ca}(\text{OH})_2$ and $\text{Sr}(\text{OH})_2$ are only slightly soluble; $\text{Mg}(\text{OH})_2$ is only very slightly soluble)