

### Solubility Rules (Table 4.1 of text)

1. Most nitrate salts ( $\text{NO}_3^-$ ) ARE soluble.
2. Most salts containing the alkali metals ( $\text{Li}^+$ ,  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Cs}^+$ ,  $\text{Rb}^+$ ) or ammonia ( $\text{NH}_4^+$ ) ARE soluble.
3.  $\text{Cl}^-$ ,  $\text{Br}^-$ , and  $\text{I}^-$  salts are usually soluble. EXCEPT  $\text{AgCl}$ ,  $\text{PbCl}_2$  and  $\text{Hg}_2\text{Cl}_2$  which are NOT soluble.
4. Most sulfates ( $\text{SO}_4^{2-}$ ) are soluble. EXCEPT  $\text{BaSO}_4$ ,  $\text{PbSO}_4$ ,  $\text{Hg}_2\text{SO}_4$  and  $\text{CaSO}_4$  which are NOT soluble
5. Most hydroxides ( $\text{OH}^-$ ) are only slightly soluble.  $\text{NaOH}$  and  $\text{KOH}$  ARE soluble (see rule 2)  $\text{Ba}(\text{OH})_2$ ,  $\text{Sr}(\text{OH})_2$  and  $\text{Ca}(\text{OH})_2$  are marginally soluble.
6. Sulfides ( $\text{S}^{2-}$ ) Carbonates ( $\text{CO}_3^{2-}$ ) Chromates ( $\text{CrO}_4^{2-}$ ) and Phosphates ( $\text{PO}_4^{3-}$ ) are only slightly soluble.