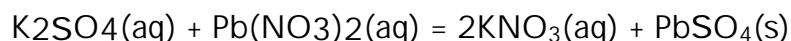


**Solubility Rules for some ionic compounds in water**

<b><i>Soluble Ionic Compounds</i></b>	
1.	All sodium ( $\text{Na}^+$ ), potassium ( $\text{K}^+$ ) and ammonium ( $\text{NH}_4^+$ ) salts are SOLUBLE.
2.	All nitrate ( $\text{NO}_3^-$ ), acetate ( $\text{CH}_3\text{CO}_2^-$ ), chlorate ( $\text{ClO}_3^-$ ), and perchlorate ( $\text{ClO}_4^-$ ) salts are SOLUBLE.
3.	All chloride ( $\text{Cl}^-$ ), bromide ( $\text{Br}^-$ ), and iodide ( $\text{I}^-$ ) salts are SOLUBLE - EXCEPT those also containing: lead, silver, or mercury (I), ( $\text{Pb}^{+2}$ , $\text{Ag}^+$ , $\text{Hg}_2^{+2}$ ) which are NOT soluble.
4.	All fluoride ( $\text{F}^-$ ) salts are SOLUBLE - EXCEPT those also containing: magnesium, calcium, strontium, barium, or lead ( $\text{Mg}^{+2}$ , $\text{Ca}^{+2}$ , $\text{Sr}^{+2}$ , $\text{Ba}^{+2}$ , $\text{Pb}^{+2}$ ) which are NOT soluble.
5.	All sulfate ( $\text{SO}_4^{-2}$ ) salts are SOLUBLE - EXCEPT those also containing: calcium, silver, mercury (I), strontium, barium, or lead ( $\text{Ca}^{+2}$ , $\text{Ag}^+$ , $\text{Hg}_2^{+2}$ , $\text{Sr}^{+2}$ , $\text{Ba}^{+2}$ , $\text{Pb}^{+2}$ ), which are NOT soluble.
<b><i>Not Soluble Ionic Compounds</i></b>	
6.	Hydroxide ( $\text{OH}^-$ ) and oxide ( $\text{O}^{-2}$ ) compounds are NOT SOLUBLE - EXCEPT those also containing: sodium, potassium or barium ( $\text{Na}^+$ , $\text{K}^+$ , $\text{Ba}^{+2}$ ), which are soluble.
7.	Sulfide ( $\text{S}^{-2}$ ) salts are NOT SOLUBLE - EXCEPT those also containing: sodium, potassium, ammonium, or barium ( $\text{Na}^+$ , $\text{K}^+$ , $\text{NH}_4^+$ , $\text{Ba}^{+2}$ ), which are soluble.
8.	Carbonate ( $\text{CO}_3^{-2}$ ) and phosphate ( $\text{PO}_4^{-3}$ ) salts are NOT SOLUBLE EXCEPT those also containing: sodium, potassium or ammonium ( $\text{Na}^+$ , $\text{K}^+$ , $\text{NH}_4^+$ ) which are soluble.

Precipitation Reactions ... NIE



1. Identify the components that are actually present in the solution

2. Remove the spectator ions

3. What remains is the net ionic equation