Solubility Rules

- Knowing whether substances are soluble or insoluble tells us if a precipitate forms...

1) Salts of ammonium and alkali metals are always soluble

2) All chlorides, bromides, and iodides are soluble except when combined with Ag, Hg\(^{2+}\), and Pb which are insoluble

3) Chlorates, acetates, and nitrates are soluble

4) Sulfates are soluble except with Ca, Sr, Ba, Hg, Pb, and Ag which are insoluble
Solubility Rules

• Knowing whether substances are **soluble** or **insoluble** tells us if a precipitate forms...

5) Phosphates, carbonates, and sulfides are **insoluble** except ammonium and alkali metal compounds are **soluble**

6) All metallic oxides are **insoluble** except ammonium and alkali metal compounds are **soluble**

7) All hydroxides are **insoluble** except ammonium, alkali metal compounds, and group 2A from Ca down are **soluble**

Ex: \( \text{Mg(NO}_3\text{)}_2 \text{ (aq)} + 2 \text{ NaOH (aq)} \rightarrow \text{Mg(OH)}_2 \text{ (s)} + 2 \text{ NaNO}_3 \text{ (aq)} \)