

Science 1.8 AS 90947 Investigate selected chemical reactions

Precipitation Reactions – Writing Word and Symbol Equations **Answers**

Success Criteria: complete each level before moving onto the next

- Basic: write **word equations** for the following precipitation reactions
- Proficient: write **symbol equations** for the following precipitation reactions
- Advanced: **balance the symbol equations** for the following precipitation reactions

Use your solubility rules to determine which product forms a precipitate and circle it.

1. sodium hydroxide solution and copper nitrate solution are mixed together.

Word equation sodium hydroxide + copper nitrate → sodium nitrate + copper hydroxide

Symbol equation $2\text{NaOH}_{(\text{aq})} + \text{Cu}(\text{NO}_3)_{2(\text{aq})} \rightarrow 2\text{NaNO}_{3(\text{aq})} + \text{Cu}(\text{OH})_{2(\text{s})}$

2. magnesium sulfate solution and sodium hydroxide solution are mixed together.

Word equation magnesium sulfate + sodium hydroxide → magnesium hydroxide + sodium sulfate

Symbol equation $\text{MgSO}_{4(\text{aq})} + 2\text{NaOH}_{(\text{aq})} \rightarrow \text{Mg}(\text{OH})_{2(\text{s})} + \text{Na}_2\text{SO}_{4(\text{aq})}$

3. sodium carbonate solution and silver nitrate solution are mixed together.

Word equation sodium carbonate + silver nitrate → sodium nitrate + silver carbonate

Symbol equation $\text{Na}_2\text{CO}_{3(\text{aq})} + 2\text{AgNO}_{3(\text{aq})} \rightarrow 2\text{NaNO}_{3(\text{aq})} + \text{Ag}_2\text{CO}_{3(\text{s})}$

4. calcium chloride solution and sodium sulfate solution are mixed together.

Word equation calcium chloride + sodium sulfate → calcium sulfate + sodium chloride

Symbol equation $\text{CaCl}_{2(\text{aq})} + \text{Na}_2\text{SO}_{4(\text{aq})} \rightarrow \text{CaSO}_{4(\text{s})} + 2\text{NaCl}_{(\text{aq})}$

5. lead nitrate solution and zinc chloride solution are mixed together.

Word equation lead nitrate + zinc chloride → lead chloride + zinc nitrate

Symbol equation $\text{Pb}(\text{NO}_3)_{2(\text{aq})} + \text{ZnCl}_{2(\text{aq})} \rightarrow \text{PbCl}_{2(\text{s})} + \text{Zn}(\text{NO}_3)_{2(\text{aq})}$

6. iron(II) nitrate solution and sodium hydroxide solution are mixed together.

Word equation iron(II) nitrate + sodium hydroxide → iron (II) hydroxide + sodium nitrate

Symbol equation $\text{Fe}(\text{NO}_3)_{2(\text{aq})} + 2\text{NaOH}_{(\text{aq})} \rightarrow \text{Fe}(\text{OH})_{2(\text{s})} + 2\text{NaNO}_{3(\text{aq})}$