

T18Q1: Level 2 (L.G. 9)

Give the **complete ionic equation** for the reaction that occurs when aqueous solutions of lithium sulfide and copper (II) nitrate are mixed:

- A. $\text{Li}^+(\text{aq}) + \text{SO}_4^{2-}(\text{aq}) + \text{Cu}^+(\text{aq}) + \text{NO}_3^-(\text{aq})$
→ $\text{CuS}(\text{s}) + \text{Li}^+(\text{aq}) + \text{NO}_3(\text{aq})$
- B. $\text{Li}^+(\text{aq}) + \text{S}^-(\text{aq}) + \text{Cu}^+(\text{aq}) + \text{NO}_3^-(\text{aq})$
→ $\text{CuS}(\text{s}) + \text{LiNO}_3(\text{aq})$
- C. $2\text{Li}^+(\text{aq}) + \text{S}^{2-}(\text{aq}) + \text{Cu}^{2+}(\text{aq}) + 2\text{NO}_3^-(\text{aq})$
→ $\text{Cu}^{2+}(\text{aq}) + \text{S}^{2-}(\text{aq}) + 2\text{LiNO}_3(\text{s})$
- D. $2\text{Li}^+(\text{aq}) + \text{S}^{2-}(\text{aq}) + \text{Cu}^{2+}(\text{aq}) + 2\text{NO}_3^-(\text{aq})$
→ $\text{CuS}(\text{s}) + 2\text{Li}^+(\text{aq}) + 2\text{NO}_3^-(\text{aq})$

T18Q2: Level 2 (L.G. 9)

Give the net ionic equation for the reaction that occurs when aqueous solutions of barium nitrate and ammonium phosphate are mixed:

- A. $3\text{Ba}(\text{NO}_3)_2(\text{aq}) + 2(\text{NH}_4)_3\text{PO}_4(\text{aq}) \rightarrow \text{Ba}_3(\text{PO}_4)_2(\text{s}) + 6\text{NH}_4\text{NO}_3(\text{aq})$
- B. $3\text{Ba}(\text{NO}_3)_2(\text{aq}) + 2(\text{NH}_4)_3\text{PO}_4(\text{aq}) \rightarrow \text{Ba}_3(\text{PO}_4)_2(\text{aq}) + 6\text{NH}_4\text{NO}_3(\text{s})$
- C. $2\text{NO}_3^-(\text{aq}) + 6\text{NH}_4^+(\text{aq}) \rightarrow 6\text{NH}_4\text{NO}_3(\text{s})$
- D. $3\text{Ba}^{2+}(\text{aq}) + 2\text{PO}_4^-(\text{aq}) \rightarrow \text{Ba}_3(\text{PO}_4)_2(\text{s})$
- E. $2\text{NO}_3^-(\text{aq}) + 6\text{NH}_4^+(\text{aq}) + 2\text{PO}_4^-(\text{aq}) \rightarrow \text{Ba}_3(\text{PO}_4)_2(\text{s}) + 6\text{NH}_4^+(\text{aq}) + \text{NO}_3^-(\text{aq})$

T18Q3: Level 3 (L.G. 10)

Consider the decomposition of calcium carbonate to form calcium oxide and carbon dioxide. If the reaction produced 732 mL of CO_2 at 21°C and 77.1 cm Hg, how many grams of CaO are produced?

- A. 0.21 g
- B. 1.73 g
- C. 1.86 g
- D. 3.10 g
- E. 17.2 g

T18Q4: Level 3 (L.G. 10)

Consider the reaction between 100 mL of 0.41 M iron(II) nitrate with 63 mL of 0.35M potassium phosphate. How many moles of precipitate are formed from this reaction?

- A. 0.011
- B. 0.014
- C. 0.022
- D. 0.041

T18Q5: Level 3 (L.G. 10)

What mass, in g, of AgCl is formed from the reaction of 75.0 mL of a 0.078 M $\text{AgC}_2\text{H}_3\text{O}_2$ solution with 55.0 mL of 0.109 M MgCl_2 solution?

- A. 0.860 g
- B. 1.72 g
- C. 2.56 g
- D. 3.20 g

T18Q6: Level 2 (L.G. 8)

What precipitate is most likely formed from a solution containing Ba^{+2} , Na^{+1} , OH^{-1} , and CO_3^{-2} ?

- A. NaOH
- B. BaCO_3
- C. Na_2CO_3
- D. $\text{Ba}(\text{OH})_2$

T18Q7: Level 3 (L.G. 8)

How many of the following compounds are soluble in water?



- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

T18Q8: Level 1 (L.G. 6)

Choose the reaction that represents a combustion reaction:

- A. $\text{C}_6\text{H}_{12}\text{O}_2(\text{l}) + 8\text{O}_2(\text{g}) \rightarrow 6\text{CO}_2(\text{g}) + 6\text{H}_2\text{O}(\text{g})$
- B. $\text{Mg}(\text{s}) + \text{Cl}_2(\text{l}) \rightarrow \text{MgCl}_2(\text{aq})$
- C. $\text{C}_6\text{H}_{12}\text{O}_2(\text{l}) \rightarrow 6\text{C}(\text{s}) + 6\text{H}_2(\text{g}) + \text{O}_2(\text{g})$
- D. $\text{NaOH}(\text{aq}) + \text{CuCl}_2(\text{aq}) \rightarrow \text{NaCl}_2(\text{aq}) + \text{Cu}(\text{OH})_2(\text{s})$
- E. None of the above are combustion

T18Q9: Level 2 (L.G. 9)

Give the **complete ionic equation** for the reaction that occurs when aqueous solutions of lithium sulfide and copper (II) nitrate are mixed:

- A. $\text{Li}^+(\text{aq}) + \text{SO}_4^{2-}(\text{aq}) + \text{Cu}^+(\text{aq}) + \text{NO}_3^-(\text{aq})$
→ $\text{CuS}(\text{s}) + \text{Li}^+(\text{aq}) + \text{NO}_3(\text{aq})$
- B. $\text{Li}^+(\text{aq}) + \text{S}^-(\text{aq}) + \text{Cu}^+(\text{aq}) + \text{NO}_3^-(\text{aq})$
→ $\text{CuS}(\text{s}) + \text{LiNO}_3(\text{aq})$
- C. $2\text{Li}^+(\text{aq}) + \text{S}^{2-}(\text{aq}) + \text{Cu}^{2+}(\text{aq}) + 2\text{NO}_3^-(\text{aq})$
→ $\text{Cu}^{2+}(\text{aq}) + \text{S}^{2-}(\text{aq}) + 2\text{LiNO}_3(\text{s})$
- D. $2\text{Li}^+(\text{aq}) + \text{S}^{2-}(\text{aq}) + \text{Cu}^{2+}(\text{aq}) + 2\text{NO}_3^-(\text{aq})$
→ $\text{CuS}(\text{s}) + 2\text{Li}^+(\text{aq}) + 2\text{NO}_3^-(\text{aq})$