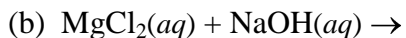


Chapter 9

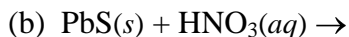
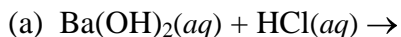
End-of-Chapter Questions

1. Write a word equation then a balanced formula equation corresponding to the following:
When water is added to liquid silicon tetrachloride, solid silicon dioxide and hydrogen chloride gas are produced.
2. Write a word equation then a balanced formula equation corresponding to the following:
When an aqueous solution of sodium chloride is mixed with an aqueous solution of lead(II) nitrate, a precipitate of lead(II) chloride is formed, the other product, sodium nitrate remaining in solution.
3. Write a word equation then a balanced formula equation corresponding to the following:
Butane, $C_4H_{10}(g)$, burns in the oxygen of the air to form carbon dioxide gas and liquid water.
4. Write a word equation then a balanced formula equation corresponding to the following:
Solid magnesium nitride reacts with water to give solid magnesium hydroxide and ammonia gas, $NH_3(g)$.
5. Predict the product (no phase is required) for each of the following combination reactions and write a balanced chemical equation:
 - (a) $Li(s) + F_2(g) \rightarrow$
 - (b) $SO_3(g) + H_2O(l) \rightarrow$
6. Predict the product (no phase is required) for each of the following combination reactions and write a balanced chemical equation:
 - (a) $Al(s) + S(s) \rightarrow$
 - (b) $Li_2O(s) + H_2O(l) \rightarrow$
7. Predict the product (no phase is required) for each of the following decomposition reactions which occur on heating and write a balanced chemical equation:
 - (a) $XeO_4(s) \rightarrow$
 - (b) $Ba(OH)_2(s) \rightarrow$
8. Predict the product (no phase is required) for each of the following decomposition reactions which occur on heating and write a balanced chemical equation:
 - (a) $Ag_2O(s) \rightarrow$
 - (b) $H_2SO_3(aq) \rightarrow$

9. For each of the following pairs of metals, which is the higher in the activity series?
(a) copper or iron?
(b) sodium or zinc?
10. Which one of the following metals, calcium, copper, or tin will:
(a) react with water;
(b) not react with water or a dilute acid.
11. Complete and balance the following single replacement reactions:
(a) $\text{Zn}(s) + \text{AgNO}_3(aq) \rightarrow$
(b) $\text{Al}(s) + \text{HCl}(aq) \rightarrow$
12. Complete and balance the following single replacement reactions:
(a) $\text{Mg}(s) + \text{FeBr}_3(aq) \rightarrow$
(b) $\text{Ca}(s) + \text{H}_2\text{O}(l) \rightarrow$
13. Complete and balance the following single replacement reactions:
(a) $\text{Zn}(s) + \text{SnI}_2(aq) \rightarrow$
(b) $\text{Mg}(s) + \text{H}_2\text{SO}_4(aq) \rightarrow$
14. Complete and balance the following single replacement reactions:
(a) $\text{Cl}_2(aq) + \text{KBr}(aq) \rightarrow$
(b) $\text{Sn}(s) + \text{HNO}_3(aq) \rightarrow$
15. Which of the following ionic compounds are not soluble in water:
(a) mercury(II) nitrate
(b) ammonium chloride
(c) aluminum hydroxide
(d) barium sulfate
16. Which of the following ionic compounds are soluble in water:
(a) magnesium carbonate
(b) calcium chloride
(c) sodium sulfate
(d) silver iodide
17. Complete and balance the following double replacement reactions:
(a) $\text{Pb}(\text{NO}_3)_2(aq) + \text{KCl}(aq) \rightarrow$



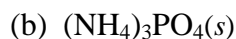
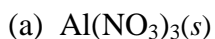
18. Complete and balance the following double replacement reactions:



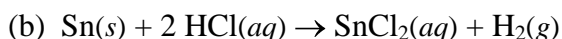
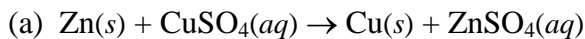
19. Write the equation for the dissolving process for each of the following ionic compounds:



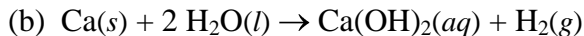
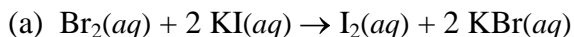
20. Write the equation for the dissolving process for each of the following ionic compounds:



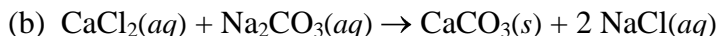
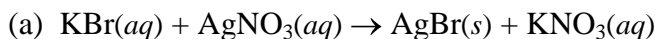
21. Write a total, then a net ionic equation, corresponding to each of the following molecular equations:



22. Write a total, then a net ionic equation, corresponding to each of the following molecular equations:



23. Write a total, then a net ionic equation, corresponding to each of the following molecular equations:



24. Write a total, then a net ionic equation, corresponding to each of the following molecular equations:

