SCH3UI Ms. Williamson

Combustion Reaction Practice

Write a balanced chemical equation for each chemical reaction.

1. Complete combustion of heptane, $C_7H_{16\,(l)}$
2. Complete combustion of nonane, $C_9H_{20\,(l)}$
3. Complete combustion of acetylene, $C_2H_{2\,(g)}$
4. Complete combustion of benzene, $C_6H_{6\,(l)}$
5. Complete combustion of octane, $C_8H_{18\,(l)}$
6. Incomplete combustion of octane: $2\ C_8H_{18\,(l)} + 17\ O_{2(g)} \rightarrow \_\_\_\_\ CO_{(g)} + \_\_\_\_\ H_2O_{(g)}$
7. Incomplete combustion of pentane: $2\ C_5H_{12\,(l)} + 11\ O_{2(g)} \rightarrow \_\_\_\_\ CO_{(g)} + \_\_\_\_\ H_2O_{(g)}$
8. Incomplete combustion of propane: $C_3H_{8\,(g)} + 2\ O_{2(g)} \rightarrow \_\_\_\_\ C_{(s)} + \_\_\_\_\ H_2O_{(g)}$
9. Incomplete combustion of heptane: $4\ C_7H_{16\,(l)} + 37\ O_{2(g)} \rightarrow \_\_\_\_\ CO_{2\,(g)}\ \_\_\_\_\ CO_{(g)} + \_\_\_\_\ H_2O_{(g)}$
10. Incomplete combustion of octane:
    a. $C_6H_{12\,(l)} + 6\ O_{2(g)} \rightarrow \_\_\_\_\ CO_{(g)} + 6\ H_2O_{(g)}$
    b. $C_6H_{12\,(l)} + 3\ O_{2(g)} \rightarrow \_\_\_\_\ C_{(s)} + 6\ H_2O_{(g)}$
11. Describe incomplete combustion.
12. Why is incomplete combustion potentially hazardous?
13. List three industries in which carbon monoxide exposure can occur?
14. What determine whether complete or incomplete combustion will occur?
15. When can a synthesis reaction also be classified as a combustion reaction?

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