Combustion Reactions

For this unit, you will need to be able to identify and work with the combustion of hydrocarbons \( (C_nH_m) \) and alcohols \( (C_nH_{2n+1}OH) \). For each of the following, write out the complete balanced equation for the combustion of the compound listed using your knowledge of (A) what must be present for something to combust/burn; and (B) what two products are always created during combustion reactions.

1) Methane \( (CH_4) \)

\[ CH_4 (g) + 2O_2 (g) \rightarrow CO_2 (g) + 2H_2O (g) \]

2) Ethane \( (C_2H_6) \)

\[ 2C_2H_6 (g) + 7O_2 (g) \rightarrow 4CO_2 (g) + 6H_2O (g) \]

3) Propane \( (C_3H_8) \)

\[ C_3H_8 (g) + 5O_2 (g) \rightarrow 3CO_2 (g) + 4H_2O (g) \]

4) Methanol \( (CH_3OH) \)

\[ 2CH_3OH (aq) + 3O_2 (g) \rightarrow 2CO_2 (g) + 4H_2O (g) \]

5) Ethanol \( (C_2H_5OH) \)

\[ C_2H_5OH (aq) + 3O_2 (g) \rightarrow 2CO_2(g) + 3H_2O (g) \]