

Combustion equations

Education in Chemistry

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rsc.li/EiC318-airpollution

This activity accompanies the above article 'Taking care of the air'.

Answers

Task A: Balance the following equations associated with combustion and pollution.

1. $2 \text{C} + \text{O}_2 \rightarrow 2 \text{CO}$
2. $\text{CH}_4 + 2 \text{O}_2 \rightarrow \text{CO}_2 + 2 \text{H}_2\text{O}$
3. $\text{N}_2 + \text{O}_2 \rightarrow 2 \text{NO}$
4. $2 \text{NO} + \text{O}_2 \rightarrow 2 \text{NO}_2$
5. $\text{CH}_4 + \text{O}_2 \rightarrow \text{C} + 2 \text{H}_2\text{O}$

Task B: Write balanced symbol equations for the following descriptions -

6. The combustion of methane to give a poisonous gas and water
 $2\text{CH}_4 + 3\text{O}_2 \rightarrow 2\text{CO} + 4\text{H}_2\text{O}$
7. The combustion of sulfur impurities to give an acidic gas
 $\text{S} + \text{O}_2 \rightarrow \text{SO}_2$
8. The complete combustion of propane
 $\text{C}_3\text{H}_8 + 5\text{O}_2 \rightarrow 3\text{CO}_2 + 4\text{H}_2\text{O}$
9. The incomplete combustion of propane to give a solid pollutant and water
 $3\text{C}_3\text{H}_8 + 6\text{O}_2 \rightarrow 3\text{C} + 12\text{H}_2\text{O}$
10. The incomplete combustion of solid carbon to give a poisonous gas
 $2\text{C} + \text{O}_2 \rightarrow 2\text{CO}$