17% Chemical Reaction & Energy Transfer Session 5

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Learning Objectives

Thermochemical Equation

- Definition
- Example
- Exothermic and Endothermic Reaction
- Representation

What is Thermochemical Equation?

- The chemical equation
- that also provides the <u>AMOUNT OF HEAT</u>
 - released or
 - absorbed

Example of heat released or evolved

$$CH_4(g) + 2O_2(g) \longrightarrow CO_2(g) + 2H_2O(g) + 890.4 \text{ kJ}$$



Source: Mel Science

SESSION 5

Example of heat absorbed

$$N_2(g) + O_2(g) \longrightarrow 2NO(g) - 180.7 \text{ kJ}$$



Source: Energy Education 5

Exothermic Reaction

This kind of reaction is called Exothermic Reaction.

$$CH_4(g) + 2O_2(g) \longrightarrow CO_2(g) + 2H_2O(g) + 890.4 \text{ kJ}$$



Source: Mel Science

Endothermic Reaction

This kind of reaction is called Endothermic Reaction.

$$N_2(g) + O_2(g) \longrightarrow 2NO(g) - 180.7 \text{ kJ}$$



Source: Energy Education

Thermochemical Equation is also represented as follows

$$CH_4(g) + 2O_2(g) \longrightarrow CO_2(g) + 2H_2O(g) + 890.4 \text{ kJ}$$
 OR

$$CH_4(g) + 2O_2(g) \longrightarrow CO_2(g) + 2H_2O(g)$$
 $\Delta H = -890.4 \text{ kJ}$



Thermochemical Equation is also represented as follows

$$N_2(g) + O_2(g) \longrightarrow 2NO(g) - 180.7 \text{ kJ}$$

OR

$$N_2(g) + O_2(g) \longrightarrow 2NO(g)$$
 $\Delta H = + 180.7 \text{ kJ}$



Source: Energy Education