Chapter 3.3 Investigation

Energy Changes in Chemical Reactions

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Name _____ **Class** _8…… **Date** 27/10/2020

- When the temperature of a chemical reaction decreases, the reaction is called an *endothermic* reaction.
- When the temperature of a chemical reaction increases, the reaction is called an *exothermic* reaction.

Materials

- Beaker
- Glass rod
- Thermometer
- Spatula
- Hydrochloric acid
- Sodium hydroxide

PART A:

Question to Investigate (Scientific Question)

Does the temperature increase, decrease, or stay the same in the reaction between Hydrochloric acid then add Sodium hydroxide

Procedure

A. Read the thermometer and record the room temperature. …….(1)
B. Add the two mixture of Hydrochloric acid then add Sodium hydroxide
C. Stir the mixture
D. Record the temperature after the reaction …….. (1)

E. Did the temperature increase, decrease, or stay the same when you combined Hydrochloric acid then add Sodium hydroxide _____ (2)

$$NaOH + HCl \rightarrow H_2O + NaCl$$

Sodium hydroxide (NaOH) reacts with hydrochloric acid (HCl) to make water (H_2O) and sodium chloride (NaCl).

F- Is this an endothermic or exothermic reaction? _____ (2)

PART B:

Question to Investigate (Scientific Question)

Does the temperature increase, decrease, or stay the same in the reaction between Ammonium chloride and Barium hydroxide

Materials

- Beaker
- Glass rod
- Thermometer
- Spatula
- Ammonium chloride
- Barium hydroxide

Procedure

A. Read the thermometer and record the room temperature. ……(1)
B. Add the two mixture Ammonium chloride Barium hydroxide
C. Stir the mixture
D. Record the temperature after the reaction …….. (1)

$$Ba(OH)_2 + 2NH_4Cl \longrightarrow BaCl_2 + 2NH_3 + H_2O$$

E. Did the temperature increase, decrease, or stay the same when you combined Ammonium chloride then add Barium hydroxide _____ (2)

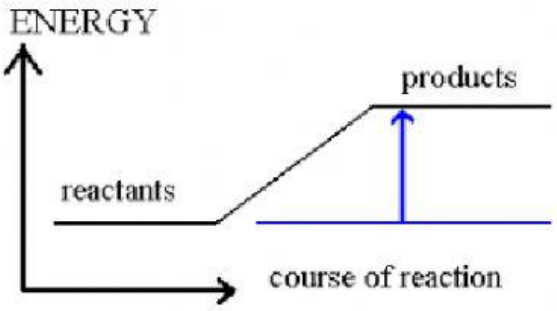
F. Is this an endothermic or exothermic reaction? _____ (2)

PART C: Energy Changes – Endothermic and Exothermic Reactions

Label the following diagram using the word bank to help you:

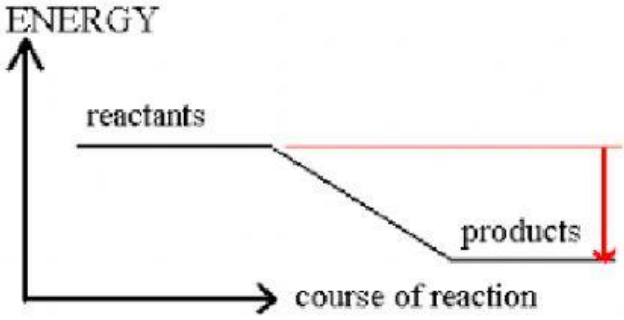
Energy released	Energy absorbed
Exothermic Reaction	Endothermic Reaction

_____reaction (2)



Energy _____ (2)

_____ reaction (2)



Energy _____ (2)