2.4 Energy Changes: 10-minute Pack

AQA 8462 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 State whether the reaction in the hand warmer is exothermic or endothermic.

(Total for Question 1 is 1 mark)

2 Is the reaction of magnesium burning exothermic or endothermic? Explain your answer in one sentence referring to temperature change.

(Total for Question 2 is 2 marks)

3 Is the activation energy the energy difference between reactants and products, or the energy difference between reactants and the top of the hump? Give the correct choice.

(Total for Question 3 is 1 mark)

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4 In the required practical to investigate temperature changes in reacting solutions, a student uses dilute hydrochloric acid. The bottle is labelled with a hazard symbol showing a black exclamation mark on an orange background.

(a) Name the hazard indicated by this hazard symbol. **(1)**

(b) State one safety precaution the student should take when using dilute hydrochloric acid in this practical. **(1)**

(c) Explain why it is important for the student to check hazard information before starting the practical. **(1)**

(Total for Question 4 is 3 marks)

5 Calculate the temperature change and state whether this shows the reaction is exothermic or endothermic.

(Total for Question 5 is 2 marks)

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Mark scheme · 2.4 Energy Changes: 10-minute Pack

Question 1

exothermic cao **B1**

Answer: Exothermic

Question 2

states exothermic or describes heat is given out **M1**

gives reason linked to temperature increase of surroundings or reaction getting hot cao **A1**

Answer: Exothermic. The reaction gives out heat so the surroundings get hotter and the temperature increases.

Question 3

energy difference between reactants and the top of the hump (activation energy) cao **B1**

Answer: The energy difference between the reactants and the top of the hump (activation energy).

Question 4

(a) irritant oe (accept harmful) **B1**

(a) Answer: Irritant.

(b) wear eye protection/safety goggles oe (accept wear gloves, avoid skin contact) **B1**

(b) Answer: Wear eye protection (safety goggles).

(c) so appropriate precautions can be taken to reduce the risk of harm/injury oe **B1**

(c) Answer: So that the correct precautions can be taken to reduce the risk of harm or injury while carrying out the practical.

Question 5

correct temperature change calculated: 8.0°C (28.0 - 20.0) **M1**

identifies exothermic because temperature increased cao **A1**

Answer: Temperature change = 8.0°C; exothermic

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