

Endothermic Reactions Quiz Answer Key PDF

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What happens to the temperature of the surroundings during an endothermic reaction?

- A. Increases
- B. Decreases ✓**
- C. Stays the same
- D. Fluctuates

In an endothermic reaction, how does the potential energy of the products compare to the reactants?

- A. Lower
- B. Higher ✓**
- C. Equal
- D. Can't be determined

Which of the following reactions is endothermic?

- A. Combustions of wood
- B. Photosynthesis ✓**
- C. Rust of iron
- D. Neutralization of acid and base

Which of the following is a real-life application of an endothermic reaction?

- A. Hand warmers
- B. Cold packs ✓**
- C. Fireworks
- D. Incandescent bulbs

What is the sign of the enthalpy change (ΔH) for an endothermic reaction?

- A. Negative
- B. Zero
- C. Positive ✓**
- D. Variable

What is required to initiate most endothermic reactions?

- A. Catalyst
- B. Light
- C. Activation energy ✓**
- D. Water

Which of the following best describes an endothermic reaction?

- A. Releases heat
- B. Absorbs heat ✓**
- C. Produces light
- D. Emits sound

Provide a detailed example of a real-life application of an endothermic reaction and explain how it works.

Photosynthesis is a real-life application of an endothermic reaction, where plants absorb sunlight to convert carbon dioxide and water into glucose and oxygen.

Compare and contrast endothermic and exothermic reactions in terms of energy flow and enthalpy change.

Endothermic reactions require energy input, causing a decrease in temperature of the surroundings, and have a positive enthalpy change ($\Delta H > 0$). In contrast, exothermic reactions release energy, increasing the temperature of the surroundings, and have a negative enthalpy change ($\Delta H < 0$).

Which of the following industrial processes involve endothermic reactions? (Select all that apply)

- A. Haber process ✓**
- B. Electrolysis of water ✓**
- C. Fermentation

D. Production of quicklime

Which of the following are characteristics of endothermic reactions? (Select all that apply)

- A. Absorb heat ✓**
- B. Release heat
- C. Have a positive ΔH ✓**
- D. Decrease the temperature of surroundings ✓**

Explain why photosynthesis is considered an endothermic reaction.

Photosynthesis is an endothermic reaction because it absorbs energy from sunlight to drive the conversion of carbon dioxide and water into glucose.

Which processes are considered endothermic? (Select all that apply)

- A. Boiling water ✓**
- B. Freezing water
- C. Photosynthesis ✓**
- D. Combustions of coal

Describe the role of activation energy in endothermic reactions.

In endothermic reactions, activation energy is crucial as it provides the necessary energy to break bonds in the reactants, allowing the reaction to proceed and absorb energy from the surroundings.

In an energy diagram for an endothermic reaction, which of the following are true? (Select all that apply)

- A. Reactants have higher energy than products
- B. Products have higher energy than reactants ✓**
- C. Energy is absorbed ✓**
- D. Energy is released

Which of the following statements about endothermic reactions are correct? (Select all that apply)

- A. They are always spontaneous

- B. They require energy input to proceed ✓**
- C. They result in a temperature decrease in the surroundings ✓**
- D. They have a negative enthalpy change

Which of the following is an example of an endothermic process?

- A. Combustions of gasoline
- B. Freezing of water
- C. Melting of ice ✓**
- D. Condensation of steam

Discuss the environmental impacts of endothermic reactions compared to exothermic reactions.

Endothermic reactions can have negative environmental impacts by cooling their surroundings, which may disrupt local climates and ecosystems, whereas exothermic reactions can lead to increased temperatures and contribute to global warming.

What are common signs of an endothermic reaction occurring? (Select all that apply)

- A. Temperature increase
- B. Temperature decrease ✓**
- C. Absorption of heat ✓**
- D. Light emission

How can calorimetry be used to measure the heat absorbed in an endothermic reaction?

Calorimetry can be used to measure the heat absorbed in an endothermic reaction by conducting the reaction in a calorimeter and measuring the temperature change of the system, allowing for the calculation of heat absorbed using the formula $q = mc\Delta T$.