

Phase Changes Quiz Answer Key PDF

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Which factors can affect the phase change of a substance? (Select all that apply)

- A. Temperature ✓**
- B. Pressure ✓**
- C. Volume
- D. Purity ✓**

What is the process called when a solid turns directly into a gas?

- A. Melting
- B. Freezing
- C. Sublimation ✓**
- D. Condensation

What is the term for the heat required to convert a liquid into a gas at constant temperature?

- A. Latent Heat of Fusion
- B. Latent Heat of Vaporization ✓**
- C. Specific Heat
- D. Sensible Heat

What are the characteristics of the critical point in a phase diagram? (Select all that apply)

- A. It is the highest temperature and pressure at which a liquid and gas can coexist. ✓**
- B. It marks the end of the liquid-gas boundary. ✓**
- C. It indicates the temperature at which a solid becomes a liquid.
- D. It is unique for each substance. ✓**

Which of the following are real-world applications of phase changes? (Select all that apply)

- A. Refrigeration ✓
- B. Distillation ✓
- C. Photosynthesis
- D. Boiling water for cooking ✓

What happens to the temperature of a substance during a phase change?

- A. It increases
- B. It decreases
- C. It remains constant ✓
- D. It fluctuates

Which phase change occurs when a gas turns into a liquid?

- A. Sublimation
- B. Condensation ✓
- C. Deposition
- D. Vaporization

Which phase change is an endothermic process?

- A. Freezing
- B. Condensation
- C. Deposition
- D. Melting ✓

Provide an example of sublimation and explain the conditions under which it occurs.

An example of sublimation is dry ice (solid carbon dioxide) turning into carbon dioxide gas.

Describe how pressure influences the boiling point of a liquid.

As pressure increases, the boiling point of a liquid increases because the liquid must reach a higher temperature for its vapor pressure to match the external pressure.

What is the significance of the latent heat of fusion in the melting process?

The latent heat of fusion is significant in the melting process as it provides the necessary energy to break the bonds between particles in a solid, enabling the transition to a liquid state.

Explain why the temperature of a substance remains constant during a phase change.

The temperature of a substance remains constant during a phase change because the energy supplied or removed is used to change the state of the substance (e.g., melting, boiling) rather than to increase its temperature.

Which processes involve a liquid phase? (Select all that apply)

- A. Melting ✓
- B. Freezing ✓
- C. Vaporization ✓
- D. Deposition

Which of the following are exothermic phase changes? (Select all that apply)

- A. Freezing ✓
- B. Melting
- C. Condensation ✓
- D. Vaporization

What are the characteristics of a phase diagram? (Select all that apply)

- A. Shows temperature vs. volume
- B. Displays states of matter ✓
- C. Includes critical points ✓
- D. Shows pressure vs. temperature ✓

Discuss the role of impurities in altering the melting and boiling points of a substance.

Impurities lower the melting point of a substance by disrupting its orderly crystalline structure, while they can raise the boiling point by requiring more energy to overcome the intermolecular forces in the presence of solute particles.

At what point do all three phases of matter coexist in equilibrium?

- A. Boiling Point
- B. Melting Point
- C. Triple Point ✓**
- D. Critical Point

What effect does increasing pressure have on the boiling point of a liquid?

- A. Lowers it
- B. Raises it ✓**
- C. No effect
- D. Depends on the liquid

Which phase change is involved in the formation of frost?

- A. Melting
- B. Freezing
- C. Deposition ✓**
- D. Evaporation

How does a phase diagram help in understanding the states of matter of a substance?

A phase diagram helps in understanding the states of matter of a substance by illustrating the regions of stability for each phase and the conditions (temperature and pressure) at which phase transitions occur.