**Phase Change Practice**

The graph was drawn from data collected as a substance was heated at a constant rate. Use the graph to answer the following questions.



At **point A**, the beginning of observations, the substance exists in a solid state. Material in this phase has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ volume and \_\_\_\_\_\_\_\_\_\_\_\_\_ shape. With each passing minute, \_\_\_\_\_\_\_\_\_\_\_\_\_ is added to the substance. This causes the molecules of the substance to \_\_\_\_\_\_\_\_\_\_\_\_ more rapidly which we detect by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rise in the substance. At **point B**, the temperature of the substance is \_\_\_\_\_\_°C. The solid begins to \_\_\_\_\_\_\_\_\_\_. At point C, the substance is completely \_\_\_\_\_\_\_\_\_\_\_\_ or in a \_\_\_\_\_\_\_\_\_\_\_ state. Material in this phase has \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ volume and \_\_\_\_\_\_\_\_\_\_\_\_\_ shape. The energy put to the substance between minutes 5 and 9 was used to convert the substance from a \_\_\_\_\_\_\_\_\_\_\_ to a \_\_\_\_\_\_\_\_\_\_\_. This heat energy is called the **latent heat of fusion**.

Between 9 and 13 minutes, the added energy increases the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the substance. During the time from **point D to point E**, the liquid is \_\_\_\_\_\_\_\_\_\_\_. By **point E**, the substance is completely in the \_\_\_\_\_\_\_\_\_\_ phase. Material in this phase has \_\_\_\_\_\_\_\_\_\_\_\_\_ volume and \_\_\_\_\_\_\_\_\_\_\_ shape. The energy put to the substance between minutes 13 and 18 converted the substance from a \_\_\_\_\_\_\_\_\_\_\_ to a \_\_\_\_\_\_\_\_\_\_\_ state. This heat energy is called the **latent heat of vaporization**. Beyond **point E**, the substance is still in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ phase, but the molecules are moving \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as indicated by the increasing temperature.

Which of these three substances below was likely used in this phase change experiment? Explain.

|  |  |  |
| --- | --- | --- |
| Substance | Melting point | Boiling point |
| Bolognium | 20 °C | 100 °C |
| Unobtainium | 40 °C | 140 °C |
| Foosium | 70 °C | 140 °C |

