**Unit 7 Notes**

**Heat of Fusion, Heat of Vaporization, and Heating Curves**

There is a specific amount of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that is released every time an

element or compound changes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Phase changes:

The following phase changes are always \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:

1. Condensation- Gas 🡪 Liquid
2. Freezing – Liquid 🡪 Solid

The following phase changes are always \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:

1. Vaporization – Liquid 🡪 Gas
2. Melting – Solid 🡪 Liquid





The Heat of Fusion is the energy change per gram associated with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from the liquid state to the solid state or the solid state to the liquid state

Symbol: \_\_\_\_\_\_\_\_\_ Units: \_\_\_\_\_\_\_\_\_\_

Example: The Heat of Fusion for water is 334 J/g

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ q= heat, Hf= heat of fusion, m=mass

For water the heat of fusion would be used at the melting point/freezing point or 0°C

Hf negative for freezing, positive for melting

The Heat of Vaporization is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in grams with a phase change from the liquid state to the gas state or from the gas state to the liquid state.

Symbol: \_\_\_\_\_\_\_ Units: \_\_\_\_\_\_\_

Example: The Hv for water is 2260 J/g

Equation: q=heat, Hv= heat of vaporization, m=mass

For water the heat of vaporization would be used at the condensation point/vaporization point or 100 °C

Hv negative for condensation, positive for vaporization

Examples:

Calculate the heat energy associated when 38.9 g of water freezes.

Calculate the heat energy when 49.2 g of water is boiled into its gaseous state.