

Heat of Fusion and Vaporization:

While you read, write down the definitions of heat of fusion and vaporization in your interactive notebook!

In a chemical reaction, solids can be heated to the point where the molecules holding their bonds together break apart and form a liquid. The most common example is solid ice turning into liquid water. This process is better known as melting, or **heat of fusion**, and results in the molecules within the substance becoming more chaotic. When a substance converts from a solid state to a liquid state, the change in heat (ΔH) is positive. However, if the substance is transforming from a liquid state to a solid state the change in heat (ΔH) is negative. This process is commonly known as the freezing, and results in the molecules within the substance becoming more ordered.

Record in notebook:

Heat required to go from solid to liquid = $+\Delta H_{\text{fusion}}$

Heat released when going from liquid to solid = $-\Delta H_{\text{fusion}}$

In a chemical reaction, liquids can be heated to the point where the molecules holding their bonds together break apart and form a gas. The most common example is liquid water turning into gas water vapor. This process is better known as boiling, or **heat of vaporization**, and results in the molecules within the substance becoming more chaotic. When a substance converts from a liquid state to a gas state, the change in heat (ΔH) is positive. However, if the substance is transforming from a gas state to a liquid state the change in heat (ΔH) is negative. This process is commonly known as the condensing, and results in the molecules within the substance becoming more ordered.

Record in notebook:

Heat required to go from liquid to gas = $+\Delta H_{\text{vaporization}}$

Heat released when going from gas to liquid = $-\Delta H_{\text{vaporization}}$