

Heating and Cooling Curves

1. Calculate the total amount of energy, ΔH , required to cool a 34.5 g sample of CCl_4 from $88.5\text{ }^\circ\text{C}$ to $-45.0\text{ }^\circ\text{C}$. Use the information below to draw a labeled cooling curve.

$$c_s = 0.287 \frac{\text{J}}{\text{g}\cdot^\circ\text{C}}$$

$$c_l = 0.866 \frac{\text{J}}{\text{g}\cdot^\circ\text{C}}$$

$$c_g = 0.577 \frac{\text{J}}{\text{g}\cdot^\circ\text{C}}$$

$$\text{Melting point} = -23^\circ\text{C}$$

$$\text{Boiling point} = 77^\circ\text{C}$$

$$\Delta H_{\text{fus}} = 2.5 \text{ kJ/mol}$$

$$\Delta H_{\text{vap}} = 32.5 \text{ kJ/mol}$$