

1. Calculate the amount of energy it takes for the melting of a 30.0g ice cube at 0°C. **[10.0 kJ]**
2. What enthalpy change occurs in the evaporation of 10.0g of methanol (CH₃OH)? ($H_{\text{vap}} = 39.23$ kJ/mol for methanol) **[12.2 kJ]**
3. Given $H_{\text{vap}} = 23.3$ kJ/mol for NH₃, find the mass of ammonia that can be condensed from vapor to liquid (with no temperature change) during an enthalpy change of 10.0 kJ. **[7.31g]**
4. An experiment produces evidence that the evaporation of 4.00g of liquid butane, C₄H_{10(l)}, requires a gain in enthalpy of 1.67 kJ. Find the molar enthalpy of vaporization for butane. **[24.3 kJ/mol]**
5. How much energy would be lost during the condensation of 12.78 g ammonia (NH_{3(g)})? ($H_{\text{vap}} = 23.4$ kJ/mol) **[-17.6 kJ]**
6. How much energy would a freezer need to remove from 5.00×10^2 g of water at 0°C to produce ice cubes at 0°C? **[-167 kJ]**