

Marks
4

- A 150.0 g block of iron metal is cooled by placing it in an insulated container with a 50.0 g block of ice at 0.0 °C. The ice melts, and when the system comes to equilibrium the temperature of the water is 78.0 °C. What was the original temperature (in °C) of the iron?

Data: The specific heat capacity of liquid water is $4.184 \text{ J K}^{-1} \text{ g}^{-1}$.

The specific heat capacity of solid iron is $0.450 \text{ J K}^{-1} \text{ g}^{-1}$.

The molar enthalpy of fusion of ice (water) is $6.007 \text{ kJ mol}^{-1}$.

Answer: