

Calculate the specific heat of lead if it takes 1.45 kJ of energy to heat 750g of lead from 25.0 C to 40.0 C.

**Solution:**

Find the specific heat of lead

$$Q = mc\Delta T,$$

where

$Q$  – energy, kJ;

$m$  – mass of matter, kg;

$c$  – specific heat, kJ/kg·K;

$\Delta T$  – change the temperature, K or C.

$$\text{so } c = \frac{Q \cdot m}{\Delta T} = \frac{1.45 [\text{kJ}] \cdot 0.75 [\text{kg}]}{(40 - 25) [\text{K}]} = 0.0725 [\text{kJ}/\text{kg} \cdot \text{K}]$$

**Answer:** The specific heat of lead is 0.0725 kJ/kg·K.