

Answer on the Question #62544, Chemistry / General Chemistry

It takes 54.0 J to raise the temperature of an 9.00 g piece of unknown metal from 13.0°C to 24.6 °C. What is the specific heat for the metal?

Answer

The specific heat can be calculated as following:

$$C = \frac{q}{m \times \Delta t}$$

Where $\Delta t = 24.6 \text{ }^\circ\text{C} - 13.0 \text{ }^\circ\text{C} = 11.6 \text{ }^\circ\text{C} = 11.6 \text{ K}$

Therefore,

$$C = \frac{54.0 \text{ J}}{0.009 \text{ kg} \times 11.6 \text{ K}} = 517.2 \frac{\text{J}}{\text{kg} \times \text{K}}$$

Answer: 517.2 $\frac{\text{J}}{\text{kg} \times \text{K}}$