smelt

smelled

Warm Up

Determine the amount of energy required to heat 15.00 g of ice from -25.00°C to -8.000°C.

$q = ?$

$m = 15.00\,g$

$C = 2.01\ \frac{J}{g \cdot °C}$

$\Delta T = 17.00\,°C$

$q = mC\Delta T$

$q = (15.00\,g)\left(2.01\ \frac{J}{g \cdot °C}\right)(17.00\,°C)$

$q = 512.6\,J$

$0.5126\,kJ$

Example

If 1935 J of energy is lost when 100. g of a substance is cooled from 43.0°C to 21.5°C, what is the substance's specific heat capacity?

$C = ?$

$q = -1935\ J$

$m = 100.\ g$

$\Delta T = -21.5°C$

$q = mC\Delta T$

$-1935\ J = (100.\ g)\,C\,(-21.5°C)$

$-1935\ J = (-2150\ g\cdot°C)\,C$

$C = \dfrac{-1935\ J}{-2150\ g\cdot°C}$

$C = 0.900\ \dfrac{J}{g\cdot°C}$

$$q = mc\Delta T$$

$$mc(T_f - T_i)$$

$$40 = 2(x)(4)$$

$$\frac{40}{8} = \frac{8x}{8}$$

$$5 = x$$

Heat Worksheet