Answer on Question #73465 – Chemistry – Other

Task:

Calculate the mass of copper if 3687.9 J of copper is cooled from 155 °C to 23 °C.
The specific heat of copper is 0.385 J/g*°C.

Solution:

Q = mcΔT, where Q is the amount of heat energy lost or gained, m is the mass in grams, and ΔT is the change in temperature, Tfinal−Tinitial.

$$Q = m * c * \Delta T$$

$$m(Cu) = \frac{Q}{c*(T_2 - T_1)} = \frac{3687.9}{0.385*(155-23)} = \frac{3687.9}{50.82} = 72.5679\,g$$

$$m(Cu) = 72.6\,g$$

Answer: m(Cu) = 72.6 g.