

Answer on the question #55020 – Chemistry – Physical Chemistry

Question:

Calculate the change in temperature (ΔT) for each of the following using the table below:

Gold has a specific heat of .129 j/g C

Copper has specific heat of .385 j/g C

Solve: 87.1 g of gold (Au) that absorbs 7620 J

52.9 g of copper (Cu) that absorbs 7.35 kJ

Answer:

The change in temperature is related to the amount of heat absorbed:

$$Q = mc\Delta T$$

where c is the specific heat of the substance, m is the mass and ΔT is the temperature change.

Then, for the gold and copper, respectively:

$$\Delta T(\text{Au}) = \frac{Q}{mc} = \frac{7620}{87.1 \times 0.129} = 678 \text{ C}$$

$$\Delta T(\text{Cu}) = \frac{Q}{mc} = \frac{7350}{52.9 \times 0.385} = 361 \text{ C}$$