

Honors Chemistry- Thermochemistry Podcast 3: Calorimetry

Substance	Heat Capacity (J/g°C)	Substance	Heat Capacity (J/g°C)
Water	4.18	Grain Alcohol	2.4
Ice	2.09	Steam	2.01
Chloroform	0.96	Aluminum	0.90
Glass	0.50	Iron	0.46
Silver	0.24	Mercury	0.14
Lithium	0.14	Copper	0.39
Uranium	0.12	Gold	0.13

Use the table above to answer the following questions

1. A 75.0g sample of a metal at 98.0° C is dropped into a container of 350. g of water at 24.0°C, The final temperature is 24.5 °C. What is the specific heat of the metal? $0.133 \text{ J/g}^\circ\text{C}$
2. A 55.0 g sample of a metal at 90.0° C is dropped into a container of 250 g of water at 22.0°C, The final temperature is 23.4 °C. What is the metal? $0.399 \text{ J/g}^\circ\text{C} = \text{Cu}$
3. A 200.0 g sample of a metal at 92.0° C is dropped into a container of 100 g of water at 26.0°C, The final temperature is 45.6 °C. What is the metal? What is the percentage error? $0.8828 \text{ J/g}^\circ\text{C} = \text{Al}; 1.9\% \text{ error}$
4. A 45.2 g sample of silver at 101.0 °C is dropped into 300.0 g of water and the water temperature increased to 30.6 °C. What was the initial temperature of the water? $t_i = 29.99 \text{ }^\circ\text{C}$