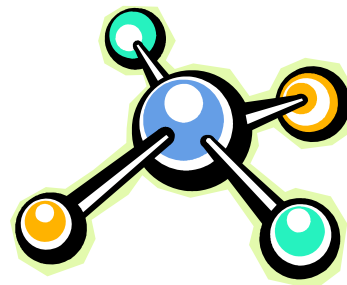


Name _____
Chapter 5 AP Chemistry

Calorimetry Problems



1. A 2.839-g sample of $\text{C}_2\text{H}_4\text{O}$ was burned in a bomb calorimeter whose total heat capacity is $16.77 \text{ kJ/}^\circ\text{C}$. The temperature of the calorimeter increases from 22.62°C to 26.87°C . What is the heat of combustion per mole of $\text{C}_2\text{H}_4\text{O}$?

2. A 1.55-g sample of propane, C_3H_8 , was burned in a bomb calorimeter whose total heat capacity is $12.3 \text{ kJ/}^\circ\text{C}$. The temperature of the calorimeter plus its contents increased from 21.36°C to 27.69°C . What is the heat of combustion per gram of propane?

3. The heat capacity of lead is $0.13 \text{ J/g}\cdot^\circ\text{C}$. How many joules of heat would be required to raise the temperature of 15 g of lead from 22°C to 37°C ?

4. A sample of aluminum absorbed 9.86 J of heat, and its temperature increased from 23.2°C to 30.5°C . What was the mass of the aluminum sample? (The specific heat of aluminum is $0.90 \text{ J/g}\cdot\text{K}$.)