

CALORIMETRY WORKSHEET



NAME: _____

YEAR AND SECTION: _____

SCORE

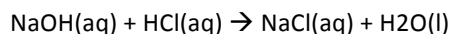
Date: _____

1. A 394-g sample of water is heated from 10.75°C to 83.20°C. Calculate the amount of heat absorbed (in kilojoules) by the water.

2. A quantity of 1.274 g of naphthalene (C₁₀H₈), a pungent-smelling substance used in moth repellants, was burned in a constant-volume bomb calorimeter. Consequently, the temperature of the water rose from 21.49°C to 26.52°C. If the heat capacity of the bomb plus water was 10.17 kJ/°C, calculate the heat of combustion of naphthalene on a molar basis; that is, find the molar heat of combustion?

3. A lead (Pb) pellet having a mass of 26.47 g at 89.98°C was placed in a constant-pressure calorimeter of negligible heat capacity containing 100.0 mL of water. The water temperature rose from 22.50°C to 23.17°C. What is the specific heat of the lead pellet?

4. A quantity of 1.50×10^2 mL of 0.350 M HCl was mixed with 1.50×10^2 mL of 0.350 M NaOH in a constant-pressure calorimeter of negligible heat capacity. The initial temperature of the HCl and NaOH solutions was the same, 23.25°C, and the final temperature of the mixed solution was 25.60°C. Calculate the heat change for the neutralization reaction on a molar basis



Assume that the densities and specific heats of the solutions are the same as for the water (1.00 g/mL and 4.184 J/g°C, respectively).