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3. When 435 J of heat is added to 3.4 g of olive oil at 21^0C, the temperature increases to 85^0C. What is the specific heat of the olive oil?

4. How much heat is required to raise the temperature of 250.0 g of mercury 52^0C? (specific heat of mercury = 0.14 J/g C^0)

12. When 50.0 mL of water containing 0.50 mol HCl at 22.5^0C is mixed with 50.0 mL of water containing 0.50 moles of NaOH at 22.5^0C in a calorimeter, the temperature of the solution increases to 26.0^0C. How much heat (in kJ) is released by this reaction?

13. A small pebble is heated and placed in a foam cup calorimeter containing 25.0 mL of water at 25.0^0C. The water reaches a maximum temperature of 26.4^0C. How many joules of heat are released by the pebble?

51. Make the following conversions:

a. 8.50×10^2 cal to Calories

b. 444 cal to joules

c. 1.8 kJ to joules

d. 4.5×10^{-1} kJ to calories

53. How much heat is required to raise the temperature of 400.0 g of silver 45^0C? (specific heat of silver = 0.24 J/g C^0)

69. How many kilojoules of heat are absorbed when 1.00 L of water is heated from 18^0C to 85^0C?

74. A 1.55-g piece of stainless steel absorbs 141 J of heat when its temperature increases by 178^0C. What is the specific heat of the stainless steel?

81. An orange contains 106 Calories. What mass of water could this same amount of energy raise from 25.0^0C to the boiling point?