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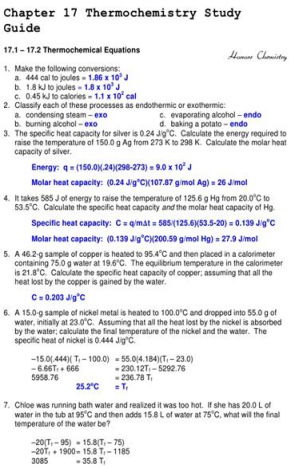
so many fake sites. this is the first one which worked! Many thanks



Chapter 17 Thermochemistry Study Guide

17.1 – 17.2 Thermochemical Equations

1. Make the following conversions:
   a. 444 cal to joules = **1.86 x 10^3 J**
   b. 1.8 kJ to joules = **1.8 x 10^3 J**
   c. 0.45 kJ to calories = **1.1 x 10^2 cal**
2. Classify each of these processes as endothermic or exothermic:
   a. condensing steam – **exo** c. evaporating alcohol – **endo**
   b. burning alcohol – **exo** d. baking a potato – **endo**
3. The specific heat capacity for silver is 0.24 J/g°C. Calculate the energy required to raise the temperature of 150.0 g Ag from 273 K to 298 K. Calculate the molar heat capacity of silver.

   Energy: q = (150.0)(.24)(298-273) = 9.0 x 10^2 J

   Molar heat capacity: (0.24 J/g°C)(107.87 g/mol Ag) = 26 J/mol
4. It takes 585 J of energy to raise the temperature of 125.6 g Hg from 20.0°C to 53.5°C. Calculate the specific heat capacity *and* the molar heat capacity of Hg.

   Specific heat capacity: C = q/mΔt = 585/(125.6)(53.5-20) = 0.139 J/g°C

   Molar heat capacity: (0.139 J/g°C)(200.59 g/mol Hg) = 27.9 J/mol
5. A 46.2-g sample of copper is heated to 95.4°C and then placed in a calorimeter containing 75.0 g water at 19.6°C. The equilibrium temperature in the calorimeter is 21.8°C. Calculate the specific heat capacity of copper; assuming that all the heat lost by the copper is gained by the water.

   C = 0.203 J/g°C
6. A 15.0-g sample of nickel metal is heated to 100.0°C and dropped into 55.0 g of water, initially at 23.0°C. Assuming that all the heat lost by the nickel is absorbed by the water; calculate the final temperature of the nickel and the water. The specific heat of nickel is 0.444 J/g°C.

   $-15.0(.444)(T_f - 100.0) = 55.0(4.184)(T_f - 23.0)$
   $-6.66T_f + 666 = 230.12T_f - 5292.76$
   $5958.76 = 236.78\ T_f$
   25.2°C = T_f
7. Chloe was running bath water and realized it was too hot. If she has 20.0 L of water in the tub at 95°C and then adds 15.8 L of water at 75°C, what will the final temperature of the water be?

   $-20(T_f - 95) = 15.8(T_f - 75)$
   $-20T_f + 1900 = 15.8\ T_f - 1185$
   $3085 = 35.8\ T_f$

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Ch 17 Thermochemistry Practice Problem Answers