Specific Heat and Calorimetry (cont.)

If a chemical reaction causes a temperature loss, then $q = \Delta H_x$

Example 6:

What mass of propane would need to be burned to change the temperature of 500.0 g of water from 17.0 °C to 95.5 °C? [The molar enthalpy of combustion (H_c) of propane = -2240 kJ/mol]

energy gained by water = energy lost by propane

$$q_{water} = \Delta H_{c\ (propane)}$$

$$mC\Delta T = nH_{c\ (propane)}$$

amount of substance undergoing the change

molar enthalpy

Example 7

Some ammonium nitrate is stirred into 2.50×10^2 mL of water, and the temperature drops from 22.7°C to 10.1°C. The molar enthalpy of solution for ammonium nitrate is found to be 57.3 kJ/mol. What mass of the $NH_4NO_{3(s)}$ must have been added?

Specific Heat and Calorimetry

q = ΔH Problems #3