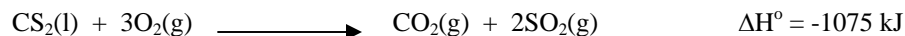


CHEMISTRY 123-01

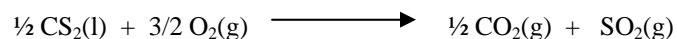
Exercise #3

October 19, 2007

1. Carbon disulfide burns in air according to the equation:



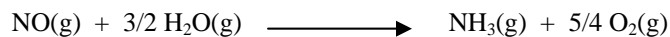
What is ΔH for the following equation:



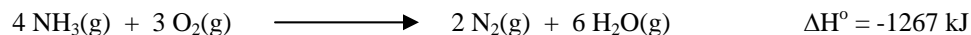
2. With a platinum catalyst, ammonia will burn in oxygen to give nitrogen oxide:



What is the enthalpy change for the following reaction:

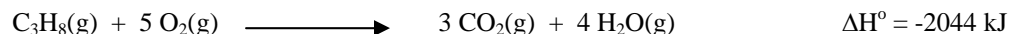


3. Ammonia burns in the presence of copper catalyst, to form nitrogen gas:



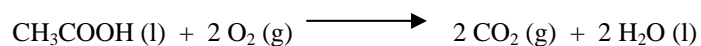
What is the enthalpy change to burn 35.8 g of ammonia?

4. Propane burns according to the equation:



Calculate how many grams of propane you will need to produce 369 kJ of heat.

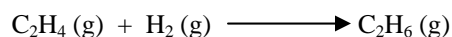
5. Acetic acid, CH_3COOH , is the sour constituent of vinegar. In an experiment, 3.58 g of acetic acid was burned according to the equation:



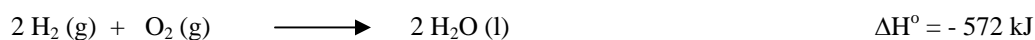
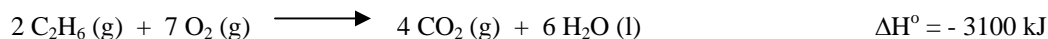
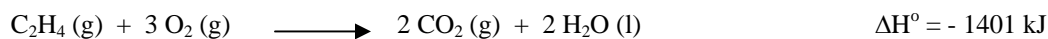
and 52.0 kJ of heat was evolved. Write the complete thermochemical equation for the above reaction.

6. A 19.6-g sample of a metal was heated to 61.67 °C. When the metal was placed into 26.7 g of water, the temperature of the water increased from 25.00 °C to 30.00 °C. What is the specific heat of the metal? (*Hint:* Specific heat of water is 4.184 J/g·°C)

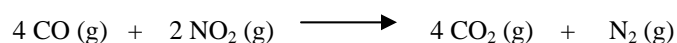
7. In the reaction below a hydrocarbon, known as ethylene, reacts with hydrogen to produce another hydrocarbon, ethane, according to the equation:



Calculate the enthalpy change for this reaction, using the following combustion data:



8. Consider the reaction:



Using the following information, determine ΔH° for the reaction:

