Worksheet 1

1. The specific heat of ethylene glycol is 2.42 J/ g•K. How many joules (J) of heat are needed to raise the temperature of 62.0 g of ethylene glycol from 15.2 °C to 40.8 °C?

2. Using values from appendix C, calculate $\Delta H°$ for the following reactions:

   a. $Mg(OH)_2\ (s) \rightarrow MgO\ (s) + H_2O\ (l)$

   b. $Fe_2O_3\ (s) + 6\ HCl\ (g) \rightarrow 2\ FeCl_3\ (s) + 3\ H_2O\ (g)$

3. Calculate the enthalpy change for the reaction:

   $$P_4O_6\ (s) + 2\ O_2\ (g) \rightarrow P_4O_{10}\ (s)$$

   given the following enthalpies of reaction:

   $P_4\ (s) + 3\ O_2\ (g) \rightarrow P_4O_6\ (s)$ $\Delta H = -1640.1$ kJ

   $P_4\ (s) + 5\ O_2\ (g) \rightarrow P_4O_{10}\ (s)$ $\Delta H = -2940.1$ kJ