Chemistry 12
REACTION KINETICS
Lesson #6 + 7 ENTHALPY CHANGES + KINETIC ENERGY
DISTRIBUTIONS

Read in your Hebden pgs 13-16 then answer the following questions:

1. When breaking the Cl-Cl bond in Cl_2 , what happens to the POTENTIAL ENERGY of the molecule? What happens to the KINETIC ENERGY of the molecule?

2. The change in enthalpy is +50 KJ for the reaction $2 HCl (g)$--->$H_2 (g) + Cl_2 (g)$. Re-write this equation so that the energy term appears in the chemical equation. Then DRAW a graph of "Potential Energy" vs "reaction proceeds", showing the relative enthalpies of the reactant and products, and the enthalpy change. Will the surroundings feel warmer or cooler as the reation occurs?

3. If a reaction releases 20 kJ of heat, what is the change in enthalpy for the reaction?

4. What is the change in enthalpy for the reaction $NaOH + HCl$ ----> $NaCl + H O$ if 59KJ of heat is absorbed by the surroundings? Which will have more energy, reactants or products?Draw a graph of "Potential Energy" vs "reaction proceeds" showing the relative enthalpies of the reactant and product and enthalpy change?

KINETIC ENERGY DISTRIBUTIONS

In general, a Kinetic Energy Distribution curve looks like this:

NOTICE: some molecules have a very LOW Kinetic Energy and some have a very HIGH Kinetic Energy while molecules most have an AVERAGE Kinetci Energy

For the chemical reaction : $C_2H_5OH \rightarrow C_2H_4 + H_2O$ at:
a. 25   degrees celcius_____
b. 200 degrees celcius_____
c. 400 degrees celcius_____

The various Kinetic Energy Distribution curves would look like this:

IMPT: the increased reaction rate due to an increase in TEMPERATURE is PRIMARILY DUE to the increased number of _____!!!!

General CHEMISTRY rule for SLOW REACTIONS: (see figure on pg 19 in HEBDEN)

Seatwork/Homework: Exercises 29- 32 pgs 19 -20
PLO's:B5, part of B6, B7, and B8