11/17/23 Chapter 9

Oxidation States:

F = -1
H = +1
O = -2
Cl = -1
S = -2
N = -3

- if losing electron it's oxidizing and becoming the reducing agent.

- if gaining electron it's reducing and becoming the oxidation agent.

$\Delta E_{sys} = -\Delta E_{surr}$

$\Delta E = q + w$

heat, work

state function

path (not state function)

If capital letter it's a state function.

9/17/13 chapter 9

heat capacity:

$q = mC_s\Delta T$; J/g°C or J/gK

$T_{°C} = T_K - 273.15$

$C_s(H_2O) = 4.18$ J/gK

$\Delta T = T_f - T_i$

thermal equilibrium:

A + B: different T; same T_f

$q_A = -q_B$

4/18/23 Chapter 10

Gases/ideal gasses:

T = temperature (use kelvin)

V = volume (L)

n = number of gas particles (moles)

P = pressure (atm)

these all depend on each other. State of gas defined by the unique combination.

Pressure:

Pressure is a force applied over an area

$P = \frac{F}{A}$

↳ constant P means constant $\left(\frac{F}{A}\right)$

ideal gas Law:

$P = \frac{n}{V}RT$ / $PV = nRT$

$0.0821 \frac{atm \cdot L}{K \cdot mol}$ (use this)