Unit 12: Thermochemistry (CH 16-17)

Objectives:

Ch. 16

* Define temperature and state the units in which it is measured.
* Define heat and state its units
* Perform specific-heat calculations.
* Define exothermic and endothermic.
* Explain enthalpy change, enthalpy of reaction, enthalpy of formation, and enthalpy of combustion.
* Solve problems involving enthalpies of reaction, enthalpy of formation, and enthalpy of combustion.
* Explain the relationship between enthalpy change and the tendency of a reaction to occur.
* Define entropy, free energy, and free energy change.
* Explain the relationship between entropy change and the tendency of a reaction to occur
* Explain how the value of free energy is calculated and interpreted.
* Describe the use of free energy change to determine the tendency of a reaction to occur.
* Understand and be able to use Hess’s Law to determine enthalpy of formation.

Ch. 17

* Explain the concept of reaction mechanism.
* Use the collision theory to interpret chemical reactions.
* Define activated complex.
* Relate activation energy to enthalpy of reaction.
* Discuss the factors that influence reaction rate.
* Define catalyst, and discuss two different types.
* Define activation energy.
* Discuss Collision theory.
* Be able to interpret a graph showing reaction pathways to determine whether a reaction is exothermic or endothermic.

Vocabulary to know:

Thermochemistry, calorimeter, temperature, joule, heat, specific heat, enthalpy change, enthalpy of reaction, thermochemical equation, molar enthalpy of formation, enthalpy of combustion, Hess’s law, entropy, free energy, free energy change, reaction mechanism, intermediate, homogeneous reaction, collision theory, activation energy, activated complex, reaction rate, heterogeneous reaction, catalyst, catalysis, homogeneous catalyst, heterogeneous catalyst.

|  |  |  |
| --- | --- | --- |
| Date | In Class | HW |
| 4/23-4/25 | Metal Identity Lab | Reading, problems |
| 4/26-4/27 |  |  |
| 4/30-5/1 |  |  |
| 5/2-5/3 |  |  |
| 5/4-5/7 | sub |  |
| 5/8-5/9 |  |  |
| 5/10-5/11 |  | . |