

Thermochemistry and Equilibrium review

Thermochemistry

Be able to define these terms:

Exothermic

Endothermic

Why would a farmer spray his trees with water before a frost?

Reaction Rates

Collision Theory:

Activation Energy:

Be able to describe how these four factors that affect reaction rates:

- Concentration
- Surface Area
- Temperature
- Catalyst

Equilibrium

What is Equilibrium?

Do both the forward and reverse reaction have to be in equal amounts to be in equilibrium?

What is Le Chatalier's principle?

Here is the reaction of the demo we did in class:



(Pink)

(Blue)

If the solution is a mixture of Pink and Blue (Violet) and I add more HCl (Chloride ions) what color will the solution turn and why?

If the solution is Violet and I add more water what color will the solution turn and Why?

If the Solution is Violet and I put it on ice what color will the solution turn and Why?

If the Solution is Violet and I put it in boiling water what color will the solution turn and Why?

Solutions and Phases of matter

Phases of matter

Be able to explain how molecules move when they:

Go from solid to liquid

Liquid to solid

Liquid to gas

Gas to liquid

Solutions

Solute:

Solvent:

Solution:

Solvation:

Know how these factors affect solvation:

- a) Stirring
- b) Heat
- c) Surface area

Know these terms:

Saturated

Unsaturated

Super saturated

Why does water boil at a lower temperature when there is less pressure?

Why does water boil at a higher boiling point when there is more pressure?

Why does the temperature of boiling water not change even when I increase the heat of the heat source?

What is Molarity?

Water is a polar molecule, what does that mean?

Why don't water and oil mix?

What causes surface tension?

What are colligative properties?

Why does salt water boil at a higher temperature compared to pure water?

Why does salt water freeze at a lower temperature than pure water?

Nuclear Chemistry

What are the three types of radiation? Compare their size, speed, and penetration.

Give the formula for the following:

Alpha:

Beta:

Gamma:

Know how to write a nuclear equation for each of the radioactive particles above.

Examples:

Write the nuclear equation when Uranium 235 goes through alpha emission and emits a gamma ray.

Write the nuclear equation When Nd-145 gives off a Beta particle.

What type of emission would occur if Th-235 becomes Pa-235?

What is half-life?

If I start with 10 grams of a radioactive substance, how much is left after four half-lives?

If the half-life of a substance is 5 years and 30 years have passed, what is the number of half-lives that have occurred?

Acids/Bases

What range of pH are acids?

What range of pH are bases?

If something has a high concentration of Hydrogen would it be an acid or a base?

If something has a high concentration of Hydroxide would it be an acid or a base?

As I increase Hydrogen concentration what happens to pH?

As I decrease Hydrogen concentration what happens to pH?

As I increase Hydroxide concentration what happens to pH?

As I decrease Hydroxide concentration what happens to pH?