

# Biochemistry Notes

I. **Inorganic Compounds** - compounds that are not produced by living things.

A) Do not contain carbon. Relatively simple.

B) 3 important inorganic compounds and substances.

1. **Water (H<sub>2</sub>O)** –

a. **Solvent/Polarity** –

“universal solvent”

-Water is a polar molecule.

-this allows other chemicals

(solutes) to dissolve in water to make solutions and react with each other

b. Chemicals that do not dissolve or larger particles can form colloids or suspensions.

c. allows for movement of compounds in organisms

d. **High heat capacity** – it can absorb or release large amounts of heat without changing temperature.

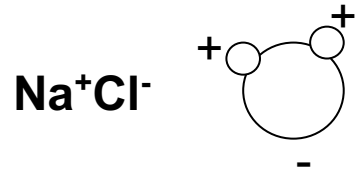
e. **Chemical reactivity** – Water can split compounds apart (**hydrolysis**) or be used to hook compounds together (**dehydration synthesis**)

f. **Cushioning** – Cerebrospinal fluid, amniotic fluid

2. **Oxygen (O<sub>2</sub>)** - Used by most living things to burn or oxidize food and get energy.

3. **Carbon dioxide (CO<sub>2</sub>)** - this gas is the source of all carbon found in living things.

-only inorganic compound to contain C.



## I.V. Acids/Bases

A. **Acids** – have a sour taste, (ex. Citric acid), attack metals

1) releases  $H^+$  (hydrogen ions) in a water solution

2) known as **proton donors**

B. **Bases** – have a bitter taste, feel slippery

1) Release  $OH^-$  (**hydroxide** or **hydroxyl** ions) in a solution of water.

2) known as **proton acceptors**

C. Weak vs. Strong Acids/Bases

1) strong acids/bases – ionize completely in water

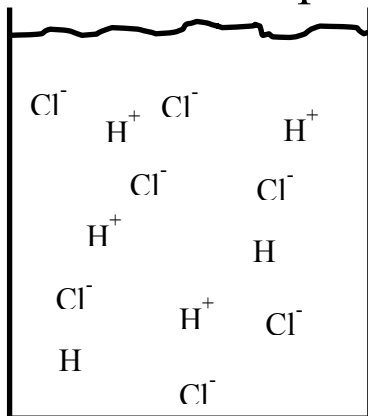
2) weak acid/base – don't ionize completely in water

D. Diluted vs. Concentrated Acids/Bases

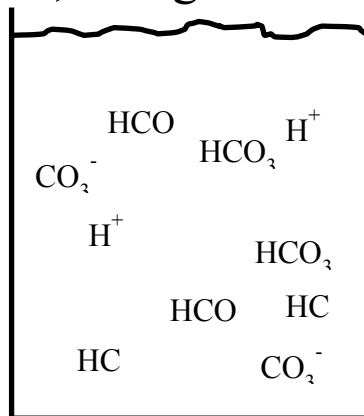
1) diluted acids/bases – have been “watered down”

2) concentrated acids/bases – high acid to  $H_2O$  ratio

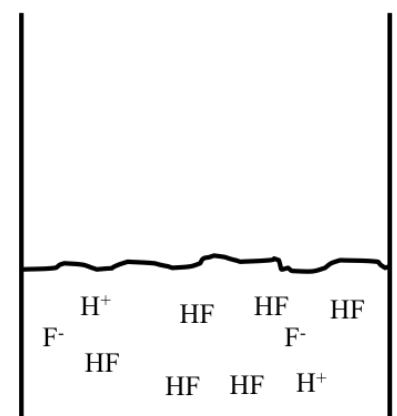
E. Measured on a pH scale, that goes from 0-14.



dilute strong

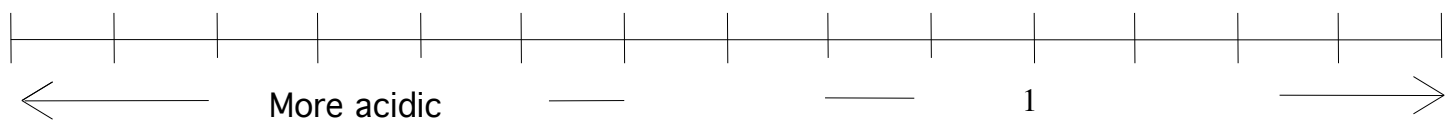


dilute weak



concentrated weak

1) pH refers to the concentration of  $H^+$  ions.

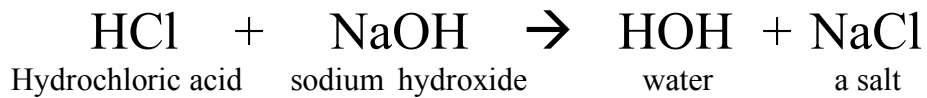


2) Something with a pH of 14, has a very low concentration of  $H^+$  ions of  $1 \times 10^{-14}$  and would be a base.

3) A pH change by 1, increases or decreases the acidity by

10 times.

F. When an acid is added to a base, a **neutralization reaction** occurs.



G. **Buffers** are chemicals in the body that can absorb or give off  $\text{H}^+$  and  $\text{OH}^-$  to keep the pH from changing.



H. **Salts** – formed in a neutralization reaction

- 1) Salts **disassociate** in water to form ions
- 2) Form **electrolytes**- ions that conduct electrical currents in solution.