
Of Bonds…
and Bases…
BONDS
25

Bonding

Interactions between atoms that hold them together. Kinda like a hug.

Just as there are different types of hugs, there are different types of bonds with their own characteristics.

We will deal with two types of bonds (not hugs)

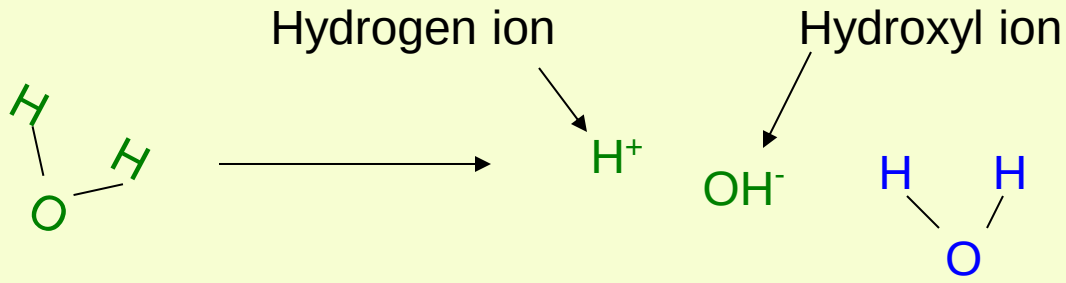
Covalent Bonds

- Typically stronger
- Involve the sharing of electrons between atoms
- These bond atoms together to form molecules

Covalent bond

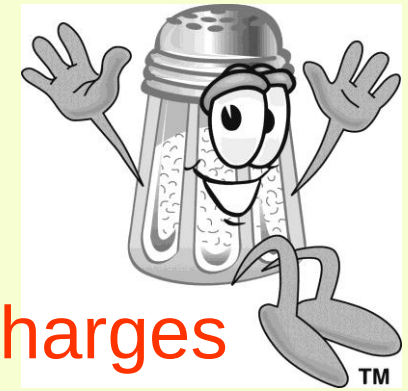
Strong but not unbreakable

- Atoms and molecules are always in motion and bumping into one another.



- Sometimes these collisions break molecules like water into charged particles called IONS. This is a process called *dissociation*.

Ionic Bonds



Opposites attract. When ions of different charges stick to one another, an IONIC BOND is formed. These bonds are…

- weaker than covalent bonds (typically).
- electrostatic (think of rubbing a balloon on your head and sticking it to the wall)
- do not form true molecules.

$NaCl \longrightarrow Na^{+} + Cl^{-}$

basic table salt

ions

Acidity

- A solution that has more H+ than OH- is considered acidic.
- Solutions of water and HCl are acidic because…
- HCl provides H+ but no OH-
- Water dissociates into equal numbers of hydrogen and hydroxyl ions so it is neutral.

$$HCl \longrightarrow H^+ + Cl^-$$

Basicity (Being a base)

Or *alkalinity* if you like

- Some substances will provide more OH- than H+
- These substances are considered basic (There are other ways of describing acids and bases but we'll leave that for next year)

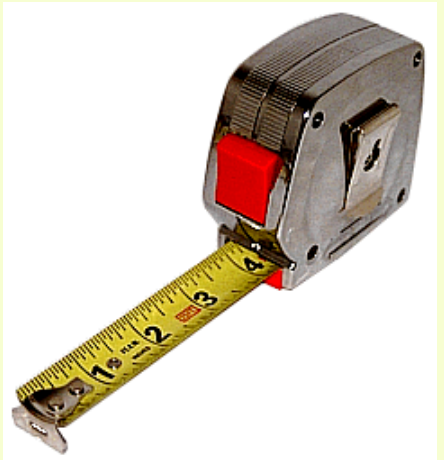
For example:

- Drano aka lye is a base = NaOH

$$NaOH \longrightarrow Na^{+} + OH^{-}$$

Measuring Acidity

- pH is a way of reporting acidity.
- It is a measure of how many H+ there are in a solution.
- The more H+ the lower the number
- A pH of 7 is neutral.
- Lower than 7 is acidic; higher than 7 is basic.



Neutralizations

- If there are more H+ than OH-, the pH will be below 7
- Adding a substance that adds more OH- (or takes up the H+) will equalize the ratio of H+ to OH-
- Tums Tum Tum Tums….