Topic 8 – Acids, Bases, and Salts

Lessons 3, 4, 5 – Salts, Electrolytes, Formulas and Names of Acids and Bases

Terms to Know

Salts –

Electrolytes –

Formulas for acids vary depending on the type of acid. An acid can be classified as organic or inorganic. Inorganic acids can be either binary or ternary acids.

**Inorganic Acids** usually start with H, followed by a nonmetal or a negative polyatomic ion.

* Binary acid formulas are composed of just two nonmetal atoms: hydrogen atom and another nonmetal atom

Examples HCl H2S

* Ternary acid formulas are composed of three atoms: hydrogen atom and a polyatomic ion

Examples HNO3 H2SO4

**Organic Acids** usually end with –COOH

Examples CH3COOH HCOOH

**Naming Binary Acids**

* Have names that begin with hydro- and ends with –ic
* Names are formed by dropping the –gen of hydrogen and modifying the nonmetal ending to –ic

Step 1 Write names of elements in formula

 hydrogen chlorine

Step 2 Drop –gen of hydrogen

 Modify the nonmetal ending to ic

 hydro chloric

Step 3 Combine to name the acid

 hydrochloric acid

**Naming Ternary acids**

* Name reflects only the name of the polyatomic ion in the formula
* Name of the polyatomic ion in a ternary acid formula is modified to end with –ic or –ous
* If an acid formula contains a polyatomic ion ending with –ate, the name ending of the acid is –ic
* If an acid formula contains a polyatomic ion ending with –ite, the name ending of the acid is –ous

**Chemical formulas of bases** usually contain a metal element and OH (hydroxide)

Examples NaOH Al(OH)3 NH4OH

**Chemical names of bases** are easy to recognize and to write. Bases are named by the combination of the name of the metal and hydroxide. No modifications or changes are made to these names.

NaOH sodium hydroxide

Al(OH)3 aluminum hydroxide

NH4OH ammonium hydroxide

NH3 (aq), aqueous ammonia, is also a base.