TERMINOLOGY and DEFINITIONS

Accuracy - Nearness of the measured value to the true value.

Aliquot - A representative fraction of a sample.

Analyte - The chemical species that is being determined in the analysis.

Blank - A sample, that contains everything but the analyte, which is used to set the zero point in many analytical procedures. A blank is commonly used in spectrophotometric and titrimetric methods of analysis.

$$\textbf{Density} = \frac{\text{mass in grams}}{\text{volume in mL}}$$

Detection Limit - Minimum detectable quantity of an analyte.

Molarity - Number of moles of a substance per liter of solution.

$$\textbf{Parts per Million (ppm)} = \frac{\text{grams of substance}}{\text{million total grams of solution or mixture}} \times 100$$

For an aqueous solution, assuming the density of the solution is 1g/mL,

$$\textbf{ppm} = \frac{\textbf{milligrams}}{\textbf{Liter}}$$

$$\textbf{Parts per Billion (ppb)-} = \frac{\text{grams of substance}}{\text{billion total grams of solution or mixture}} \times 100$$

For an aqueous solution, assuming the density of the solution is 1g/mL,

$$\textbf{ppb} = \frac{\textbf{micrograms}}{\textbf{Liter}}$$

Precision - The reproducibility of experimental data. The precision tells how close the measured values are to each other.

Standard - A prepared sample, that contains a known amount of an analyte and similar amounts of other constituents, which is used to verify that a method of analysis gives accurate results.

$$\textbf{Volume Percent} = \frac{\text{volume of solute}}{\text{volume of total solution}} \times 100$$

$$\textbf{Weight Percent} = \frac{\text{mass solute}}{\text{mass of total solution}} \times 100$$

Example: A solution that is 95% ethanol contains 95 grams of ethanol per 100 grams of solution. The remaining component is water.