**Measuring Units**

The three basic units of measure used in reporting air pollution data are micrograms per cubic meter, parts per million (PPM), and the micron (JL). Micro grams per cubic meter and parts per million are measures of concentration. Both microgram per meter cube and ppm are used to indicate the concentration of a gaseous pollutant. There is an advantage to the unit ppm that frequently makes it the unit of choice.PPM is a volume-to-volume ratio.

**Note**:- PPM in Air, is a volume-to-volume ratio.

PPM in water and wastewater, is a mass-to-mass ratio.

Changes in temperature and pressure do not change the ratio of the volume of pollutant gas to the volume of air that contains it.

**1.What is PPM**

Parts per million (PPM) is a unit of measurement used for expressing a very dilute concentration level of pollutants in the air, water and other fluids or one item in a million of anything of the same size.

Converting air pollutant concentration

1. Converting Micro grams per cubic meter to PPM

ppmv = mg/m^3 x (0.08205 x T) / M

2. Converting PPM to Micro grams per cubic meter

mg/m^3 = ppmv x M /(0.08205 x T)

Where,

* mg/m^3 = Microgram of pollutant per cubic meter of air
* ppmv = Air pollutant concentration, in parts per million by volume
* T = Ambient temperature in kelvin
* 0.08205 = Universal gas constant
* M = Molecular weight of air pollutant

**2. What is PM level**  
Particulate matter (PM) in the atmospheric air or in any other gas cannot be expressed in terms of ppmv, volume percent or mole percent. PM is most expressed as mg/m^3 of air or other gas at a specified temperature and pressure.

**Note**:- One volume percent = 10, 000 ppmv (parts per million by volume) with a million being defined as 10^6.

Care must be taken with the concentrations expressed as parts per billion by volume (ppbv) to differentiate between the British billion which is 10^12 and the USA billion which is 10^9.

Particulate matter is the sum of all solid and liquid particles suspended in air many of which are hazardous. This complex mixture includes both organic and inorganic particles.

Based on size, particulate matter is often divided into two groups.

1. Coarse particles (PM 10-2.5) such as those found near roadways and dusty industries range in diameter from 2.5 to 10 micrometers (or microns). The existing coarse particle standard (known as PM 10) includes all particles less than 10 microns in size.

2. "Fine particles" (or PM 2.5) are those found in smoke and haze have diameters less than 2.5 microns. PM 2.5 is referred to as "primary" if it is directly emitted into the air as solid or liquid particles, and is called "secondary" if it is formed by chemical reactions of gases in the atmosphere.