



What is it?

A PID is a general, non-specific detector of volatile organic compounds, commonly referred to as VOCs. Organic compounds are chemical compounds that contain at least one atom of carbon or a carbon chain. Because carbon is the basis of all compounds, organic compounds are found in all living things. Volatile organic compounds are organic compounds that can easily become vapors or gases from the solid or liquid state. Along with carbon, volatile organic compounds can also contain oxygen, hydrogen, chlorine, and sulfur atoms, to name a few. VOCs can be found in almost everything, from solvents to air pollution. Some common VOCs in the petrochemical industry are gasoline, benzene, toluene, and xylene. However, VOCs exist not only in industry, but also in everyday products including paint thinners and solvents, glues, degreasers, aerosol sprays, paints, household cleaning supplies, and even underarm deodorant. On hot summer days, the high temperatures react with air pollution to produce smog, which contains VOCs.

How Does a PID Detect VOCs?

A PID sensor works differently than other sensors. The PID contains a lamp that is rated to a specific ionization potential measured in electron volts (eV). Some common lamps available are 9.8 eV, 10.6 eV, and 11.7 eV. When the lamp ignites and a gas molecule passes through the light emitted from it, the molecule is ionized (if the ionization potential of the molecule is less than the ionization potential of the lamp) or nothing happens (if the molecule's ionization potential is above that of the lamp). Once ionized, positive and negative ions are collected on electrodes, which produce a signal that is directly proportional to the amount of ions present at the electrodes. The signal is then displayed in parts per million on the instrument display.