

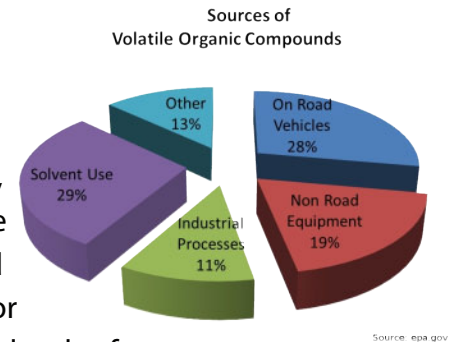
# VOCs: An Indoor Air Quality Health Risk



## Application Note #AQ-13-601

### Complex Volatile Organic Compounds (VOCs) In Businesses and Residential Premises Are a Dangerous Health Hazard

VOCs are any of a variety of organic chemical compounds that release gaseous molecules from their liquid or solid form at room temperature. While many VOCs are naturally occurring and important to environmental interactions, a large number are emitted in manmade processes and are hazardous to human health if respired at certain concentrations. The EPA has determined that concentrations of VOCs are much higher indoors compared to outdoors (up to 10 times higher), and it is estimated that 50 to 300 different VOCs may be detected in the air of homes, schools, offices, and commercial buildings at any given time. Some examples of these compounds include formaldehyde, toluene, benzene, xylene, perchloroethylene, etc. The adverse health effects caused by breathing in these chemicals can range from temporary irritation of the eyes or throat, nausea, and headache, to long-term disease such as cancer or damage to the liver, kidneys, or central nervous system. The chart below describes the health effects at different levels of exposure:



CONCENTRATION	EFFECTS
< 1,000 PPB = GOOD OR "GREEN"	No significant health effects or occupant complaints
1,000 PPB < 10,000 PPB = MARGINAL	Should produce some health effects and complaints
10,000 PPB AND HIGHER = POOR OR "RED"	May produce more serious health effects

### Common Sources of VOCs

Many commonly used products can be the sources of these compounds including building maintenance and cleaning products, paints, adhesives, sealants, carpets, drywall, and insulation materials, among others. Some examples of specific sources and processes that commonly emit high levels of VOCs include Vent Gas, Water Separation Techniques, Industrial Waste Water, Batch Processes, Petroleum Refining, Natural Gas Processing, Petrochemical Processes, Paints, etc.

### Monitoring Solution: AQ Expert & AQ VOC Indoor Air Quality Monitors

The measurement of the concentration of many VOCs commonly found in indoor environments can be performed using the E Instruments AQ Expert portable IAQ monitor or the AQ VOC portable VOC Monitor. This specialized monitoring instrument utilizes PID sensors that allow air quality analysts, environmental safety companies, laboratory technicians, etc., to quickly accurately monitor the levels of dangerous VOCs present in the breathing environments of homes, office buildings, laboratories, or industrial facilities. These devices include software with real-time continuous datalogging and wireless Bluetooth compatibility.

