Gas Factsheet

TVOC

Formula: N/A
CAS: N/A
Industries: Oil & Gas, Manufacturing, Laboratories & Hazmat
Detection Method: Tiger/Tiger^{LT}/Tiger Select, Cub/Cub^{TAC}, Falco/Falco^{TAC}, TVOC 2, GasClam 2 & GasCheck G

Total Volatile Organic Compound (TVOC) is a grouping of a wide range of organic chemical compounds to simplify reporting when these are present in ambient air or emissions. Many substances, such as natural gas, could be classified as volatile organic compounds (VOCs). VOCs are reserved for characterisation of such substances in polluted air, that is, VOCs generally refer to vapours of gases given off by compounds rather than the liquid phase.

The Main Source Of TVOCs

TVOCs are produced from a wide range of industrial processes. Significant sources are processes producing or using solvents, paints or use of chemicals. Major point sources of TVOCs are petrol refining, fuel storage and the manufacturing industry, including: industrial machinery, vehicles and transport equipment; iron, steel and other metals; chemical products; wood products; plastic products; paper products; cement, lime and plaster products; ceramic products; oil, fat, petroleum and coal products; glass products; leather products; textiles and woven fabrics; electrical equipment and appliances; and food preparation.

Environmental Issues

Air pollution is now something we are all aware of and is often included alongside UV levels on weather forecasts. VOCs are themselves directly an air pollutant but also have secondary effects. When sunlight and heat react with VOCs, sulphur dioxide and nitrogen oxides (gasses from industrial process and vehicles) ozone is generated and smog is formed.

Health & Safety Issues

Whilst many VOCs have no adverse effects on health and the environment, some are harmful. Health effects include eye, nose and throat irritation from short term exposures (think about a whiff of super glue) and long-term exposure to very low concentrations you are not aware of (parts per billion) may cause damage to liver, kidneys, central nervous system and cancers.

As VOCs exist as a gas at room temperature the main exposure route is through normal respiration. Exposure to harmful VOCs can happen at home, outdoors or in the workplace.

Domestic and light industrial sources of VOC include building materials, furniture, carpets, heating and cooking systems, stored solvents and cleaning products. Generally, VOCs are released slowly from these sources and would not cause a problem. However, modern buildings have low air exchange rates (to reduce heating and air conditioning costs) therefore concentrations can easily rise to harmful levels. VOCs are now widely recognised as a major contributor to sick building syndrome compromising Indoor Air Quality (IAQ).

TVOC Detection Instruments

Fixed Instruments


Semi-Portable Instruments


Portable Instruments


Personal Instruments

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