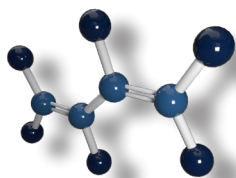


## 1,3-Butadiene



**Formula:** C<sub>4</sub>H<sub>6</sub>

**CAS:** 106-99-0

**Industries:** Oil & Gas, Manufacturing

**Detection Method:** Tiger, Tiger<sup>LT</sup>, Cub, Falco, TVOC 2, GasClam 2 & GasCheck G

1,3-Butadiene is a synthetic, colourless gas that is practically insoluble in water and soluble in ethanol, ether, acetone and benzene. It is used primarily as a monomer to manufacture many different types of polymers and copolymers and as a chemical intermediate in the production of industrial chemicals. When heated, butadiene emits acrid fumes and is flammable. In the presence of air, it oxidises to form explosive peroxides.

### C<sub>4</sub>H<sub>6</sub> - 1,3-BUTADIENE IS OFTEN REFERRED TO SIMPLY AS BUTADIENE

#### Health Concerns From 1,3-Butadiene

The health effects caused by exposure to 1,3-butadiene can be split into two categories: **Acute and Chronic.**

**Acute exposures** can further be split into low and high doses. Acute low exposures may cause irritation to the eyes, throat, nose, and lungs. Frostbite may also occur with skin exposure. Acute high exposures may cause damage to the central nervous system or cause symptoms such as distorted blurred vision, vertigo, general tiredness, decreased blood pressure, headache, nausea, decreased pulse rate, and fainting.

**Chronic effects** caused by exposure to 1,3-butadiene are controversial. Several human epidemiological studies have shown an increase in cardiovascular diseases and cancer. However, due to the small numbers of cancers and confounding factors such as smoking, and simultaneous exposure to benzene and styrene, a true causal relationship cannot be established.

#### The Main Sources of 1,3 Butadiene

Large amounts of 1,3-butadiene are produced each year from petroleum gases. Over 60% of this is used to make styrene/butadiene and polybutadiene rubber, primarily for automotive tires. Smaller percentages are used to produce a component of nylon, styrene-butadiene co-polymer latexes, neoprene rubber, and acrylonitrile/butadiene/styrene (ABS) resins.

A smaller amount is used in the production of rocket propellants and specialty copolymer resins and latexes for paints, coatings, and adhesives; and as an additive to oil lubricants. Non polymer applications include the manufacture of agricultural fungicides (Captan and Captofol), sulfolane (an industrial solvent), and anthraquinone dyes.

Very small amounts of 1,3-butadiene are also found in gasoline, automobile exhaust, cigarette smoke, and wood-fire smoke.

#### 1,3-Butadiene Detection Instruments



Fixed Instruments



Semi-Portable Instruments



Portable Instruments



Personal Instruments

