

Methane (CH₄)-Calibration Gas Supplier

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Methane (CH₄)

One of the most powerful and important gases, Methane gas or CH₄ (main component of natural gas) is colorless, odorless, and non-toxic, but has the potential to be very dangerous depending on the amount and duration of exposure. Even in lowest of concentrations Methane is extremely flammable and when mixed with other present gases it can become an asphyxiant, which means it can interrupt oxygen supply to vital organs and cause you to suffocate almost immediately. This is especially hazardous for confined space workers and why the use of proper gas detection systems are necessary. CH₄ has been the unfortunate cause of many worldwide disasters in the water, mining, oil and gas industries. Knowing the dangers of exposure to this gas is extremely important to the health and safety of workers everywhere.



Exposure level (ppm)	Effect or symptom
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1000	NIOSH 8-hours TLV*
50,000 to 150,000	Potentially explosive
500,000	Asphyxiation

Also known as:

Biogas
Fire Damp
Marsh Gas
Methyl Hydride

Health Effects of Methane (CH₄)

In low concentrations, Methane gas is not harmful, but extreme high levels of CH₄ decrease the amount of Oxygen in the air which can lead to suffocation. Some of the symptoms that may arise directly related to acute exposure include headache, weakness, dizziness, nausea and vomiting, rapid breathing, loss of coordination, and loss of consciousness. There are no known long-term health effects caused by Methane and it cannot cause skin irritation unless you come into contact with the liquefied gas. Contact with liquefied methane gas will cause frostbite. You should seek medical attention if overexposure is suspected or if illness occurs. The manufacturer's MSDS along with label should always be

read to establish the product ingredients and other health and safety information about this calibration gas. The workplace exposure limit for Methane (CH₄) according to ACGIH is maintaining minimal 19.5% Oxygen content.

Fire Fighting Measures



FLASH POINT (Closed Cup): -187°C (-306°F)

AUTOIGNITION TEMPERATURE: 537°C (999°F)

Lower (LEL): 5.0% Upper (UEL): 15.0%

Is Methane (CH₄) considered Reactive or Non-Reactive?

Although highly flammable and considered to be a strong reducing agent, Methane Gas (CH₄) is non-toxic as well as considered to be non-reactive. Due to the potential of explosion when combined with especially powerful oxidizers such as chlorine, iodine, and liquid

oxygen, Methane should always be treated as a danger especially when in confined spaces despite its non-reactive label.

Physical Properties

Chemical Formula CH₄

Flash Point: -306 ° F

Lower Explosive Limit (LEL): 5 %

Upper Explosive Limit (UEL): 15 %

Autoignition Temperature: 1004 ° F

Melting Point: -296.5 ° F (NTP, 1992)

Vapor Pressure: 258574 mm Hg at 100 ° F ; 760 mm Hg at -258.7° F

Vapor Density (Relative to Air): 0.55

Specific Gravity: 0.422 at -256 ° F

Boiling Point: -258.7 ° F at 760 mm Hg

Molecular Weight: 16.04 (NTP, 1992)

Water Solubility: 3.5 mL/100 mL at 63° F

Handling and Storage of compressed Methane Gas

When handling any compressed gas, one should always read the manufacturer labels located on the cylinder itself beforehand. Due to the risk of explosion, Methane (CH₄) should be stored in an area to eliminate any heat and ignition sources to include areas where smoking is prohibited. Cylinders should be secured in an upright position at all times. A cylinder should never be dragged or rolled to its destination but rather transported in a hand-truck, rolling cart, or something similar. Methane gas cylinders should be stored in a cool, dry location that is well-ventilated and temperature controlled.

Common Gas Detector Models Used to Detect Methane in the Industrial Hygiene Field

The Industrial Hygiene Industry has grown significantly around the world causing the need for more reliable, available and trust-worthy manufacturers of safety equipment for both fixed and portable Gas detection systems and meters. Providing single gas and multi-gas detection options some of the world's most popular leaders for industrial hygiene safety equipment that allow for the detection of gases such as Methane (CH₄) include Draeger, Industrial Scientific, Honeywell Analytics, RKI Instruments, Ametek and MSA.

Methane Gas Cylinder Sizes

Egas Depot offers a wide range of [Methane Calibration Gases](#). With 14 different liter sizes and over 30 different options for your ppm and LEL requirements available to you, we are a one-stop shop for all of your field calibration needs.