

**MATERIAL SAFETY DATA SHEET**  
**29 CFR 1910.1200 OSHA Hazard**  
**Communication Rule Format**  
**Chem-Tel 24 Hour Emergency # 1-800-255-3924**

**MINE SAFETY APPLIANCES COMPANY**  
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**Pittsburgh, PA 15230**  
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This product contains carbon monoxide, methane, hydrogen sulfide, oxygen and nitrogen, substances subject to the Pennsylvania Worker and Community Right-To-Know Act.

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**PRODUCT IDENTITY**

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LABEL IDENTITY - MSA P/N 10048889 Calibration Check Gas, 2.5% Methane, 15% Oxygen, 20 ppm Hydrogen Sulfide, Balance Nitrogen

CHEMICAL NAME - Methane, Oxygen, Hydrogen Sulfide, Nitrogen Mixture

ADDITIONAL IDENTITIES - MSA P/N 10048889 Calibration Gas

FORMULA -  $\text{CH}_4 + \text{O}_2 + \text{H}_2\text{S} + \text{N}_2$

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**APPLICABLE CHEMICAL CONTENTS**

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	<u>%</u>	<u>TWA</u>
Methane (CAS 74-82-8)	2.5	None*
Oxygen (CAS 7782-44-7)	15	None
Hydrogen Sulfide (CAS 7783-06-4) STEL 5 ppm	0.0020	1 ppm
Nitrogen (CAS 7727-37-9)	Balance	None

\*Methane is a simple asphyxiant (ACGIH 2010)

NOTE: Gas Under Pressure, 500 PSIG at 70°F, Approx. 58 Liters Gas at Atmospheric Pressure

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**PHYSICAL AND CHEMICAL PROPERTIES**

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APPEARANCE AND ODOR - Colorless, Malodorous Gas

Following information is for Nitrogen the main component of this gas mixture

BOILING POINT - -320.4°F (-195.8 °C)      SPECIFIC GRAVITY (air = 1) @70°F (21.1 °C): 0.906

VAPOR PRESSURE @70°F (21.1 °C): N/A\*      PERCENT VOLATILE BY VOLUME - N/A\*

GAS DENSITY @32°F (0 °C) and 1 atm: 0.072 lbs/ft<sup>3</sup> (1.153 kg/ m<sup>3</sup>)

VAPOR DENSITY (AIR = 1) - Approx. 1

SOLUBILITY IN WATER - Methane - 9 cm<sup>3</sup>/100 ml (20°C)  
 Oxygen - 3.2 cm<sup>3</sup>/100 ml (25°C)  
 Hydrogen Sulfide - 437 cm<sup>3</sup>/100 ml (0°C)  
 Nitrogen - 2.3 cm<sup>3</sup>/100 ml (0°C)

\*N/A - Not Applicable

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**PHYSICAL HAZARD INFORMATION**

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PHYSICAL HAZARD - Compressed Gas, 500 PSIG at 70°F

CONDITIONS OR MATERIALS TO AVOID - None

FLASH POINT - N/A      LEL - N/A      UEL - N/A

EXTINGUISHING MEDIA - This gas mixture is not flammable

SPECIAL FIRE FIGHTING PROCEDURES - See next item

UNUSUAL FIRE AND EXPLOSION HAZARDS - Gas under pressure, 500 PSIG at 70°F. Do not exceed 120°F.

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**HEALTH HAZARDS**

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HEALTH HAZARDS - Methane is a simple asphyxiant (ACGIH 2010). Hydrogen sulfide LC<sub>50</sub>= 800 ppm/5 minutes. No effects known below 10 ppm.

SIGNS AND SYMPTOMS OF EXPOSURE - None known for 2.5% methane. H<sub>2</sub>S is an irritant of the eyes and respiratory tract.

PRIMARY ROUTES OF ENTRY - Inhalation, eyes

TARGET ORGANS - H<sub>2</sub>S is an irritant of the eyes and respiratory tract.

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE –

EXPOSURE LIMITS - TWA H<sub>2</sub>S is 1 ppm, STEL 5 ppm

CARCINOGENICITY DATA - NIOSH RTECS, OSHA, NTP or IARC does not list Component gases.

EMERGENCY AND FIRST AID PROCEDURES - Remove from exposure. Administer oxygen. Consult physician immediately.

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**SAFE HANDLING AND USE**

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HYGIENIC PRACTICES – Avoid breathing gas

PROTECTIVE MEASURES DURING REPAIR AND MAINTENANCE OF CONTAMINATED EQUIPMENT - N/A

PROCEDURES FOR SPILL OR LEAK CLEANUP - Ventilate area.

WASTE DISPOSAL - Do not puncture or incinerate cylinder. Before discarding cylinder, slowly release contents to a safe exhaust. Dispose of cylinder in accordance with local, state and federal regulations

STORAGE - Store in a cool, dry, well-ventilated area. Do not exceed 120°F.

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**CONTROL MEASURES**

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PERSONAL PROTECTIVE EQUIPMENT - Due to the limited amount of gas in the cylinder, and the low release rate employed in instrument calibration, respiratory protection is not indicated under conditions of intended use.

ENGINEERING CONTROLS - Mechanical ventilation is suitable.

WORK PRACTICES - Avoid breathing gas. Use in well-ventilated areas. Follow the calibration procedure detailed in the MSA instruction manual provided with the instrument under calibration.

DATE OF PREPARATION - Rev. 1, July 2010

WARNING: This is a hazardous chemical product. By following the directions and warnings provided with this product, the hazards associated with the use of this product can be greatly reduced but never entirely eliminated. Mine Safety Appliances Company makes no warranties, expressed or implied, with respect to this product and EXPRESSLY DISCLAIMS THE WARRANTY OF MERCHANTABILITY AND ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. Users assume all risks in handling, using or storing this product.