

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
1000 Cranberry Woods Drive
Cranberry Township, PA 16066
PHONE (724) 776-8900

This product contains carbon monoxide, methane, hydrogen sulfide, oxygen and nitrogen, substances subject to the Pennsylvania Worker and Community Right-To-Know Act.

PRODUCT IDENTITY

LABEL IDENTITY - MSA P/N 10150620 Calibration Check Gas, 60ppm carbon monoxide, 0.625% methane, 15% oxygen, 20 ppm hydrogen sulfide, nitrogen balance.

CHEMICAL NAME - Carbon monoxide, methane, oxygen, hydrogen sulfide, nitrogen mixture

ADDITIONAL IDENTITIES - MSA P/N 10150620 calibration gas

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

APPLICABLE CHEMICAL CONTENTS

	<u>%</u>	<u>TWA</u>	<u>STEL</u>
Carbon Monoxide (CAS 630-08-0) (ACGIH 2013)	0.006	25 ppm	none
Methane (CAS 74-82-8)(ACGIH 2011 as an asphyxiant)	0.625	1000 ppm	none
Oxygen (CAS 7782-44-7)	15	None	none
Hydrogen Sulfide (CAS 7783-06-4) (ACGIH 2013)	0.0020	1 ppm	5 ppm
Nitrogen (CAS 7727-37-9)	Balance	None	

NOTE: Gas Under Pressure, 1000 PSIG at 70°F, Approx. 116 Liters Gas at Atmospheric Pressure

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR - Colorless, Malodorous Gas (rotten egg)

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/ft³ (1.153 kg/ m³)

SOLUBILITY IN WATER -	Carbon Monoxide -	3.5 cm ³ /100 ml (0°C)
	Methane -	9 cm ³ /100 ml (20°C)
	Oxygen -	3.2 cm ³ /100 ml (25°C)
	Hydrogen Sulfide -	437 cm ³ /100 ml (0°C)
	Nitrogen -	2.3 cm ³ /100 ml (0°C)

* N/A - Not Applicable

PHYSICAL HAZARD INFORMATION

PHYSICAL HAZARD - Compressed gas, 1000 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, 1000 psig at 70°F. Do not exceed 120°F.

HEALTH HAZARDS

HEALTH HAZARDS -

Methane as an asphyxiant (ACGIH 2013).
Carbon monoxide TC_{LO} (Human) = 650 ppm/45 minutes; LC_{LO} (human) 10000 ppm/5 minutes.
Hydrogen sulfide LC_{LO} is 800 ppm/5 minutes. No effects known below 10 ppm.

SIGNS AND SYMPTOMS OF EXPOSURE –

Methane CNS impairment and cardiac sensitization.
Carbon monoxide; exposure to 500-1000 ppm may cause headache, rapid breathing, nausea, weakness, dizziness and confusion.
Hydrogen sulfide is an irritant of the eyes and respiratory tract.

PRIMARY ROUTES OF ENTRY - Inhalation, eyes**TARGET ORGANS –**

Methane CNS and heart.
Carbon monoxide: Lungs, Blood, and Tissues. Carbon monoxide at toxic concentrations causes tissue hypoxia (lack of oxygen) by preventing blood from transporting sufficient oxygen.
Hydrogen sulfide is an irritant of the eyes and respiratory tract.

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE –

Carbon monoxide burden may aggravate angina pectoris. Pregnant women are reportedly more sensitive than others.
Effects of carbon monoxide exposure are aggravated by heavy labor, heat stress and high altitude.

EXPOSURE LIMITS –

Carbon Monoxide 25 ppm (ACGIH 2013), OSHA (PEL) for carbon monoxide is 50 ppm.
Hydrogen sulfide (ACGIH 2013)TWA= 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. Seek medical assistance.**

SAFE HANDLING AND USE

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.

CONTROL MEASURES

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. 0, November 2013

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.