

MINE SAFETY APPLIANCES COMPANY
P.O. Box 426
Pittsburgh, PA 15230
PHONE (412) 967-3000

PRODUCT IDENTITY	
LABEL IDENTITY -	MSA P/N 10058021 Calibration Check Gas, 300 ppm Carbon Monoxide, 1.45% Methane 2.5%, Carbon dioxide, 15% Oxygen, Balance Nitrogen
CHEMICAL NAME -	Carbon Monoxide, Methane, Carbon Dioxide, Oxygen, Nitrogen Mixture
ADDITIONAL IDENTITIES -	MSA P/N 804770 Calibration Gas
FORMULA -	CO + CH ₄ + CO ₂ + O ₂ + N ₂

	<u>%</u>	<u>TWA</u>	<u>OSHA</u>
Carbon Monoxide (CAS 630-08-0) (NIOSH REL 2004)	0.03	35 ppm	PEL TWA 50ppm
Methane (CAS 74-82-8)	1.45	None*	
Carbon Dioxide (CAS 124-38-9)	2.5	5000 ppm	PEL 5000 ppm
Oxygen (CAS 7782-44-7)	15	None	
Nitrogen (CAS 7727-37-9)	Balance	None	
*Methane is a simple asphyxiant (ACGIH 2004)			

PHYSICAL AND CHEMICAL PROPERTIES	
APPEARANCE AND ODOR – Colorless, odorless gas	
BOILING POINT - N/A*	SPECIFIC GRAVITY (H ₂ O = 1) - N/A
VAPOR PRESSURE - N/A	PERCENT VOLATILE BY VOLUME - N/A
VAPOR DENSITY (AIR = 1) - Approx. 1	
SOLUBILITY IN WATER -	Carbon Monoxide -3.5 cm ³ /100 ml (0°C)
	Methane - 9 cm ³ /100 ml (20°C)
	Carbon dioxide slight
	Oxygen - 3.2 cm ³ /100 ml (25°C)
	Nitrogen - 2.3 cm ³ /100 ml (0°C)

PHYSICAL HAZARD INFORMATION

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

HEALTH HAZARDS

HEALTH HAZARDS – Methane: simple asphyxiant (ACGIH 2004). Carbon monoxide: TC_{LO} human is 650 ppm/45 minutes and the IDLH for carbon monoxide is 1200ppm. Carbon dioxide: simple asphyxiant with physiological effects at high concentrations, LC_{LO} (human) 9pph/5minutes, IDLH for Carbon dioxide is 40,000 ppm.

SIGNS AND SYMPTOMS OF EXPOSURE - None known for 1.45% methane. Exposure to 500-1000 ppm CO may cause headache, rapid breathing, nausea, weakness, dizziness and confusion. Carbon dioxide at concentrations 2-10% can cause dizziness, nausea, headache, mental confusion, increased blood pressure and respiratory rate.

PRIMARY ROUTES OF ENTRY – Inhalation

TARGET ORGANS – Carbon monoxide: Lungs, blood, tissues. Carbon monoxide at toxic concentrations causes tissue hypoxia (lack of oxygen) by preventing blood from transporting sufficient oxygen. Carbon dioxide: lungs, CNS and eyes.

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE - Carbon monoxide burden may aggravate angina pectoris. Pregnant women are reportedly more sensitive to carbon monoxide than others. Effects of carbon monoxide exposure are aggravated by heavy labor, heat stress and high altitude. Carbon dioxide may aggravate acute or chronic respiratory conditions. Over exposure to carbon dioxide may aggravate eye disorders and CNS conditions

EXPOSURE LIMITS - Carbon Monoxide 35 ppm (ACGIH 2004). OSHA PEL CO TWA 50 ppm.
Carbon dioxide (NIOSH REL) TWA 5000 ppm, OSHA PEL 5000 ppm

CARCINOGENICITY DATA - Component gases are not listed by NIOSH RTECS, OSHA, NTP or IARC.

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

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. 1, October 2004.

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.