

**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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**Cranberry Township, PA 16066**  
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This product contains carbon dioxide, methane 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 801044 Calibration Check Gas, 6600 ppm Carbon Dioxide + 2.5% Methane in Nitrogen

CHEMICAL NAME - Carbon Dioxide, Methane, Nitrogen mixture

ADDITIONAL IDENTITIES - MSA P/N 801044 Calibration Gas

FORMULA -  $\text{CO}_2 + \text{CH}_4 \text{ in } \text{N}_2$

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**APPLICABLE CHEMICAL CONTENTS**

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|   | <u>%</u> | <u>TWA</u> | <u>STEL</u> |
|---|----------|------------|-------------|
| Carbon Dioxide (CAS 124-38-9)(ACGIH 2013) | 0.66     | 5000 ppm   | 30,000 ppm  |
| Methane (CAS 74-82-8) (ACGIH 2013)        | 2.5      | NA*        |             |
| Nitrogen (CAS 7727-37-9)                  | Balance  | None**     |             |

\* Methane as an Asphyxiant

\*\*Nitrogen is an asphyxiants

NOTE: Gas Under Pressure, 1000 PSIG at 70°F, Approx. 100 Liters Gas at Atmospheric Pressure

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**PHYSICAL AND CHEMICAL PROPERTIES**

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APPEARANCE AND ODOR - Colorless, Odorless 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>)

SOLUBILITY IN WATER - Carbon Dioxide - 179 cm<sup>3</sup>/100 ml (0°C)  
Methane - 9 cm<sup>3</sup>/100 m. (20°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, 1000 PSIG at 70°F

CONDITIONS OR MATERIALS TO AVOID: Carbon dioxide reacts with caustic materials.

FLASH POINT - N/A

EXTINGUISHING MEDIA - This calibration gas mixture is not a flammable gas.

SPECIAL FIRE FIGHTING PROCEDURES - Use self-contained pressure demand type breathing apparatus with full facepiece.

UNUSUAL FIRE AND EXPLOSION HAZARDS - Gas under pressure, 1000 PSIG at 70°F. Do not exceed 120°F.

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**HEALTH HAZARDS**

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**HEALTH HAZARDS** - Carbon Dioxide, Methane and Nitrogen are asphyxiants. High concentrations of Carbon Dioxide also produce acute toxicological effects as follows:

|          |  |
|----------|--|
| 20-30% - | Unconsciousness and convulsions within one minute.   |
| 12% -    | Unconsciousness in 8-23 minutes.   |
| 10-15% - | Neurologic symptoms such as muscle twitches and eye flickering after 1.5 minutes.                              |
| 6-10% -  | Difficult breathing, headache, dizziness, sweating, restlessness, prickly skin sensations, general discomfort. |
| 5% -     | Sensation of increased respiration.  |
| 2% -     | Headache, difficulty breathing after several hours exposure.   |

Methane as an asphyxiant may cause CNS impairment and cardiac sensitization.

**SIGNS AND SYMPTOMS OF EXPOSURE** - Significant dilution of ambient air by asphyxiants causes air hunger, increased breathing frequency, drowsiness, weakness and ringing in ears.

**PRIMARY ROUTES OF ENTRY** - Inhalation

**TARGET ORGANS** - Lungs

**MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE** - Emphysema

**EXPOSURE LIMITS** - (ACGIH 2013) Methane as an asphyxiant; Carbon dioxide 5000 ppm; STEL 30,000.

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

**EMERGENCY AND FIRST AID PROCEDURES** - Remove from Exposure

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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. 8, September 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.