

This product contains isobutene, 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 494450 Calibration Check Gas, 100 ppm Isobutylene in Air  
CHEMICAL NAME - Isobutylene, Oxygen, Nitrogen Mixture  
ADDITIONAL IDENTITIES - MSA P/N 494450 Calibration Gas  
FORMULA - C<sub>4</sub>H<sub>8</sub> (Isobutylene), O<sub>2</sub>, N<sub>2</sub>

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**APPLICABLE CHEMICAL CONTENTS**

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	<u>ppm</u>	<u>TWA</u>
Isobutylene (CAS 115-11-7)	100	None
Oxygen (CAS 7782-44-7)	15	None
Nitrogen (CAS 7727-37-9)	Balance	None

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 Gas, Faint Odor  
BOILING POINT - N/A  
VAPOR PRESSURE - N/A  
VAPOR DENSITY (AIR = 1) - > 1  
SOLUBILITY IN WATER - Isobutylene - Insoluble  
Oxygen - 3.2 cm<sup>3</sup>/100 ml (25°C)  
Nitrogen - 2.3 cm<sup>3</sup>/100 ml (0°C)  
SPECIFIC GRAVITY (H<sub>2</sub>O = 1) - N/A  
PERCENT VOLATILE BY VOLUME - N/A

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 - None  
FLASH POINT - N/A  
LEL - N/A  
UEL - N/A  
EXTINGUISHING MEDIA - This calibration 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.

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**HEALTH HAZARDS**

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HEALTH HAZARDS - None Known for 100 ppm Isobutylene in Air.

SIGNS AND SYMPTOMS OF EXPOSURE - N/A to this gas mixture.

PRIMARY ROUTES OF ENTRY - Inhalation

TARGET ORGANS - No information. Isobutylene is an asphyxiant and a weak anesthetic.

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE - No information

EXPOSURE LIMITS - None .

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

EMERGENCY AND FIRST AID PROCEDURES - None

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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. 7, December 2006.

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.



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## HEALTH HAZARDS

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**HEALTH HAZARDS** –Carbon monoxide: TC<sub>LO</sub> (Human) is reportedly 650 ppm/45 minutes; LC<sub>LO</sub> (Human) 5000 ppm/5 minutes. Methane as an alkane: CNS depression and cardiac sensitization. Hydrogen sulfide: LC<sub>LO</sub> (inhalation human) 800 ppm/5 minutes. No effects known below 10 ppm.

**SIGNS AND SYMPTOMS OF EXPOSURE** –Carbon monoxide exposure to 500-1000 ppm may cause headache, rapid breathing, nausea, weakness, dizziness and confusion. Methane as an alkane 1000 ppm, CNS depression and cardiac sensitization (ACGIH 2005). Hydrogen sulfide is an irritant of the eyes and respiratory tract

**PRIMARY ROUTES OF ENTRY** - Inhalation, eyes

**TARGET ORGANS** –Carbon monoxide: Lungs, blood, and tissues. Carbon monoxide at toxic concentrations causes tissue hypoxia (lack of oxygen) by preventing blood from transporting sufficient oxygen. Methane: CNS and heart. 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 to CO than others. Effects of CO exposure are aggravated by heavy labor, heat stress and high altitude.

**EXPOSURE LIMITS** –Carbon monoxide 25 ppm (ACGIH 2005). Methane as an alkane TWA 1000 ppm (ACGIH 2005). Hydrogen Sulfide, TWA 10 ppm, STEL 15 ppm (ACGIH 2005).

**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, February 2006

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