

This product contains Nitric Oxide and Nitrogen, substances subject to the Pennsylvania Worker and Community Right-To-Know Act.

PRODUCT IDENTITY

LABEL IDENTITY - MSA P/N 812144 Calibration Check Gas, 50 ppm Nitric Oxide in Nitrogen

CHEMICAL NAME - Nitric Oxide, Nitrogen Mixture

ADDITIONAL IDENTITIES - MSA P/N 812144 Calibration Gas

FORMULA - NO in Nitrogen

APPLICABLE CHEMICAL CONTENTS

	<u>%</u>	<u>TWA</u>	
Nitric Oxide (CAS 10102-43-9) (ACGIH 2013)		0.0050	25 ppm
Nitrogen (CAS 7727-37-9)	Balance	None	

Note: Gas under pressure, 500 PSIG at 70°F, Approx. 58 Liters Gas at Atmospheric Pressure

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR - Colorless 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/ft³ (1.153 kg/ m³)

SOLUBILITY IN WATER - Nitric Oxide - 7.3 cm³/100 ml (0°C)
Nitrogen - 2.3 cm³/100 ml (0°C)

N/A*-Not Applicable

PHYSICAL HAZARD INFORMATION

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

CONDITIONS OR MATERIALS TO AVOID - None

FLASH POINT - Not Applicable 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, 500 PSIG at 70°F. Do not exceed 120°F.

HEALTH HAZARDS

INGESTION :

Ingestion unlikely.

INHALATION:

Effects of oxygen deficiency resulting from simple asphyxiates may include: rapid breathing, diminished mental alertness, impaired muscular coordination, faulty judgment, depression of all sensations, emotional instability, and fatigue. As asphyxiation progresses, nausea, vomiting, prostration, and loss of consciousness may result, eventually leading to convulsions, coma and death.

Nitric Oxide vapors are a strong irritant to the pulmonary tract. At high concentrations initial symptoms of inhalation may be moderate and include irritation to the throat, tightness of the chest, headache, nausea and gradual loss of strength. Severe symptoms may be delayed and include cyanosis, increased difficulty in breathing, irregular respiration, lassitude and possible eventual death due to pulmonary edema in untreated cases.

Note: This calibration cylinder (58 liters of 50 ppm Nitric oxide in nitrogen or approx. 3.5 milligram Nitric oxide) is insufficient to sustain a material volume above the TWA if accidentally released to ambient air. Content of one cylinder diluted by 23.7 cubic meter of ambient air (equivalent to a room size of 10 x 12 x7) would yield 0.1 ppm Nitric Oxide.

SIGNS AND SYMPTOMS OF EXPOSURE:

Overexposure to nitrogen oxides can cause cough, difficult breathing, fatigue, nausea, chest congestion, irritation of eyes and respiratory tract, pulmonary edema and delayed pulmonary edema, and possibly methemoglobinemia. The following effects are reportedly expected for a 60-minute exposure to nitrogen dioxide:

100 ppm - pulmonary edema and death

50 ppm - pulmonary edema and possible lesions in lungs. 50 ppm is reportedly moderately irritating to eyes and nose.

25 ppm - respiratory irritation and chest pain.

25 ppm - is reportedly irritating to some people.

PRIMARY ROUTES OF ENTRY - inhalation, eyes

TARGET ORGANS: lungs, eyes, blood

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Individuals with impaired pulmonary function may be at increased risk from exposure..

EXPOSURE LIMITS -: ACGIH 2013 TLV-TWA Nitric oxide 25 ppm.

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

MUTATION DATA - References in RTECS

REPRODUCTIVE EFFECTS DATA - References in RTECS

EMERGENCY AND FIRST AID PROCEDURES:

Overexposure to nitric oxide/nitrogen dioxide is not indicated with intended product use due to the limited quantity of nitric oxide contained in an individual cylinder of P/N 812144 (3.6 milligram nitric oxide). Nevertheless, first aid procedure for nitric oxide/nitrogen dioxide vapor is presented should overexposure somehow occur.

FIRST AID:

Remove the victim to fresh air. Apply artificial respiration if the victim is not breathing. Give oxygen if breathing is difficult. Get medical attention immediately, even if the victim is not complaining of discomfort. Immediate medical attention is advisable in all cases where appreciable inhalation of nitric oxide/nitrogen dioxide is believed to have occurred, as pulmonary edema may develop.

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. Avoid breathing gas

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. 7, 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.