

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 nitrogen dioxide, oxygen and nitrogen, substances subject to the Pennsylvania Worker and Community Right-to-Know Act.

PRODUCT IDENTITY

LABEL IDENTITY - MSA P/N 711084 Calibration Check Gas, 5 ppm Nitrogen Dioxide in Air

CHEMICAL NAME - Nitrogen Dioxide, Oxygen, Nitrogen Mixture

ADDITIONAL IDENTITIES - MSA P/N 711084 Calibration Gas

FORMULA - NO₂ in Air

APPLICABLE CHEMICAL CONTENTS

	<u>%</u>	<u>TWA</u>
Nitrogen Dioxide (CAS 10102-44-0)(ACGIH 2012)	0.0005	0.5 ppm
OSHA C= 5 ppm		
Air	Balance	None

NOTE: Gas under pressure, 500 PSIG at 70°F, Approx. 34 liters gas at atmospheric pressure.

PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR - Red gas at high concentrations but colorless at 5 ppm; acrid odor

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 - Nitrogen Dioxide -reacts
Oxygen - 3.2 cm³/100 ml (25°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 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

HEALTH HAZARDS - Gaseous Nitrogen Dioxide is a severe pulmonary irritant. Overexposure produces pulmonary edema which may occur within one or two hours and may re-occur with increased severity sometime later. The Immediately Dangerous to Life and Health (IDLH) concentration is 50 ppm.

Note: Nitrogen Dioxide is a highly toxic and irritating gas (Human LC_{LO} 200 ppm/1 minute) the small quantity available from a calibration cylinder (34 liters of 5 ppm Nitrogen Dioxide in air or approx. 0.32 milligram Nitrogen Dioxide) is sufficient to sustain a material volume above the TWA if accidentally released to ambient air. Content of one cylinder diluted by 1 cubic meter of ambient air would yield 0.17 ppm Nitrogen Dioxide which is greater than the TWA of 0.2 ppm.

SIGNS AND SYMPTOMS OF EXPOSURE - Irritation of respiratory tract and eyes, cough, frothy sputum. For a 60-minute exposure of 100 ppm pulmonary edema and death should be expected. For a 60-minute exposure of 50 ppm, Nitrogen Dioxide pulmonary edema and possible lesions in the lungs, as well as moderate irritation to the eyes and nose, should be expected. For a 60-minute exposure of 25 ppm, Nitrogen Dioxide respiratory irritation and chest pain should be expected.

PRIMARY ROUTES OF ENTRY - Inhalation, and eyes

TARGET ORGANS – Respiratory tract, and eyes.

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

EXPOSURE LIMITS – (ACGIH 2012) TLV-TWA Nitrogen Dioxide 0.2 ppm ; OSHA Ceiling 5 ppm; NIOSH 1 ppm/15 minutes recommended ceiling

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

MUTATION DATA - References in RTECS

REPRODUCTIVE EFFECTS DATA - References in RTECS

EMERGENCY AND FIRST AID PROCEDURES - Overexposure to Nitrogen Dioxide is not indicated with intended product use due to the limited quantity of NO₂ contained in an individual cylinder of P/N 711084 (0.32 milligram NO₂). Nevertheless, first aid procedure for 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. Administer 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 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.

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. 6, January 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.