

MATERIAL
SAFETY
DATA SHEET

PRODUCT NAME Nitric Oxide	CAS# 10102-43-9
TRADE NAME AND SYNONYMS Nitric Oxide, Nitrogen Oxide, Compressed	DOT I.D. NO. UN 1660
CHEMICAL NAME AND SYNONYMS Nitric Oxide	DOT HAZARD CLASS Division 2.3
ISSUE DATE AND REVISIONS Revised July 2007	FORMULA NO
	CHEMICAL FAMILY Inorganic Gas

HEALTH HAZARD DATA

EMERGENCY OVERVIEW
<p>Nitric Oxide is a colorless to reddish brown gas with suffocating odor. Poison gas. Corrosive. Oxidizer. Nitric Oxide is severely irritating to eyes and respiratory system. It is harmful if inhaled, respiratory tract irritation, skin irritation, blood damage. Containers may rupture or explode if exposed to heat. May ignite combustibles. May react on contact with water. May react on contact with air. Releases toxic, corrosive, flammable or explosive gases.</p>
SYMPTOMS OF EXPOSURE
<p><u>Inhalation:</u> It will cause irritation, nausea, vomiting, stomach pain, chest pain, difficulty breathing, headache, dizziness, bluish skin color and lung congestion. <u>Skin Contact:</u> Irritation (possible severe) <u>Eye Contact:</u> Irritation (possibly severe)</p>
TOXICOLOGICAL PROPERTIES
<p>Toxicity Data: 1068 ng/m³/4 hour(s) inhalation-rat LC50 Local effects: Irritant: inhalation, skin. Acute Toxicity Level: Toxic: inhalation Target Organs: blood Medical conditions aggravated by exposure: respiratory disorders</p>
RECOMMENDED FIRST AID TREATMENT
<p>PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO NITRIC OXIDE. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.</p> <p><u>Inhalation:</u> If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention. <u>Skin Contact:</u> Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse. <u>Eye Contact:</u> Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention. <u>Ingestion:</u> If a large amount is swallowed, get medical attention. <u>Antidote:</u> methylene blue, intravenous; ascorbic acid, intravenous.</p>

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

May ignite or explode on contact with combustible materials.
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PHYSICAL DATA

BOILING POINT -242°F (-152 °C)	FREEZING POINT -263°F (-164 °C)
VAPOR PRESSURE @ 70°F 26000 mmHg @ 20 °C	VAPOR DENSITY (AIR=1) 1.036
SOLUBILITY IN WATER Very slightly (7.3% @ 0 °C)	VISCOSITY 0.0188 cP @ 25 °C
EVAPORATION RATE N/A	SPECIFIC GRAVITY (AIR=1) N/A
APPEARANCE AND ODOR Colorless gas with suffocating odor	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used) N/A	AUTO IGNITION TEMPERATURE N/A	FLAMMABLE LIMITS % BY VOLUME LEL N/A UEL N/A
EXTINGUISHING MEDIA Water		ELECTRICAL CLASSIFICATION Nonhazardous
SPECIAL FIRE FIGHTING PROCEDURES Cut off the flow of gas which is supporting/accelerating fire if possible. Firefighters should wear respiratory protection and full turnout with additional chemical protective clothing as necessary to prevent exposure.		
UNUSUAL FIRE AND EXPLOSION HAZARDS Nitric oxide is nonflammable but will support and may vigorously accelerate combustion.		

REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID N/A
Unstable		
Stable	X	
INCOMPATIBILITY (Materials to avoid) Oxidizing agents, halides, hydrocarbons and oxygen. Reacts vigorously with fluorine, fluorine oxides and chlorine in the presence of moisture.		
HAZARDOUS DECOMPOSITION PRODUCTS Oxidizes in air to form nitrogen dioxide, which is extremely reactive and a strong oxidizer. Upon contact with moisture and oxygen, it produces nitrous and nitric acids.		
HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID N/A
May Occur		
Will Not Occur	X	

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify type) Positive pressure air line with full-face mask or self-contained breathing apparatus should be available for emergency use.	
VENTILATION See Local Exhaust	SPECIAL N/A
MECHANICAL (Gen.) N/A	OTHER N/A
LOCAL EXHAUST Local exhaust ventilation used in combination with partially or totally enclosed processes as necessary to control air contaminants to at or below acceptable exposure guidelines.	
PROTECTIVE GLOVES Any material	EYE PROTECTION Gas-tight safety goggles or glasses

OTHER PROTECTIVE EQUIPMENT

Safety shoes, safety shower and emergency eyewash station

Nitric Oxide

Page 3

SPILL OR LEAK PROCEDURES**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Stop leak if possible without personal risk. Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in container or container valve, contact HSG for special advice.

WASTE DISPOSAL METHOD

Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, with any valve outlet plugs or caps secured and valve protection cap in place to your supplier. For emergency disposal assistance, contact HSG for special advice.

SPECIAL PRECAUTIONS***SPECIAL LABELING INFORMATION**

DOT Shipping Name: Nitric Oxide, Compressed
 DOT Shipping Label: Poison Gas, Oxidizer, Corrosive

DOT Hazard Class: Division 2.3
 I.D. No.: UN 1660

SPECIAL HANDLING RECOMMENDATIONS

Use only in well-ventilated areas. Valve protection caps must remain in place unless container is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure reducing regulator when connecting cylinder to lower pressure (<3,000 psig) piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

Never carry a compressed gas cylinder or a container of a gas in cryogenic liquid form in an enclosed space such as a car trunk, van or station wagon. A leak can result in a fire, explosion, asphyxiation or a toxic exposure.

SPECIAL STORAGE RECOMMENDATIONS

Protect cylinders from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125°F. Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in - first out" inventory system to prevent full cylinders being stored for excessive periods of time.

OTHER RECOMMENDATIONS OR PRECAUTIONS

Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of a compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation of Law. Always secure cylinders in an upright position before transporting them. NEVER transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open flatbed or in open pick-up type vehicles.

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