



## SAFETY DATA SHEETS

M-22931/E-1

DATE: 21May2015

SUPPLIER ADDRESS: 1290 COMBERMERE STREET

TROY, MI 48083

EMERGENCY PHONE NUMBER: (248) 589-2950

### 1. CHEMICAL PRODUCT

PRODUCT NAME: NITRIC OXIDE IN NITROGEN

SYNONYMS: None

### 2. COMPOSITION, INFORMATION ON INGREDIENTS

Ingredient Name	Formula	CAS#	Concentration	Exposure Limits (PPM)			
				ACGIH TLV	OSHA PEL	MAC	Other STEL
NITRIC OXIDE	NO	10102-43-9	.05-25 PPM	25	25	25	NE
NITROGEN	N2	7727-37-9	BALANCE	S/A	S/A	S/A	S/A

Note: NE = NONE ESTABLISHED  
S/A = SIMPLE ASPHYXIANANT

### 3. HAZARD IDENTIFICATION

\*\*\* EMERGENCY OVERVIEW \*\*\*

High pressure gas.

Can cause rapid suffocation.

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation

ACUTE EFFECTS: Mixture can act as a simple asphyxiant by displacing air necessary for life. Symptoms include rapid respiration, muscular incoordination, fatigue, dizziness, nausea, vomiting, unconsciousness, and death.

CHRONIC EFFECTS: None known

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None known

OTHER EFFECTS OF OVEREXPOSURE: None

CARCINOGENICITY (US Only):

NTP - No

IARC MONOGRAPHS - No

OSHA REGULATED - No

### 4. FIRST AID MEASURES

INHALATION: Immediately remove victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.

EYE CONTACT: None

SKIN CONTACT: None

INGESTION: None

IN EVENT OF EXPOSURE, CONSULT A PHYSICIAN

NOTE TO PHYSICIAN: None

### 5. FIRE FIGHTING MEASURES

FLASH POINT: Nonflammable

AUTOIGNITION TEMPERATURE: N/AP

FLAMMABLE LIMITS: Nonflammable

LOWER:

UPPER:

EXTINGUISHING MEDIA: Use what is appropriate for surrounding fire.

SPECIAL FIRE FIGHTING INSTRUCTION AND

EQUIPMENT: Wear self-contained breathing apparatus and full protective clothing.

Keep fire exposed cylinders cool with water spray. If possible, stop the product flow.

HAZARDOUS COMBUSTION PRODUCTS: None

UNUSUAL FIRE AND EXPLOSION HAZARDS:

Cylinder rupture may occur under fire conditions.

### 6. ACCIDENTAL RELEASE MEASURES

CLEAN UP PROCEDURES: Evacuate and ventilate area. Remove leaking cylinder to exhaust hood or safe outdoor area. Shut off source if possible and remove source of heat.

SPECIALIZED EQUIPMENT: Leaks of nitric oxide are detectable by the formation of reddish-brown NO<sub>2</sub>.

### 7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING: Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

PRECAUTIONS TO BE TAKEN IN STORAGE:  
Store in well ventilated areas. Keep  
valve protection cap on cylinders when  
not in use.

## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide adequate general and local exhaust ventilation to avoid asphyxiation.

### PERSONAL PROTECTION

EYE/FACE PROTECTION: Safety glasses  
SKIN PROTECTION: None  
RESPIRATORY PROTECTION: In case of  
leakage, use self-contained breathing  
apparatus.  
OTHER PROTECTIVE EQUIPMENT: Safety shoes  
when handling cylinders.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless  
ODOR: Odorless  
PHYSICAL STATE: Gas  
VAPOR PRESSURE: N/Ap  
VAPOR DENSITY (AIR=1): 0.968  
BOILING POINT (C): N/Ap  
SOLUBILITY IN WATER: cm<sup>3</sup>/100cm<sup>3</sup> H<sub>2</sub>O  
1.485  
SPECIFIC GRAVITY (H<sub>2</sub>O=1): Gas  
EVAPORATION RATE: Gas  
ODOR THRESHOLD: None

## 10. STABILITY AND REACTIVITY

STABILITY: Stable under normal storage conditions.  
CONDITIONS TO AVOID: Storage in poorly  
ventilated areas. Storage near a heat  
source.  
MATERIALS TO AVOID: Nitrogen reacts with  
Li, Nd, and Ti at high temperatures.  
HAZARDOUS POLYMERIZATION: Will not  
occur.  
HAZARDOUS DECOMPOSITION: None

## 11. TOXICOLOGICAL INFORMATION

LETHAL CONCENTRATION (LC50): None Established  
LETHAL DOSE 50 (LD50): N/Ap  
TERATOGENICITY: N/Ap  
REPRODUCTIVE EFFECTS: N/Ap  
MUTAGENICITY: N/AP

## 12. ECOLOGICAL INFORMATION

No adverse ecological effects are expected.

## 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Dispose of non-refillable cylinders in accordance with federal, state and local regulations. Allow gas to vent slowly to atmosphere in an unconfined area or exhaust hood. If the cylinders are the refillable type, return cylinders to supplier with any valve outlet plugs or caps secured and valve protection caps in place.

## 14. TRANSPORT INFORMATION

CONCENTRATION: 1-25 ppm  
DOT DESCRIPTION (US ONLY):  
PROPER SHIPPING NAME: Compressed gases,  
n.o.s.  
HAZARD CLASS: 2.2 (nonflammable)  
IDENTIFICATION NUMBER: UN1956  
REPORTABLE QUANTITIES: (NO) 10 lbs.  
LABELING: NONFLAMMABLE GAS  
ADR/RID (EU Only): Class 2, 1A  
SPECIAL PRECAUTIONS: Cylinders should be  
transported in a secure upright position  
in a well ventilated truck.

## 15. REGULATORY INFORMATION

OSHA: Process Safety Management: Minor component is listed in appendix A 29 CFR 1910.119 as a highly hazardous chemical.  
TSCA: Mixture is not listed in TSCA inventory.  
SARA: The threshold planning quantity for this mixture is 10,000 lbs.  
EU NUMBER: N/Ap  
NUMBER IN ANNEX 1 OF DIR 67/548: Mixture

is not listed in annex 1.  
EU CLASSIFICATION: N/Av  
R: 20  
S: 9

#### 16. OTHER INFORMATION

OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Cylinders should be refilled by qualified producers of compressed gas. Shipment of a compressed gas cylinder which has not been filled by the owner or with his written consent is a violation of federal law (49 CFR).

ABBREVIATIONS:

N/Av - Not Applicable  
N/Av - Not Available  
SA - Simple Asphyxiant  
NE - None Established

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