



**Focus Medical Gases**  
Machines to Molecules

DATE: 29Apr2011

SUPPLIER ADDRESS: Air Liquide  
6141 EASTON RD  
PO BOX 310  
PLUMSTEADVILLE, PA 18949-0310

EMERGENCY PHONE NUMBER: (215) 766-8860

1. CHEMICAL PRODUCT

PRODUCT NAME: NITROUS OXIDE

SYNONYMS: Dinitrogen

Monoxide, Laughing

Gas

2. COMPOSITION, INFORMATION ON

INGREDIENTS

					Exposure	
					ACGIH	
Limits (PPM)					TLV	
OSHA	Other			Concentration		
Ingredient Name	Ingredient Name	Formula	CAS#			
MAC	STEL					
NITROUS OXIDE		N2O	10024-97-2	99+%	50	NE
NE	NE					

Note: NE - NONE ESTABLISHED

3. HAZARD IDENTIFICATION

\*\*\* EMERGENCY OVERVIEW \*\*\*  
High pressure oxidizing liquid and gas.  
Vigorously accelerates combustion.  
Can cause rapid suffocation.  
Can cause anesthetic effects.  
May cause frostbite.

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation

ACUTE EFFECTS: Material acts as a simple asphyxiant by displacing air necessary for life. Symptoms include rapid respiration, muscular incoordination, fatigue, dizziness, nausea, vomiting, unconsciousness, and death. Inhalation of small amounts of nitrous oxide may produce feelings of euphoria which may disguise

sleepiness or loss of coordination associated with lack of oxygen.  
Pressure drop  
through valves and piping may cause extreme cold and frostbite on  
contact. May  
cause anesthetic effects.  
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

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#### 4. FIRST AID MEASURES

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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: If frostbite occurs, flush  
affected areas with lukewarm water.  
INGESTION: None  
IN EVENT OF EXPOSURE, CONSULT A PHYSICIAN  
NOTE TO PHYSICIAN: None

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#### 5. FIRE FIGHTING MEASURES

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FLASH POINT: Nonflammable  
AUTOIGNITION TEMPERATURE: N/Av  
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:  
Supports combustion of other materials,  
particularly when heated. Cylinder  
rupture may occur under fire conditions.

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#### 6. ACCIDENTAL RELEASE MEASURES

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CLEAN UP PROCEDURES: Evacuate and ventilate area. Allow controlled release into

a well ventilated area. Shut off source if possible and remove source of heat.

SPECIALIZED EQUIPMENT: None

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## 7. HANDLING AND STORAGE

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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. Store in well ventilated areas away from combustibles. Keep valve protection cap on cylinders when not in use. Keep nitrous oxide cylinders locked up when not in use. Limit access to the nitrous oxide to those people that work with it regularly.

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## 8. EXPOSURE CONTROLS/ PERSONAL

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PROTECTION

ENGINEERING CONTROLS: Provide adequate general and local exhaust ventilation to

maintain concentrations below exposure limits and to avoid asphyxiation.

PERSONAL PROTECTION

EYE/FACE PROTECTION: Safety glasses

SKIN PROTECTION: Protective gloves to prevent contact with cold equipment.

RESPIRATORY PROTECTION: In case of leakage, use self-contained breathing apparatus.

OTHER PROTECTIVE EQUIPMENT: Safety shoes when handling cylinders.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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APPEARANCE: Colorless

ODOR: Slightly sweetish taste and odor.

PHYSICAL STATE: Gas

VAPOR PRESSURE: 51.69 atm

VAPOR DENSITY (AIR=1): @25C: 1.530

BOILING POINT (C): -88.6

SOLUBILITY IN WATER: v/v @0C: 1.3

SPECIFIC GRAVITY (H2O=1): Gas

EVAPORATION RATE: N/Av  
ODOR THRESHOLD: N/Av

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#### 10. STABILITY AND REACTIVITY

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STABILITY: Stable under normal storage conditions.

CONDITIONS TO AVOID: Storage in poorly ventilated areas. Storage near a heat source. Combustibles especially oils and greases.

MATERIALS TO AVOID: LiH and hydrazine spontaneously ignite in material. Forms explosive mixes with NH<sub>3</sub>, CO, H<sub>2</sub>S, PH<sub>3</sub>, and silane. Avoid contact with combustible materials or reducing agents. Powdered aluminum amorphous boron and sodium vapor will burn in material.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION: Nitrous oxide explosively decomposes at elevated temperatures (above 1200 deg. F, 650 deg. C) into nitrogen and oxygen. Decomposition will occur at lower temperatures in the presence of catalytic surfaces containing silver, copper and nickel oxides.

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#### 11. TOXICOLOGICAL INFORMATION

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LETHAL CONCENTRATION (LC50): None established

LETHAL DOSE 50 (LD50): N/Av

TERATOGENICITY: N/Av

REPRODUCTIVE EFFECTS: N/Av

MUTAGENICITY: N/Av

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#### 12. ECOLOGICAL INFORMATION

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No adverse ecological effects are expected.

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#### 13. DISPOSAL CONSIDERATIONS

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WASTE DISPOSAL METHOD: Non-returnable cylinders must not be refilled. 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. Return cylinders to supplier with any valve outlet plugs or caps secured and valve protection cap in place.

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#### 14. TRANSPORT INFORMATION

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CONCENTRATION: 99+%

DOT DESCRIPTION (US ONLY):  
PROPER SHIPPING NAME: Nitrous oxide  
HAZARD CLASS: 2.2 (nonflammable)  
IDENTIFICATION NUMBER: UN1070  
REPORTABLE QUANTITIES: N/Ap  
LABELING: NONFLAMMABLE GAS, OXIDIZER  
ADR/RID (EU Only): Class 2, 2 O  
SPECIAL PRECAUTIONS: Cylinders should be transported in a secure upright position in a well ventilated truck.

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#### 15. REGULATORY INFORMATION

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OSHA: Process Safety Management: Materials are not listed in appendix A of 29 CFR 1910.119 as highly hazardous chemicals.

TSCA: Material is listed in TSCA inventory.

SARA: The threshold planning quantity for material is 10,000 lbs.

EU NUMBER: 233-032-0

NUMBER IN ANNEX 1 OF DIR 67/548: Not listed in annex 1.

EU CLASSIFICATION: N/Av

R: 8A, As

S: 9, 17A

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#### 16. OTHER INFORMATION

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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/Ap - Not Applicable

N/Av - Not Available

SA - Simple Asphyxiant

NE - None Established

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