



Material Safety Data Sheets

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1. CHEMICAL PRODUCT

PRODUCT NAME: **NITROGEN DIOXIDE IN AIR** SYNONYMS: **None**

2. COMPOSITION, INFORMATION ON INGREDIENTS

<u>Ingredient Name</u>	<u>Formula</u>	<u>CAS #</u>	<u>Concentration</u>	<u>Exposure Limits (PPM)</u>			
				<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>MAC</u>	<u>Other STEL</u>
NITROGEN DIOXIDE	NO2	10102-44-0	2.001-23000 PPM	3	5	2	5
AIR	O2/N2	132259-10-0	BALANCE	NE	NE	NE	NE

Note: NE = NONE ESTABLISHED

S/A = SIMPLE ASPHYXIANT

3. HAZARD IDENTIFICATION

* * * EMERGENCY OVERVIEW * * *

Corrosive high pressure gas.
May accelerate combustion.
May be fatal if inhaled.
Can cause severe lung damage.
Can cause eye and skin burns.
Symptoms may be delayed.

POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: **Inhalation**

ACUTE EFFECTS: Inhalation will cause constriction of the throat and bronchi and edema of the lungs. Arterial dilation, fallen blood pressure, headache, dizziness, and possible formation of methemoglobin, irritation of nose and throat, coughing, burning in throat and chest. Nitrogen dioxide may produce malaise, dyspnea and nausea.

CHRONIC EFFECTS: Nitrogen dioxide at 5-50 ppm can cause a slowly evolving pulmonary edema with respiratory tract irritation, cough, headache, weakness, and corrosion of teeth.

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 is difficult, give oxygen.If breathing has stopped, give artificial respiration.

EYE CONTACT: None

SKIN CONTACT: None

INGESTION: None

IN EVENT OF EXPOSURE, CONSULT A PHYSICIAN

NOTE TO PHYSICIAN: Victim should be retained for observation.

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.Compressed air at high pressure will accelerate the combustion of flammable materials.Oxidizer that accelerates the combustion of other materials.

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: [None](#)

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 maintain concentration below exposure limits.](#)

EYE / FACE PROTECTION: [Safety glasses](#)

SKIN PROTECTION: [None](#)

RESPIRATORY PROTECTION: [Use a self-contained breathing apparatus in case of emergency or non-routine use.](#)

OTHER PROTECTIVE EQUIPMENT: [Safety shoes when handling cylinders.](#)

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: [Colorless](#)

ODOR: [Pungent](#)

PHYSICAL PRESSURE: [Gas](#)

VAPOR PRESSURE: [N/Ap](#)

VAPOR DENSITY (AIR=1): [1.00-1.074](#)

BOILING POINT (C): [Gas](#)

SOLUBILITY IN WATER: [Decomposes to form nitric acid and nitric oxide.](#)

SPECIFIC GRAVITY (H2O=1): [Gas](#)

EVAPORATION RATE: [Gas](#)

ODOR THRESHOLD: [0.058-0.4 ppm](#)

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal storage conditions.

CONDITIONS TO AVOID: Storage in poorly ventilated areas.Storage near a heat source.Avoid contact with incompatible chemicals.

MATERIALS TO AVOID: Flammable and combustible materials, especially greases and oils.Reacts with hydrocarbons, organic dust, cyclohexane, fluorine, formaldehyde, alcohol's, nitrobenzene, petroleum, and toluene.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION: None

11. TOXICOLOGICAL INFORMATION

LETHAL CONCENTRATION (LC50): 115 ppm, Rat 1 hour. (nitrogen dioxide)

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: 2.001-23,000 ppm

DOT DESCRIPTION (US ONLY):

PROPER SHIPPING NAME: Compressed gases, n.o.s.
HAZARD CLASS: 2.2 (nonflammable)
IDENTIFICATION NUMBER: UN1956
REPORTABLE QUANTITIES: None
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: Materials are listed in TSCA inventory.

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

EU NUMBER: N/Av

NUMBER IN ANNEX 1 OF DIR 67/548: Mixture is not listed in annex 1.

EU CLASSIFICATION: N/Av

R: 26-37

S: 7/9-26-45

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

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