

Section 1: Product and Company Identification

Absolute Accuracy
4591 S Wayside Dr
Houston, TX 77087
(832) 571-2387

Product Code: 300

Synonyms: N/A

Recommended Use: CALIBRATION GAS

Usage Restrictions: INDUSTRIAL CALIBRATION GAS ONLY

Section 2: Hazards Identification



Warning

Hazard Classification:

Gases Under Pressure

Hazard Statements:

Contains gas under pressure; may explode if heated

Precautionary Statements

Storage:

Protect from sunlight.

Store in well-ventilated place.

Section 3: Composition/Information on Ingredients

| | CAS # | Concentration |
|---------------------|--------------|----------------------|
| Nitric Oxide | 10102-43-9 | 100 PPM |
| Nitrogen | 7727-37-9 | balance |

| | Chemical Substance | Chemical Family | Trade Names |
|---------------------|--------------------------|-----------------|---|
| Nitric Oxide | NITRIC OXIDE | Inorganic gases | NITROGEN OXIDE (NO); NITRIC OXIDE (NO); NITRIC OXIDE TRIMER; NITROGEN MONOXIDE; NITROGEN MONOOXIDE; NITROGEN OXIDE (N4O4); NITROSYL RADICAL; RCRA P076; STCC 4920330; UN 1660; NO |
| Nitrogen | NITROGEN, COMPRESSED GAS | Inorganic gases | DIATOMIC NITROGEN; DINITROGEN; NITROGEN; NITROGEN-14; NITROGEN GAS; UN 1066; N2 |

Section 4: First Aid Measures

| | Skin Contact | Eye Contact | Ingestion | Inhalation | Note to Physicians |
|---------------------|--|--|--|--|----------------------------------|
| Nitric Oxide | 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. | Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention. | If a large amount is swallowed, get medical attention. | If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention. | None |
| Nitrogen | Wash exposed skin with soap and water. | Flush eyes with plenty of water. | If a large amount is swallowed, get medical attention. | If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention. | For inhalation, consider oxygen. |

Section 5: Fire Fighting Measures

| | Suitable Extinguishing Media | Products of Combustion | Protection of Firefighters |
|---------------------|---|------------------------|--|
| Nitric Oxide | Water Do not use dry chemicals, carbon dioxide or halogenated extinguishing agents. Large fires: Flood with fine water spray. | Nitrogen oxides | <ul style="list-style-type: none"> Any self-contained breathing apparatus with a full facepiece. Any self-contained breathing apparatus with a full facepiece. |
| Nitrogen | Non-flammable. Use suitable extinguishing media for surrounding fire. Cylinders may rupture or explode if exposed to heat. | Non-flammable | <ul style="list-style-type: none"> Respiratory protection may be needed for frequent or heavy exposure. |

Section 6: Accidental Release Measures

| | Personal Precautions | Environmental Precautions | Methods for Containment |
|---------------------|--|---|--|
| Nitric Oxide | Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Avoid contact with combustible materials. | Avoid contamination of water, soil, drains, and sewers. | Stop leak if possible without personal risk. |

| | Personal Precautions | Environmental Precautions | Methods for Containment |
|-----------------|--|---|--|
| Nitrogen | Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. | No significant effects from contamination expected. | Stop leak if possible without personal risk. |

| | Methods for Cleanup | Other Information |
|---------------------|------------------------------|---|
| Nitric Oxide | Contact emergency personnel. | Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA). |
| Nitrogen | N/A | N/A |

Section 7: Handling and Storage

| | Handling | Storage |
|---------------------|---|--|
| Nitric Oxide | Store and handle in accordance with all current regulations and standards. NFPA 430 Code for the Storage of Liquid and Solid Oxidizing Materials. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). | Keep separated from incompatible substances. |
| Nitrogen | Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. | Keep separated from incompatible substances. |

Section 8: Exposure Controls/Personal Protection

| | Exposure Guidelines |
|---------------------|--|
| Nitric Oxide | NITRIC OXIDE: 25 ppm (30 mg/m ³) OSHA TWA 25 ppm ACGIH TWA 25 ppm (30 mg/m ³) NIOSH recommended TWA 10 hour(s) |
| Nitrogen | NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant) |

Engineering Controls

Handle only in fully enclosed systems.

| | Eye Protection | Skin Protection | Respiratory Protection |
|---------------------|--|---|--|
| Nitric Oxide | Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. | Wear appropriate chemical resistant clothing. | Any self-contained breathing apparatus with a full facepiece. |
| Nitrogen | Eye protection not required, but recommended. | Protective clothing is not required. | Respiratory protection may be needed for frequent or heavy exposure. |

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

| | Physical State | Appearance | Color | Change in Appearance | Physical Form | Odor | Taste |
|---------------------|----------------|------------|-----------|----------------------|---------------|---------------|-----------|
| Nitric Oxide | Gas | Clear | Colorless | N/A | Gas | Not available | N/A |
| Nitrogen | Gas | Clear | Colorless | N/A | Gas | Odorless | Tasteless |

| | Flash Point | Flammability | Partition Coefficient | Autoignition Temperature | Upper Explosive Limits | Lower Explosive Limits |
|---------------------|----------------|---------------|-----------------------|--------------------------|------------------------|------------------------|
| Nitric Oxide | Not applicable | Not available | Not available | Nonflammable | Nonflammable | Nonflammable |
| Nitrogen | Not flammable | Not available | Not available | Nonflammable | Nonflammable | Nonflammable |

| | Boiling Point | Freezing Point | Vapor Pressure | Vapor Density | Specific Gravity | Water Solubility | pH | Odor Threshold | Evaporation Rate | Viscosity |
|---------------------|-----------------|-----------------|-------------------|---------------|------------------|------------------|----------------|----------------|------------------|-------------------|
| Nitric Oxide | -242 F (-152 C) | -263 F (-164 C) | 26000 mmHg @ 20 C | 1.036 (Air=1) | Not applicable | 7.3% @ 0 C | Not applicable | 0.3-1.0 ppm | Not applicable | 0.0188 cP @ 25 C |
| Nitrogen | -321 F (-196 C) | -346 F (-210 C) | 760 mmHg @ -196 C | 0.967 (Air=1) | Not applicable | 1.6% @ 20 C | Not applicable | Not available | Not applicable | 0.01787 cP @ 27 C |

| | Molecular Weight | Molecular Formula | Density | Weight per Gallon | Volatility by Volume | Volatility | Solvent Solubility |
|---------------------|------------------|-------------------|------------|-------------------|----------------------|----------------|--|
| Nitric Oxide | 30.01 | N-O | 1.3402 g/L | Not available | Not available | Not applicable | Soluble: Sulfuric acid, alcohol, ferrous sulfate solutions, carbon disulfide |
| Nitrogen | 28.0134 | N ₂ | 1.2506 g/L | Not available | 100% | 1 | Soluble: Liquid ammonia |

Section 10: Stability and Reactivity

| | Stability | Conditions to Avoid | Incompatible Materials |
|---------------------|--|--|--|
| Nitric Oxide | May react on contact with air. May react on contact with water. Releases toxic, corrosive, flammable or explosive gases. May explode during distillation or evaporation. | May react on contact with air. May react on contact with water. Releases toxic, corrosive, flammable or explosive gases. May explode during distillation or evaporation. | Metals, bases, metal oxides, reducing agents, combustible materials, halo carbons, oxidizing materials, halogens, metal carbide, metal salts |
| Nitrogen | Stable at normal temperatures and pressure. | Stable at normal temperatures and pressure. | Metals, oxidizing materials |

| | Hazardous Decomposition Products | Possibility of Hazardous Reactions |
|---------------------|----------------------------------|------------------------------------|
| Nitric Oxide | Oxides of nitrogen | Will not polymerize. |
| Nitrogen | Oxides of nitrogen | Will not polymerize. |

Section 11: Toxicology Information

Acute Effects

| | Oral LD50 | Dermal LD50 | Inhalation |
|---------------------|---|---------------|---|
| Nitric Oxide | LC50 Inhalation Gas. Rat 1068 mg/m ³ 4 hours | Not available | Irritation, nausea, vomiting, stomach pain, chest pain, difficulty breathing, headache, dizziness, bluish skin color, lung congestion |

| | Oral LD50 | Dermal LD50 | Inhalation |
|-----------------|------------------|--------------------|--|
| Nitrogen | Not available | Not available | Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma |

| | Eye Irritation | Skin Irritation | Sensitization |
|---------------------|---|---|---|
| Nitric Oxide | Irritation (possibly severe) | Irritation (possibly severe) | Acute toxicity, Category 1, inhalation; H330: Fatal if inhaled. Skin corrosion, Category 1B; H314: Causes severe skin burns and eye damage. |
| Nitrogen | Contact with rapidly expanding gas may cause burns or frostbite | No information on significant adverse effects | Difficulty breathing |

Chronic Effects

| | Carcinogenicity | Mutagenicity | Reproductive Effects | Developmental Effects |
|---------------------|------------------------|---------------------|-----------------------------|------------------------------|
| Nitric Oxide | Not available | Available. | Not available | No data |
| Nitrogen | Not hazardous | Not available | Not available | No data |

Section 12: Ecological Information

Fate and Transport

| | Eco toxicity | Persistence / Degradability | Bioaccumulation / Accumulation | Mobility in Environment |
|---------------------|---|------------------------------------|---------------------------------------|---|
| Nitric Oxide | Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available | Readily biodegrades | Not available | Not expected to leach through the soil or the sediment. |
| Nitrogen | Fish toxicity: Not available Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available | Not available | Not available | Not available |

Section 13: Disposal Considerations

| | |
|---------------------|---|
| Nitric Oxide | Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D001. D003. Dispose in accordance with all applicable regulations. |
| Nitrogen | Dispose in accordance with all applicable regulations. |

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

DOT Information For This Mixture

| | |
|----------------------|---|
| Shipping Name | Compressed gas, n.o.s. (Nitrogen, Nitric Oxide) |
| UN Number | UN1956 |

| | |
|---------------------------|-------------------|
| Hazard Class | 2.2 |
| Hazard Information | Non-Flammable Gas |

Individual Component Information

| | Proper Shipping Name | ID Number | Hazard Class or Division | Packing Group | Labeling Requirements | Passenger Aircraft or Railcar Quantity Limitations | Cargo Aircraft Only Quantity Limitations | Additional Shipping Description |
|---------------------|-----------------------------|------------------|---------------------------------|----------------------|------------------------------|---|---|--|
| Nitric Oxide | Nitric oxide, compressed | UN1660 | 2.3 | Not applicable | 2.3; 5.1; 8 | Forbidden | Forbidden | Toxic-Inhalation Hazard Zone A |
| Nitrogen | Nitrogen, compressed | UN1066 | 2.2 | Not applicable | 2.2 | 75 kg or L | 150 kg | N/A |

Canadian Transportation of Dangerous Goods

| | Shipping Name | UN Number | Class | Packing Group / Risk Group |
|---------------------|--------------------------|------------------|--------------|-----------------------------------|
| Nitric Oxide | Nitric oxide, compressed | UN1660 | 2.3; 5.1; 8 | Not applicable |
| Nitrogen | Nitrogen, compressed | UN1066 | 2.2 | Not applicable |

Section 15: Regulatory Information

U.S. Regulations

| | CERCLA Sections | SARA 355.30 | SARA 355.40 |
|---------------------|------------------------|--------------------|--------------------|
| Nitric Oxide | 10 LBS RQ | 100 LBS TPQ | 10 LBS RQ |
| Nitrogen | Not regulated. | Not regulated. | Not regulated. |

SARA 370.21

| | Acute | Chronic | Fire | Reactive | Sudden Release |
|---------------------|--------------|----------------|-------------|-----------------|-----------------------|
| Nitric Oxide | Yes | No | No | No | Yes |
| Nitrogen | Yes | No | No | No | Yes |

SARA 372.65

| | |
|---------------------|----------------|
| Nitric Oxide | Not regulated. |
| Nitrogen | Not regulated. |

OSHA Process Safety

| | |
|---------------------|----------------|
| Nitric Oxide | 250 LBS TQ |
| Nitrogen | Not regulated. |

State Regulations

| | CA Proposition 65 |
|---------------------|--------------------------|
| Nitric Oxide | Not regulated. |
| Nitrogen | Not regulated. |

Canadian Regulations

| | WHMIS Classification |
|---------------------|-----------------------------|
| Nitric Oxide | ACD1 |
| Nitrogen | A |

National Inventory Status

| | US Inventory (TSCA) | TSCA 12b Export Notification | Canada Inventory (DSL/NDSL) |
|---------------------|----------------------------|-------------------------------------|------------------------------------|
| Nitric Oxide | Listed on inventory. | Not listed. | Not determined. |
| Nitrogen | Listed on inventory. | Not listed. | Listed on inventory. |

Section 16: Other Information

| | NFPA Rating |
|---------------------|---|
| Nitric Oxide | HEALTH=4 FIRE=0 REACTIVITY=1 SPECIAL=OX |
| Nitrogen | HEALTH=0 FIRE=0 REACTIVITY=0 SPECIAL=SA |

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard