

Section 1: Product and Company Identification

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

Product Code: 1411

Synonyms: N/A
Recommended Use: CALIBRATION GAS
Usage Restrictions: INDUSTRIAL CALIBRATION GASES

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
Nitrous Oxide	10024-97-2	15 PPM
Nitrogen	7727-37-9	BALANCE

	Chemical Substance	Chemical Family	Trade Names
Nitrous Oxide	NITROUS OXIDE	Inorganic gases	DINITROGEN MONOXIDE; FACTITIOUS AIR; LAUGHING GAS; HYPONITROUS ACID ANHYDRIDE; NITROGEN (I) OXIDE; NITROGEN OXIDE; STCC 4904340; UN 1070; NITROGEN OXIDE (N2O); DINITROGEN OXIDE; NITROUS OXIDE, COMPRESSED; N2O
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
Nitrous Oxide	If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	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.
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
Nitrous Oxide	Non-flammable. Use suitable extinguishing media for surrounding fire.	Non-flammable	<ul style="list-style-type: none"> Non-flammable
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
Nitrous Oxide	Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Avoid contact with combustible materials.	No adverse effects expected.	Stop leak if possible without personal risk.
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
Nitrous Oxide	Stop leak, evacuate and ventilate area.	None
Nitrogen	N/A	N/A

Section 7: Handling and Storage

	Handling	Storage
Nitrous Oxide	Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.105.	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
Nitrous Oxide	NITROUS OXIDE: 50 ppm ACGIH TWA 25 ppm (46 mg/m ³) NIOSH recommended TWA (halogenated anesthetic gas)
Nitrogen	NITROGEN, COMPRESSED GAS: NITROGEN: ACGIH (simple asphyxiant)

Engineering Controls

Handle only in fully enclosed systems.

	Eye Protection	Skin Protection	Respiratory Protection
Nitrous Oxide	For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.	Non-flammable
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
Nitrous Oxide	Gas	Clear	Colorless	N/A	Gas	Sweet odor	Sweet taste
Nitrogen	Gas	Clear	Colorless	N/A	Gas	Odorless	Tasteless

	Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Nitrous Oxide	Not flammable	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
Nitrous Oxide	-128 F (-89 C)	-132 F (-91 C)	760 mmHg @ -88 C	1.53 (Air=1)	Not applicable	59% @ 25 C	Not applicable	Not available	Not applicable	0.0145 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
Nitrous Oxide	44.01	N ₂ O	1.8122 g/L @ 25 C	Not available	Not applicable	Not applicable	Soluble: Sulfuric acid, alcohol, alkali solutions, ether, oils
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
Nitrous Oxide	Stable at normal temperatures and pressure. Decomposes to nitrogen and oxygen at high temperatures	Stable at normal temperatures and pressure. Decomposes to nitrogen and oxygen at high temperatures	Combustible materials, metals, bases, reducing agents, peroxides, metal salts, metal oxides, hydrogen
Nitrogen	Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Metals, oxidizing materials

	Hazardous Decomposition Products	Possibility of Hazardous Reactions
Nitrous 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
Nitrous Oxide	Not available	Not available	Nausea, vomiting, symptoms of drunkenness, hyperactivity or drowsiness, hearing loss, suffocation, death
Nitrogen	Not available	Not available	Nausea, vomiting, difficulty breathing, headache, drowsiness, dizziness, tingling sensation, loss of coordination, convulsions, coma

	Eye Irritation	Skin Irritation	Sensitization
Nitrous Oxide	Liquid: frostbite, blurred vision	Liquid: blisters, frostbite	Potentially fatal if inhaled, central nervous system depression, difficulty breathing TERATOGEN/EMBRYOTOXIN - can harm the unborn child, based on human information.
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
Nitrous Oxide	IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3 (Anesthetics, volatile); ACGIH: A4 - Not Classifiable as a Human Carcinogen	Available.	Available.	No data

	Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
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
Nitrous Oxide	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
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

Nitrous Oxide	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, Nitrous 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
Nitrous Oxide	Nitrous oxide	UN1070	2.2	Not applicable	2.2; 5.1	N/A	N/A	N/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
Nitrous Oxide	Nitrous oxide	UN1070	2.2; 5.1	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
Nitrous Oxide	Not regulated.	Not regulated.	Not regulated.
Nitrogen	Not regulated.	Not regulated.	Not regulated.

SARA 370.21

	Acute	Chronic	Fire	Reactive	Sudden Release
Nitrous Oxide	Yes	No	No	No	Yes
Nitrogen	Yes	No	No	No	Yes

SARA 372.65

Nitrous Oxide	Not regulated.
Nitrogen	Not regulated.

OSHA Process Safety

Nitrous Oxide	Not regulated.
Nitrogen	Not regulated.

State Regulations

	CA Proposition 65
Nitrous Oxide	WARNING: This product can expose you to chemicals including Nitrous Oxide which is known to the State of California to cause cancer. For more information go to

	www.P65Warnings.ca.gov.
Nitrogen	Not regulated.

Canadian Regulations

	WHMIS Classification
Nitrous Oxide	A,C
Nitrogen	A

National Inventory Status

	US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDL)
Nitrous Oxide	Listed on inventory.	Not listed.	Not determined.
Nitrogen	Listed on inventory.	Not listed.	Listed on inventory.

Section 16: Other Information

	NFPA Rating
Nitrous Oxide	HEALTH=3 FIRE=0 REACTIVITY=0 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