Safety Data Sheet

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product identifier

Product Name • **Nitric Oxide**

Synonyms • Nitrogen monoxide; Nitrogen oxide

CAS Number • 10102-43-9

Product Code • 20132; 80003; MSDS No: 10102-43-9/E-5

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified use(s) • Calibration Gas

1.3 Details of the supplier of the safety data sheet

Manufacturer • Air Liquide

2700 Post Oak Blvd.
Houston, TX 77056
United States
www.us.airliquide.com
sds@airliquide.com

Telephone (Technical) • 713-896-2896

Telephone (Technical) • 800-819-1704

1.4 Emergency telephone number

Manufacturer • 800-424-9300 - CHEMTREC

Manufacturer • +1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to EU Directive 1272/2008 (CLP)/REACH 1907/2006 [amended by 453/2010]
According to EU Directive 67/548/EEC (DSD) or 1999/45/EC (DPD)

2.1 Classification of the substance or mixture

CLP • Oxidizing Gases 1 - H270
Compressed Gas - H280
Skin Corrosion 1A - H314
Serious Eye Damage 1 - H318
Acute Toxicity Inhalation 1 - H330
Specific Target Organ Toxicity Repeated Exposure 1 - H372

DSD/DPD • Oxidizing (O)
Very Toxic (T+)
Corrosive (C)
R8, R26, R34

2.2 Label Elements

CLP

DANGER

Hazard statements

- H270 - May cause or intensify fire; oxidizer
- H280 - Contains gas under pressure; may explode if heated
- H314 - Causes severe skin burns and eye damage
- H318 - Causes serious eye damage
- H330 - Fatal if inhaled
- H372 - Causes damage to organs (lung, blood/methemoglobin former) through prolonged or repeated exposure

Precautionary statements

Prevention

- P220 - Keep/Store away from clothing and other combustible materials.
- P233 - Keep container tightly closed.
- P244 - Keep reduction valves free from grease and oil.
- P260 - Do not breathe fume/gas.
- P262 - Do not get in eyes, on skin, or on clothing.
- P264 - Wash thoroughly after handling.
- P270 - Do not eat, drink or smoke when using this product.
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P284 - Wear respiratory protection.

Response

- P370+P376 - In case of fire: Stop leak if safe to do so.
- P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P310 - Immediately call a POISON CENTER or doctor/physician.
- P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P363 - Wash contaminated clothing before reuse.
- P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P314 - Get medical advice/attention if you feel unwell.
- P320 - Specific treatment is urgent, see supplemental first aid information.

Storage/Disposal

- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
- P405 - Store locked up.
- P501 - Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

DSD/DPD

Risk phrases

- R8 - Contact with combustible material may cause fire.
- R26 - Very toxic by inhalation.
- R34 - Causes burns.

Safety phrases

- S28 - After contact with skin, wash immediately with plenty of …
- S36 - Wear suitable protective clothing.
- S37 - Wear suitable gloves.
- S39 - Wear eye/face protection.
- S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

2.3 Other Hazards

CLP

- According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD

- This product is considered dangerous according to the European Directive 67/548/EEC.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012

- Oxidizing Gases 1 - H270
  Compressed Gas - H280
  Skin Corrosion 1 - H314
  Serious Eye Damage 1 - H318
  Acute Toxicity Inhalation 1 - H330
  Specific Target Organ Toxicity Repeated Exposure 1 - H372

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements

- May cause or intensify fire; oxidizer - H270
  Contains gas under pressure; may explode if heated - H280
  Causes severe skin burns and eye damage - H314
  Causes serious eye damage - H318
  Fatal if inhaled - H330
  Causes damage to organs (lung, blood/methemoglobin former) through prolonged or repeated exposure - H372

Precautionary statements

Prevention

- Keep/Store away from clothing and other combustible materials. - P220
  Keep container tightly closed. - P233
  Keep reduction valves free from grease and oil. - P244
  Do not breathe fume/gas. - P260
  Do not get in eyes, on skin, or on clothing. - P262
  Wash thoroughly after handling. - P264
  Do not eat, drink or smoke when using this product. - P270
  Use only outdoors or in a well-ventilated area. - P271
  Wear protective gloves/protective clothing/eye protection/face protection. - P280
  In case of inadequate ventilation wear respiratory protection. - P285

Response

- In case of fire: Stop leak if safe to do so. - P370+P376
  IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340
  Immediately call a POISON CENTER or doctor/physician. - P310
  IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. - P303+P361+P353
  Wash contaminated clothing before reuse. - P363
  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338
  IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. - P301+P330+P331
  Get medical advice/attention if you feel unwell. - P314
  Specific treatment is urgent, see supplemental first aid information. - P320

Storage/Disposal

- Store in a well-ventilated place. Keep container tightly closed. - P403+P233
  Store locked up. - P405
  Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

2.3 Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to WHMIS

2.1 Classification of the substance or mixture

WHMIS

- Compressed Gas - A
  Oxidizing - C
  Very Toxic - D1A
  Corrosive - E

2.2 Label elements

WHMIS

- Compressed Gas - A
  Oxidizing - C
  Very Toxic - D1A
  Corrosive - E

2.3 Other hazards

WHMIS

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

2.4 Other information

NFPA

Section 3 - Composition/Information on Ingredients

3.1 Substances

Hazardous Components					
Chemical Name	**Identifiers**	**%(weight)**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
Nitrogen monoxide	**CAS:**10102-43-9 **EINECS:**233-271-0	100%	Inhalation-Rat LC50 • 160 mg/m³	**EU DSD/DPD:** Self Classified - O; R8 T+ R26 C; R34 **EU CLP:** Self Classified - Press. Gas - Comp., H280; Ox. Gas 1, H270; STOT SE 1, TO - Lung, Blood (Methemoglobin former), H372; Acute Tox. 1 (ihl), H330; Skin Corr. 1A, H314; Eye Dam. 1, H318 **OSHA HCS 2012:** Press. Gas - Comp; Ox. Gas 1; STOT SE 1, TO - Lung, Blood (Methemoglobin former); Acute Tox. 1 (ihl); Skin Corr. 1; Eye Dam. 1	NDA

3.2 Mixtures

- Material does not meet the criteria of a mixture in accordance with Regulation (EC) No 1272/2008.

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

Skin
- Although exposure is unlikely, in case of contact immediately flush skin with running water. If skin irritation develops get medical advice/attention.

Eye
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately if symptoms occur.

Ingestion
- Never give anything by mouth to an unconscious person. Do NOT induce vomiting. First aid is not expected to be necessary if material is used under ordinary conditions and as recommended.

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician
- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

4.4 Other information

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO GASES WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn. Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media
- Use extinguishing agent suitable for type of surrounding fire.
  SMALL FIRES: Dry chemical or CO2.
  LARGE FIRES: Water spray or fog.

Unsuitable Extinguishing Media
- No data available

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- TOXIC; may be fatal if inhaled, ingested or absorbed through skin.
  Vapors are extremely irritating and corrosive.
  Cylinders exposed to fire may vent and release toxic and/or corrosive gas through pressure relief devices.
  Containers may explode when heated.
  Ruptured cylinders may rocket.

Hazardous Combustion Products
- No data available

5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
  Always wear thermal protective clothing when handling refrigerated/cryogenic liquids.
  Wear positive pressure self-contained breathing apparatus (SCBA).

Move containers from fire area if you can do it without risk.
FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.
FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out.
FIRE INVOLVING TANKS: Do not direct water at source of leak or safety devices; icing may occur.
FIRE INVOLVING TANKS: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
FIRE INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Self contained breathing apparatus and fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire. Do not touch or walk through spilled material. Ventilate the area before entry.

Emergency Procedures

- Stop leak if you can do it without risk. Keep unauthorized personnel away. Keep out of low areas. Stay upwind. Do not direct water at spill or source of leak. LARGE SPILL: Consider initial downwind evacuation for at least 500 meters (1/3 mile)

6.2 Environmental precautions

- Prevent spreading of vapors through sewers, ventilation systems and confined areas.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Stop leak if you can do it without risk.
Do not direct water at spill or source of leak.
Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.
If possible, turn leaking containers so that gas escapes rather than liquid.
Isolate area until gas has dispersed.
Ventilate the area.
Allow substance to evaporate.

6.4 Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Use only with adequate ventilation. Ventilate closed spaces before entering. Be aware of any signs of dizziness or fatigue, especially if work is done in a poorly ventilated area; exposures to fatal concentrations of this gas mixture could occur without any significant warning symptoms, due to olfactory fatigue or oxygen deficiency. Cylinders should be firmly secured to prevent falling or being knocked-over. Do not attempt to repair, adjust, or in any other way modify cylinders. If there is a malfunction or another type of operational problem, contact nearest distributor immediately. Empty containers retain product residue and can be hazardous. Do not cut, weld, puncture or incinerate container.

7.2 Conditions for safe storage, including any incompatibilities

Storage

- Store in a cool, dry, well-ventilated place. Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over.

7.3 Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

8.1 Control parameters

Exposure Limits/Guidelines						
	Result	ACGIH	Canada Ontario	Canada Quebec	China	France
Nitrogen monoxide (10102-43-9)	STELs	Not established	Not established	Not established	30 mg/m3 STEL	Not established
	TWAs	25 ppm TWA	25 ppm TWA	25 ppm TWAEV; 31 mg/m3 TWAEV	15 mg/m3 TWA	25 ppm TWA [VME]; 30 mg/m3 TWA [VME]

Exposure Limits/Guidelines (Con't.)						
	Result	Germany DFG	Ireland	Israel	NIOSH	OSHA
Nitrogen monoxide (10102-43-9)	STELs	Not established	35 ppm STEL; 45 mg/m3 STEL	Not established	Not established	Not established
	TWAs	Not established	25 ppm TWA; 30 mg/m3 TWA	25 ppm TWA	25 ppm TWA; 30 mg/m3 TWA	25 ppm TWA; 30 mg/m3 TWA
	Ceilings	1 ppm Peak; 1.26 mg/m3 Peak	Not established	Not established	Not established	Not established
	MAKs	0.5 ppm TWA MAK; 0.63 mg/m3 TWA MAK	Not established	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)					
	Result	Portugal	Singapore	Spain	Sweden
Nitrogen monoxide (10102-43-9)	TWAs	25 ppm TWA [VLE-MP]	25 ppm PEL; 31 mg/m3 PEL	25 ppm TWA [VLA-ED]; 31 mg/m3 TWA [VLA-ED]	25 ppm LLV; 30 mg/m3 LLV
	STELs	Not established	Not established	Not established	50 ppm STV; 60 mg/m3 STV

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Use explosion-proof - electrical, ventilating and/or lighting equipment.

Personal Protective Equipment

Respiratory

- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety glasses.

Skin/Body

- Wear leather gloves when handling cylinders.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

LLV = Limit Level Value is the exposure limit for 8-hour work day

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

STEL = Short Term Exposure Limits are based on 15-minute exposures

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

TWAEV = Time-Weighted Average Exposure Value

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

VLA-ED = Valor Límite Ambiental Exposición Diaria is the limit for the daily average concentration

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with sharp, sweet odor.
Color	Colorless	Odor	Sharp, sweet odor.
Odor Threshold	0.3 to 1 ppm		
General Properties			
Boiling Point	-152 C(-241.6 F)	Melting Point	-164 C(-263.2 F)
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	Data lacking	Density	1.04 g/mL
Water Solubility	0.073 @ 25 C(77 F)	Viscosity	0.0002 Poise (P, Ps) or dyne-second/cm2 @ 0 C(32 F)
Explosive Properties	Data lacking	Oxidizing Properties:	Oxidizing gas.
Volatility			
Vapor Pressure	26000 mmHg (torr) @ 20 C(68 F)	Vapor Density	1.04 Air=1
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Not relevant	UEL	Not relevant
LEL	Not relevant	Autoignition	Not relevant
Flammability (solid, gas)	Not flammable.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Excess heat, sparks, open flame.

10.5 Incompatible materials

- In the prescence of moisture forms nitric acid and nitrous acids.

10.6 Hazardous decomposition products

- When heated to decomposition or reacted with water, may emit toxic fumes of carbon monoxide and oxides of nitrogen.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Nitric Oxide 10102-43-9								
Test Type	**Dosage**	**Route**	**Species**	**Duration**	**Results**	**Test Class**	**Target Organs**	**Comments**
Acute Toxicity	= 160 mg/m³	Inhalation	Rat	NDA	LC50	NDA	NDA	NDA
Mutagen	= 27 ppm	Inhalation	Rat	3 Hour(s)	NDA	NDA	NDA	NDA

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Acute Toxicity 1 (Inhalation) **OSHA HCS 2012** • Acute Toxicity 1 (Inhalation)
Aspiration Hazard	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Carcinogenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Germ Cell Mutagenicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Skin corrosion/Irritation	**EU/CLP** • Skin Corrosion 1A **OSHA HCS 2012** • Skin Corrosion 1
Skin sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
STOT-RE	**EU/CLP** • Specific Target Organ Toxicity Repeated Exposure 1 **OSHA HCS 2012** • Specific Target Organ Toxicity Repeated Exposure 1
STOT-SE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Toxicity for Reproduction	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Respiratory sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Serious eye damage/Irritation	**EU/CLP** • Serious Eye Damage 1 **OSHA HCS 2012** • Serious Eye Damage 1

Potential Health Effects

Inhalation

Acute (Immediate)
- May affect the lungs and respiratory system.

Chronic (Delayed)
- No data available

Skin

Acute (Immediate)
- Causes severe skin damage.

Chronic (Delayed)
- No data available

Eye

Acute (Immediate)
- Causes serious eye damage.

Chronic (Delayed)
- No data available

Ingestion

Acute (Immediate)
- No data available

Chronic (Delayed)
- Ingestion is not considered a potential route of exposure due to the physical form of this product.

11.2 Other information

- Methemoglobin former - Nitric oxide has an affinity for haem-bound iron which is two times higher than that of carbon monoxide.

Key to abbreviations

LC = Lethal Concentration

Section 12 - Ecological Information

12.1 Toxicity

- No data available

12.2 Persistence and degradability

- No data available

12.3 Bioaccumulative potential

- No data available

12.4 Mobility in Soil

- No data available

12.5 Results of PBT and vPvB assessment

- PBT and vPvB assessment has not been conducted for this material.

12.6 Other adverse effects

Section 13 - Disposal Considerations

13.1 Waste treatment methods

Product waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN1660	Nitric oxide, compressed	2.3,5.1,8	NDA	NDA
TDG	UN1660	NITRIC OXIDE, COMPRESSED	2.3,5.1,8	NDA	NDA
IMO/IMDG	UN1660	NITRIC OXIDE, COMPRESSED	2.3,5.1,8	NDA	NDA
IATA/ICAO	UN1660	Nitric oxide, compressed	2.3,5.1,8	NDA	NDA

14.6 Special precautions for user

- Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not relevant.

14.8 Other information

DOT

- Nitric Oxide has a reportable quantity of 10 lbs (4.54 kg) as listed in Appendix A to 49 CFR 172.101.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- Acute, Pressure(Sudden Release of)

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Nitrogen monoxide	NDA	No	No	No

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Nitrogen monoxide	NDA	No	No	No	No	No

Inventory (Con't.)			
Component	**CAS**	**Japan ENCS**	**TSCA**
Nitrogen monoxide	NDA	No	No

Australia

Environment

Australia - National Pollutant Inventory (NPI) Substance List

- Nitrogen monoxide 10102-43-9 100% Not Listed

Canada

Labor

Canada - WHMIS - Classifications of Substances

- Nitrogen monoxide 10102-43-9 100% A, C, D1A, E

Canada - WHMIS - Ingredient Disclosure List

- Nitrogen monoxide 10102-43-9 100% 1 %

Environment

Canada - CEPA - Priority Substances List

- Nitrogen monoxide 10102-43-9 100% Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

- Nitrogen monoxide 10102-43-9 100% Not Listed

China - Ozone Depleting Substances - Second Schedule

- Nitrogen monoxide 10102-43-9 100% Not Listed

China - Ozone Depleting Substances - Third Schedule

- Nitrogen monoxide 10102-43-9 100% Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

- Nitrogen monoxide 10102-43-9 100% Not Listed

China - Dangerous Goods List

- Nitrogen monoxide 10102-43-9 100% UN1660

China - Export Control List - Part I Chemicals

- Nitrogen monoxide 10102-43-9 100% Not Listed

Europe

Other

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Classification

- Nitrogen monoxide 10102-43-9 100% Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Concentration Limits

- Nitrogen monoxide 10102-43-9 100% Not Listed

Germany

Environment

Germany - TA Luft - Types and Classes

- Nitrogen monoxide 10102-43-9 100% inorganic gas Substance: 5.2.4, Class IV

Germany - Water Classification (VwVwS) - Annex 1

- Nitrogen monoxide 10102-43-9 100% Not Listed

Germany - Water Classification (VwVwS) - Annex 2 - Water Hazard Classes

- Nitrogen monoxide 10102-43-9 100% ID Number 285, hazard class 1 - low hazard to waters

Germany - Water Classification (VwVwS) - Annex 3

- Nitrogen monoxide 10102-43-9 100% Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

- Nitrogen monoxide 10102-43-9 100% Not Listed

Portugal

Other

Portugal - Prohibited Substances

- Nitrogen monoxide 10102-43-9 100% Not Listed

United Kingdom

Environment

United Kingdom - Pollution Inventory - Schedule 1 - Thresholds for Releases to Air

- Nitrogen monoxide 10102-43-9 100% Not Listed

United Kingdom - Substances Contained in Dangerous Substances or Preparations

- Nitrogen monoxide 10102-43-9 100% Not Listed

Other

United Kingdom - Workplace Exposure Limits (WELs) - Substances in Review

- Nitrogen monoxide 10102-43-9 100% Not Listed

United Kingdom - The Red List - Dangerous Substances in Water

- Nitrogen monoxide 10102-43-9 100% Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

- Nitrogen monoxide 10102-43-9 100% 250 lb TQ

U.S. - OSHA - Specifically Regulated Chemicals

- Nitrogen monoxide 10102-43-9 100% Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

- Nitrogen monoxide 10102-43-9 100% Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Nitrogen monoxide	10102-43-9	100%	10 lb final RQ (releases to the air in amounts <1000 pounds per 24 hours which are the result of combustion and combustion-related activities are exempt from the notification requirements per 40 CFR 302.6); 4.54 kg final RQ (releases to the air in amounts <1000 pounds per 24 hours which are the result of combustion and combustion-related activities are exempt from the notification requirements per 40 CFR 302.6)

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

- Nitrogen monoxide 10102-43-9 100% Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Nitrogen monoxide	10102-43-9	100%	10 lb EPCRA RQ (Releases to the air in amounts <1000 pounds per 24 hours which are the result of combustion and combustion-related activities are exempt from the notification requirements per 40 CFR 355.31)

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Nitrogen monoxide	10102-43-9	100%	100 lb TPQ

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Nitrogen monoxide	10102-43-9	100%	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Nitrogen monoxide	10102-43-9	100%	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII

• Nitrogen monoxide	10102-43-9	100%	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Constituents for Detection Monitoring

• Nitrogen monoxide	10102-43-9	100%	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261

• Nitrogen monoxide	10102-43-9	100%	waste number P076

U.S. - RCRA (Resource Conservation & Recovery Act) - P Series Wastes - Acutely Toxic Wastes

• Nitrogen monoxide	10102-43-9	100%	waste number P076

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Nitrogen monoxide	10102-43-9	100%	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Nitrogen monoxide 10102-43-9 100% Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Nitrogen monoxide 10102-43-9 100% Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Nitrogen monoxide 10102-43-9 100% Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Nitrogen monoxide 10102-43-9 100%

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• Nitrogen monoxide 10102-43-9 100% Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date	• 04/February/2013
Preparation Date	• 04/February/2013
Disclaimer/Statement of Liability	• To the best of Air Liquide's knowledge, the information contained herein is reliable and accurate as of this date; however, accuracy, suitability or completeness are not guaranteed and no warranties of any type, either express or implied, are provided. The information contained herein relates only to this specific product. If this gas mixture is combined with other materials, all component properties must be considered. Data may be changed from time to time. Be sure to consult the latest edition.