Safety Data Sheet

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

1.1 Product identifier

Product Name | **Carbon Monoxide (<0.1%), Oxygen (2.5-13.5%), Helium (19.5-23.5%), Nitrogen (Balance)**

Product Code | M-46021/E-1

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

Relevant identified use(s) | Test Gas/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

Manufacturer | +1 703-527-3887

Section 2: Hazards Identification

EU/EEC

According to Regulation (EC) No 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 | Compressed Gas - H280

DSD/DPD | Not classified

2.2 Label Elements

CLP

WARNING

Hazard statements | H280 - Contains gas under pressure; may explode if heated

Precautionary statements

Prevention | P280 - Wear protective gloves/protective clothing/eye protection/face protection.

Storage/Disposal | Protect from sunlight when ambient temperature exceeds 125°F (52°C)
P403 - Store in a well-ventilated place.

DSD/DPD

Risk phrases | No label element(s) required

2.3 Other Hazards

CLP | This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.
According to Regulation (EC) No. 1272/2008 (CLP) this material is considered hazardous.

DSD/DPD | This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.
According to European Directive 1999/45/EC this preparation is not considered dangerous.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012 | Compressed Gas - H280
Simple Asphyxiant

2.2 Label elements

OSHA HCS 2012

WARNING

Hazard statements | Contains gas under pressure; may explode if heated - H280
May displace oxygen and cause rapid suffocation.

Precautionary statements

Prevention | Wear protective gloves/protective clothing/eye protection/face protection. - P280

Storage/Disposal | Protect from sunlight when ambient temperature exceeds 125°F (52°C)
Store in a well-ventilated place. - P403

2.3 Other hazards

OSHA HCS 2012 | Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite. 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

2.2 Label elements

WHMIS

| Compressed Gas - A

2.3 Other hazards

WHMIS

This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.
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

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

3.2 Mixtures

Composition				
Chemical Name	**Identifiers**	**%**	**LD50/LC50**	**Classifications According to Regulation/Directive**
Carbon monoxide	**CAS:**630-08-0 **EC Number:**211-128-3 **EU Index:**006-001-00-2	< 0.1%	Inhalation-Rat LC50 • 1900 mg/m³ 4 Hour(s)	**EU DSD/DPD:** Annex I: F+; R12 T; R23-48/23 Repr.Cat.1; R61 **EU CLP:** Annex VI: Flam. Gas 1, H220; Press. Gas - Comp., H280; Repr. 1A, H360D; Acute Tox. 3 , H331; STOT RE 1, H372 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas - Comp.; Repr. 1A; Acute Tox. 3 (Inhl)
Oxygen	**CAS:**7782-44-7 **EC Number:**231-956-9 **EU Index:**008-001-00-8	2.5% TO 13.5%	NDA	**EU DSD/DPD:** Annex I: O; R8 **EU CLP:** Annex VI: Ox. Gas 1, H270; Press. Gas - Comp., H280 **OSHA HCS 2012:** Ox. Gas 1; Press. Gas. - Comp.
Helium	**CAS:**7440-59-7 **EINECS:**231-168-5	19.5% TO 23.5%	NDA	**EU DSD/DPD:** Not Classified **EU CLP:** Self Classified: Press. Gas - Comp., H280 **OSHA HCS 2012:** Press. Gas - Comp.; Simp. Asphyx.
Nitrogen	**CAS:**7727-37-9 **EINECS:**231-783-9	62.4% TO 77.95%	NDA	**EU DSD/DPD:** Not Classified **EU CLP:** Self Classified: Press. Gas - Comp., H280 **OSHA HCS 2012:** Press. Gas - Comp.; Simp. Asphyx.

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 | If frostbite has occurred, seek medical attention immediately; do NOT rub the affected area(s) or flush them with water. In order to prevent further tissue damage, do NOT attempt to remove frozen clothing from frostbitten areas. If frostbite has not occurred, immediately and thoroughly wash contaminated skin with soap and water.

Eye | If eye tissue is frozen, seek medical attention immediately; if tissue is not frozen, immediately and thoroughly flush the eyes with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation, pain, swelling, lacrimation or photophobia persist, get medical attention as soon as possible.

Ingestion | If frostbite has occurred, seek medical attention immediately; do NOT rub the affected area(s) or flush them with water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting.

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 | 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.
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

Ventilate the area before entry. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures

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

No special environmental precautions necessary.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

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

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. Wear appropriate personal protective equipment, avoid direct contact. 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. Do not allow area where cylinders are stored to exceed 52C (125F).

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	China Highly Toxic Goods

Carbon monoxide (630-08-0)	Ceilings	Not established	Not established	Not established	20 mg/m3 Ceiling [MAC] (high altitude area, 2000-3000m); 15 mg/m3 Ceiling [MAC] (high altitude area, >3000m)	Not established
	STELs	Not established	Not established	200 ppm STEV; 230 mg/m3 STEV	30 mg/m3 STEL (not in high altitude area)	30 mg/m3 STEL (not in high altitude area)
	TWAs	25 ppm TWA	25 ppm TWA	35 ppm TWAEV; 40 mg/m3 TWAEV	20 mg/m3 TWA (not in high altitude area)	20 mg/m3 TWA (not in high altitude area)

Exposure Limits/Guidelines (Con't.)

	Result	France	Germany DFG	Germany TRGS	Ireland	Israel
Carbon monoxide (630-08-0)	TWAs	50 ppm TWA [VME]; 55 mg/m3 TWA [VME]	Not established	30 ppm TWA AGW (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed, exposure factor 2); 35 mg/m3 TWA AGW (The risk of damage to the embryo or fetus cannot be excluded even when AGW and BGW values are observed, exposure factor 2)	20 ppm TWA; 23 mg/m3 TWA	25 ppm TWA
	STELs	Not established	Not established	Not established	100 ppm STEL; 115 mg/m3 STEL	Not established
	Ceilings	Not established	60 ppm Peak; 70 mg/m3 Peak	Not established	Not established	Not established
	MAKs	Not established	30 ppm TWA MAK; 35 mg/m3 TWA MAK	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)

	Result	NIOSH	OSHA	OSHA Vacated	Portugal	Spain
Carbon monoxide (630-08-0)	TWAs	35 ppm TWA; 40 mg/m3 TWA	50 ppm TWA; 55 mg/m3 TWA	35 ppm TWA; 40 mg/m3 TWA	25 ppm TWA [VLE-MP]	25 ppm TWA [VLA-ED]; 29 mg/m3 TWA [VLA-ED]
	Biological Limit Values (BLV)	Not established	Not established	Not established	Not established	3.5 % of Carboxyhemoglobin in total hemoglobin blood end of shift Carboxyhemoglobin (2,F,I); 20 ppm alveolar air end of shift CO end-cut of exhaled air (2,F,I)
	Ceilings	200 ppm Ceiling; 229 mg/m3 Ceiling	Not established	200 ppm Ceiling; 229 mg/m3 Ceiling	Not established	Not established

Exposure Limits/Guidelines (Con't.)

	Result	Sweden
	STELs	100 ppm STV; 120 mg/m3 STV

Carbon monoxide (630-08-0)	TWAs	20 ppm LLV (regulated under exhaust fumes, listed under Exhaust fumes); 25 mg/m3 LLV (regulated under exhaust fumes, listed under Exhaust fumes); 35 ppm LLV; 40 mg/m3 LLV

Exposure Control Notations

Portugal

- Helium (7440-59-7): **Simple Asphyxiants:** (Simple Asphyxiant)
- Nitrogen (7727-37-9): **Simple Asphyxiants:** (Simple Asphyxiant)

France

- Carbon monoxide (630-08-0): **Reproductive Toxins:** (Reproductive Toxin category 1)

Ireland

- Carbon monoxide (630-08-0): **Substances with Potential Chronic Health Effects:** (Repr1A)
- Helium (7440-59-7): **Simple Asphyxiants:** (Asphyxiant)
- Nitrogen (7727-37-9): **Simple Asphyxiants:** (Asphyxiant)

Spain

- Carbon monoxide (630-08-0): **Reproductive Toxins:** (known reproductive toxins with classification from human data)
- Helium (7440-59-7): **Simple Asphyxiants:** (simple asphyxiant)
- Nitrogen (7727-37-9): **Simple Asphyxiants:** (simple asphyxiant)

Sweden

- Carbon monoxide (630-08-0): **Reproductive Toxins:** (Causes reproductive disturbances)

Germany DFG

- Carbon monoxide (630-08-0): **Pregnancy:** (risk to embryo/fetus probable)

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.

Personal Protective Equipment

Respiratory | In case of insufficient ventilation, wear suitable respiratory equipment. 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

NIOSH = National Institute of Occupational Safety and Health

OSHA = Occupational Safety and Health Administration

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

STEV = Short Term Exposure Value

TWAEV = Time-Weighted Average Exposure Value

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

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with no odor.
Color	Colorless	Odor	Odorless
Odor Threshold	Data lacking		
General Properties			
Boiling Point	-196 C(-320.8 F) Nitrogen	Melting Point	-210 C(-346 F) Nitrogen
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	0.967 Water=1 Nitrogen	Water Solubility	Data lacking
Viscosity	Data lacking	Explosive Properties	Not explosive.
Oxidizing Properties:	Not an oxidizing gas.		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	0.97 Air=1 Nitrogen
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
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.

10.5 Incompatible materials

- Toxic carbon monoxide reacts with BrF3, SC2O, ClF3, IF7, NF3, O2, OF2, Ag2O and oxidizing materials. Flammable and combustible materials, especially greases and oils.

10.6 Hazardous decomposition products

- None known.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Carbon monoxide (< 0.1%)	630-08-0	**Acute Toxicity:** Inhalation-Rat LC50 • 1807 ppm 4 Hour(s); **Reproductive:** Inhalation-Rat TCLo • 150 ppm (1-20D preg); *Reproductive Effects:Specific Developmental Abnormalities*:**Central nervous system**
Oxygen (2.5% TO 13.5%)	7782-44-7	**Reproductive:** Inhalation-Rat TCLo • 10 pph 9 Hour(s)(22D preg); *Reproductive Effects:Specific Developmental Abnormalities*:**Respiratory system**; *Reproductive Effects:Effects on Newborn*:**Physical**

GHS Properties	Classification
Acute toxicity	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
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** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Skin sensitization	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
STOT-RE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
STOT-SE	**EU/CLP** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met
Toxicity for Reproduction	**EU/CLP** • H360D - May damage the unborn child **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** • Classification criteria not met **OSHA HCS 2012** • Classification criteria not met

Potential Health Effects

Inhalation

Acute (Immediate) | This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces. If this material is released in a small, poorly ventilated area (i.e. an enclosed or confined space), an oxygen-deficient environment may occur. Individuals breathing such an atmosphere may experience symptoms which include headaches, ringing in ears, dizziness, drowsiness, unconsciousness, nausea, vomiting, and depression of all the senses. Under some circumstances of over-exposure, death may occur. The following effects associated with decreased levels of oxygen: increase in breathing and pulse rate, emotional upset, abnormal fatigue, nausea, vomiting, collapse, loss of consciousness, convulsive movements, respiratory collapse and death.

Chronic (Delayed) | No data available

Skin

Acute (Immediate) | Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.

Chronic (Delayed) | No data available

Eye

Acute (Immediate) | Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.

Chronic (Delayed) | No data available

Ingestion

Acute (Immediate) | Ingestion can cause burns similar to frostbite.

Chronic (Delayed) | No data available

Key to abbreviations

LC = Lethal Concentration

TC = Toxic Concentration

Section 12 - Ecological Information

12.1 Toxicity

| Material data lacking.

12.2 Persistence and degradability

| Material data lacking.

12.3 Bioaccumulative potential

| Material data lacking.

12.4 Mobility in Soil

| Material data lacking.

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects

| No studies have been found.

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	UN1956	Compressed gas, n.o.s (Nitrogen, Oxygen, Helium)	2.2	NDA	NDA
TDG	UN1956	COMPRESSED GAS, N.O.S. (Nitrogen, Oxygen, Helium)	2.2	NDA	NDA

IMO/IMDG	UN1956	COMPRESSED GAS, N.O.S. (Nitrogen, Oxygen, Helium)	2.2	NDA	NDA
IATA/ICAO	UN1956	Compressed gas, n.o.s (Nitrogen, Oxygen, Helium)	2.2	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.

Section 15 - Regulatory Information

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

SARA Hazard Classifications | Acute, Chronic, Pressure(Sudden Release of)

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Carbon monoxide	630-08-0	Yes	Yes	Yes
Helium	7440-59-7	Yes	Yes	Yes
Nitrogen	7727-37-9	Yes	Yes	Yes
Oxygen	7782-44-7	Yes	Yes	Yes

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**China**	**EU EINECS**	**EU ELNICS**
Carbon monoxide	630-08-0	Yes	No	Yes	Yes	No
Helium	7440-59-7	Yes	No	Yes	Yes	No
Nitrogen	7727-37-9	Yes	No	Yes	Yes	No
Oxygen	7782-44-7	Yes	No	Yes	Yes	No

Inventory (Con't.)		
Component	**CAS**	**TSCA**
Carbon monoxide	630-08-0	Yes
Helium	7440-59-7	Yes
Nitrogen	7727-37-9	Yes
Oxygen	7782-44-7	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Carbon monoxide	630-08-0	A, B1, D1A, D2A
• Oxygen	7782-44-7	A, C
• Nitrogen	7727-37-9	A
• Helium	7440-59-7	A

Canada - WHMIS - Ingredient Disclosure List

• Carbon monoxide	630-08-0	0.1 %
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Environment

Canada - CEPA - Priority Substances List

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

China - Ozone Depleting Substances - Second Schedule

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

China - Ozone Depleting Substances - Third Schedule

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

China - Dangerous Goods List

• Carbon monoxide	630-08-0	
• Oxygen	7782-44-7	(compressed or refrigerated liquid)
• Nitrogen	7727-37-9	(compressed or refrigerated liquid)
• Helium	7440-59-7	(compressed or refrigerated liquid)

China - Export Control List - Part I Chemicals

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Europe

Other

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

• Carbon monoxide	630-08-0	F+; R12 T; R23-48/23 Repr.Cat.1; R61
• Oxygen	7782-44-7	O; R8
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	F+ T R:61-12-23-48/23 S:53-45
• Oxygen	7782-44-7	O R:8 S:(2)-17
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

EU - CLP (1272/2008) - Annex VI - Table 3.2 - Notes - Substances and Preparations

• Carbon monoxide	630-08-0	E
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	S:53-45
• Oxygen	7782-44-7	S:(2)-17
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Germany

Environment

Germany - TA Luft - Types and Classes

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	ID Number 743, not considered hazardous to water
• Nitrogen	7727-37-9	ID Number 1351, not considered hazardous to water
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	ID Number 257, hazard class 1 - low hazard to waters
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Germany - Water Classification (VwVwS) - Annex 3

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

United Kingdom

Environment

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

• Carbon monoxide	630-08-0	100000 kg
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Other

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

United Kingdom - List of Dangerous Substances in Water

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

United States

Labor

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

• Carbon monoxide	630-08-0	Not Listed

• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

Environment

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

United States - California

Environment

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	developmental toxicity, initial date 7/1/89
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

United States - Pennsylvania

Labor

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

• Carbon monoxide	630-08-0	
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Nitrogen	7727-37-9	Not Listed
• Helium	7440-59-7	Not Listed

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out.

15.3 Other Information

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Section 16 - Other Information

Relevant Phrases (code & full text)

H220 - Extremely flammable gas
H270 - May cause or intensify fire; oxidizer
H331 - Toxic if inhaled
H372 - Causes damage to organs through prolonged or repeated exposure.

R8 - Contact with combustible material may cause fire.
R12 - Extremely flammable.
R23 - Toxic by inhalation.
R48/23 - Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R61 - May cause harm to the unborn child.

Last Revision Date 11/December/2014

Preparation Date 25/July/2012

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Key to abbreviations

NDA = No Data Available