Safety Data Sheet 50010MSA

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

1.1 Product identifier

Product Name . **Non-Flammable Gas Mixture Containing one or More of the Following Components in a Nitrogen Balance Gas: n-Hexane; 0-0.48%; n-Pentane, 0-0.75%; Carbon Monoxide, 0.0005-1.0%; Propane, 0-1.1%; Oxygen, 0-23.5%**

MSA P/N . 455129, 459943, 493579, 711054, 801051, 10007047, 10028034, 10028044, 10045986, 10125947

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

Relevant identified use(s) . Calibration of Monitoring and Research Equipment

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

U.S. Supplier Mine Safety Appliances Company
Cranberry Township
Pennsylvania U.S.A. 16066

1-800-MSA-2222
www.msanet.com/prism

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
Reproductive Toxicity 1A - H360D
Specific Target Organ Toxicity Repeated Exposure 2 - H373

DSD/DPD . Harmful (Xn)
Substances Toxic To Reproduction - Category 1
R20, R48/20, R61

2.2 Label Elements

CLP

DANGER

Hazard statements . H280 - Contains gas under pressure; may explode if heated
H360D - May damage the unborn child.
H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention . P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe gas.
P281 - Use personal protective equipment as required.

Response . P308+P313 - IF exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.

Storage/Disposal . P403 - Store in a well-ventilated place.
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 . R20 - Harmful by inhalation.
R48/20 - Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R61 - May cause harm to the unborn child.

Safety phrases . S53 - Avoid exposure - obtain special instructions before use.

2.3 Other Hazards

CLP . This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
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.
According to European Directive 1999/45/EC this preparation is 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
Reproductive Toxicity 1A - H360
Simple Asphyxiant

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements . Contains gas under pressure; may explode if heated - H280
May damage fertility or the unborn child. - H360
May displace oxygen and cause rapid suffocation.

Precautionary statements

Prevention . Obtain special instructions before use. - P201
Do not handle until all safety precautions have been read and understood. - P202
Do not breathe gas. - P260
Wear protective gloves/protective clothing/eye protection/face protection. - P280

Response . IF exposed or concerned: Get medical advice/attention. - P308+P313

Storage/Disposal . Store in a well-ventilated place. - P403
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
Very Toxic - D1A
Other Toxic Effects - D2A

2.2 Label elements

WHMIS

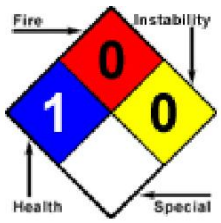
. Compressed Gas - A
Very Toxic - D1A
Other Toxic Effects - D2A

2.3 Other hazards

WHMIS . This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
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**
Oxygen	**CAS:**7782-44-7 **EINECS:**231-956-9	0.0015% TO 23.5%	NDA	**EU DSD/DPD:** Annex VI, Table 3.2 - O; R8 **EU CLP:** Annex VI, Table 3.1 - Ox. Gas 1, H270; Press. Gas - Comp., H280 **OSHA HCS 2012:** Ox. Gas 1; Press Gas. - Comp.
Propane	**CAS:**74-98-6 **EINECS:**200-827-9	0% TO 1.1%	NDA	**EU DSD/DPD:** Annex VI, Table 3.2 - F+; R12 **EU CLP:** Annex VI, Table 3.1 - Flam. Gas 1, H220; Press. Gas - Comp., H280 **OSHA HCS 2012:** Flam. Gas 1; Press. Gas - Comp.; Simp. Asphyx.
Carbon monoxide	**CAS:**630-08-0 **EINECS:**211-128-3	0.0005% TO 1%	Inhalation-Rat LC50 • 1807 ppm 4 Hour(s)	**EU DSD/DPD:** Annex VI, Table 3.2 - F+; R12; Repr. Cat. 1; R61; T; R23-48/23 **EU CLP:** Annex VI, Table 3.1 - Flam. Gas 1, H220; Press. Gas - Comp., H280; Repr. 1A, H360D; Acute Tox. 3 *, H331; STOT RE 1, H372 **OSHA HCS 2012:** Repr 1A; Acute Tox 3 (inhl); Flam. Gas 1; Press. Gas - Comp
Pentane	**CAS:**109-66-0 **EINECS:**203-692-4	0% TO 0.75%	Inhalation-Rat LC50 • 364 g/m³ 4 Hour(s) Ingestion/Oral-Rat LD50 • >2000 mg/kg	**EU DSD/DPD:** Annex VI, Table 3.2 - F+; R12 N; R51-53 Xn; R65 R66 R67 **EU CLP:** Annex VI, Table 3.1 - Flam. Liq. 1, H224; Asp. Tox. 1, H304; STOT SE 3, H336; Aquatic Chronic 2, H411; EUH066 **OSHA HCS 2012:** Flam Liq 1; Asp tox 1. Eye Irrit 2A, Skin Irrit 2, STOT SE 3: Narc.
Hexane	**CAS:**110-54-3 **EINECS:**203-777-6	0% TO 0.48%	Ingestion/Oral-Rat LD50 • 25 g/kg Inhalation-Rat LC50 • 48000 ppm 4 Hour(s)	**EU DSD/DPD:** Annex VI, Table 3.2 - F; R11; Repr. 3; R62; Xn; R65-48/20; Xi; R38; R67; N; R51-53 **EU CLP:** Annex VI, Table 3.1 - Flam. Liq. 2, H225; Repr. 2, H361f; Asp. Tox. 1, H304; STOT RE 2*, H373; Skin Irrit. 2, H315; STOT SE 3: Narc., H336; Aquatic Chronic 2, H411 **OSHA HCS 2012:** Flam. Liq. 2; Repr. 2; STOT RE 2 - CNS & Nervous System; Skin Irrit. 2; Eye Irrit. 2B; STOT SE 3: Narc. & Resp. Irrit.; Asp. Tox. 1
Nitrogen	**CAS:**7727-37-9 **EINECS:**231-783-9	Balance	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
- Although exposure is unlikely, in case of contact immediately flush skin with running water. If skin irritation develops get medical advice/attention.

Eye
- First aid is not expected to be necessary if material is used under ordinary conditions and as recommended. If irritation develops and persists, get medical attention.

Ingestion
- Ingestion is not considered a potential route of exposure.

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. A potential health hazard associated with this gas is anoxia.

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.

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

- None known.

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. 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

- 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.
  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.

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**	**China Highly Toxic Goods**
Pentane (109-66-0)	STELs	Not established	Not established	Not established	1000 mg/m3 STEL (listed under Pentane (all isomers))	Not established
	TWAs	600 ppm TWA (listed under Pentane, all isomers)	600 ppm TWA	120 ppm TWAEV; 350 mg/m3 TWAEV	500 mg/m3 TWA (listed under Pentane (all isomers))	Not established
Hexane (110-54-3)	STELs	Not established	Not established	Not established	180 mg/m3 STEL	Not established
	TWAs	50 ppm TWA	50 ppm TWA	50 ppm TWAEV; 176 mg/m3 TWAEV	100 mg/m3 TWA	Not established
Propane (74-98-6)	TWAs	1000 ppm TWA (listed under Aliphatic hydrocarbon gases: Alkane C1-4)	1000 ppm TWA	1000 ppm TWAEV; 1800 mg/m3 TWAEV	Not established	Not established
					20 mg/m3 Ceiling	

Carbon monoxide (630-08-0)	Ceilings	Not established	Not established	Not established	[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	Europe	France	Germany DFG	Germany TRGS	Ireland
Pentane (109-66-0)	TWAs	1000 ppm TWA; 3000 mg/m3 TWA	1000 ppm TWA [VME] (restrictive limit); 3000 mg/m3 TWA [VME] (restrictive limit)	Not established	1000 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2); 3000 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 2)	1000 ppm TWA; 3000 mg/m3 TWA
	STELs	Not established	Not established	Not established	Not established	750 ppm STEL; 2250 mg/m3 STEL
	Ceilings	Not established	Not established	2000 ppm Peak (listed under Pentane); 6000 mg/m3 Peak (listed under Pentane)	Not established	Not established
	MAKs	Not established	Not established	1000 ppm TWA MAK; 3000 mg/m3 TWA MAK	Not established	Not established
Hexane (110-54-3)	TWAs	20 ppm TWA; 72 mg/m3 TWA	20 ppm TWA [VME] (restrictive limit); 72 mg/m3 TWA [VME] (restrictive limit)	Not established	50 ppm TWA AGW (exposure factor 8); 180 mg/m3 TWA AGW (exposure factor 8)	20 ppm TWA; 72 mg/m3 TWA
	Ceilings	Not established	Not established	400 ppm Peak; 1440 mg/m3 Peak	Not established	Not established
	MAKs	Not established	Not established	50 ppm TWA MAK; 180 mg/m3 TWA MAK	Not established	Not established
Propane (74-98-6)	TWAs	Not established	Not established	Not established	1000 ppm TWA AGW (exposure factor 4); 1800 mg/m3 TWA AGW (exposure factor 4)	1000 ppm TWA
	Ceilings	Not established	Not established	4000 ppm Peak; 7200 mg/m3 Peak	Not established	Not established
	MAKs	Not established	Not established	1000 ppm TWA MAK; 1800 mg/m3 TWA MAK	Not established	Not established

Carbon monoxide (630-08-0)	TWAs	Not established	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
	STELs	Not established	Not established	Not established	Not established	100 ppm STEL; 115 mg/m3 STEL
	Ceilings	Not established	Not established	60 ppm Peak; 70 mg/m3 Peak	Not established	Not established
	MAKs	Not established	Not established	30 ppm TWA MAK; 35 mg/m3 TWA MAK	Not established	Not established

Exposure Limits/Guidelines (Con't.)

	Result	Israel	Italy	NIOSH	OSHA	Portugal
Pentane (109-66-0)	TWAs	600 ppm TWA (listed under Pentane, all isomers)	667 ppm TWA; 2000 mg/m3 TWA	120 ppm TWA; 350 mg/m3 TWA	1000 ppm TWA; 2950 mg/m3 TWA	600 ppm TWA [VLE-MP]
	Ceilings	Not established	Not established	610 ppm Ceiling (15 min); 1800 mg/m3 Ceiling (15 min)	Not established	Not established
Hexane (110-54-3)	TWAs	50 ppm TWA	20 ppm TWA; 72 mg/m3 TWA	50 ppm TWA; 180 mg/m3 TWA	500 ppm TWA; 1800 mg/m3 TWA	50 ppm TWA [VLE-MP]
Propane (74-98-6)	TWAs	1000 ppm TWA (gas)	Not established	1000 ppm TWA; 1800 mg/m3 TWA	1000 ppm TWA; 1800 mg/m3 TWA	1000 ppm TWA [VLE-MP]
Carbon monoxide (630-08-0)	TWAs	25 ppm TWA	Not established	35 ppm TWA; 40 mg/m3 TWA	50 ppm TWA; 55 mg/m3 TWA	25 ppm TWA [VLE-MP]
	Ceilings	Not established	Not established	200 ppm Ceiling; 229 mg/m3 Ceiling	Not established	Not established

Exposure Limits/Guidelines (Con't.)

	Result	Spain	Sweden
Pentane (109-66-0)	TWAs	1000 ppm TWA [VLA-ED] (indicative limit value); 3000 mg/m3 TWA [VLA-ED] (indicative limit value)	600 ppm LLV; 1800 mg/m3 LLV
	STELs	Not established	750 ppm STV; 2000 mg/m3 STV
	TWAs	20 ppm TWA [VLA-ED] (indicative limit value); 72 mg/m3 TWA [VLA-ED] (indicative limit value)	25 ppm LLV; 90 mg/m3 LLV
		0.2 mg/L Medium: urine Time: end of	

Hexane (110-54-3)	Under Review	workweek Parameter: 2,5-Hexanedione (without hydrolysis; means free 2,5-hexanedione, unconjugated. This substance is a metabolite of n-hexane and methyl-n-butyl ketone it means after four or five consecutive days of work with exposure, as soon as possible after the end of the last working day, as biological indicators are eliminated with half-lives greater than five hours; these indicators accumulate in the body during the work week, therefore the sampling time is critical in relation to previous exposures.)	Not established
	Biological Limit Values (BLV)	0.4 mg/L urine end of workweek 2,5-Hexanedione (without hydrolysis) (1,8)	Not established
	STELs	Not established	50 ppm STV; 180 mg/m3 STV
Propane (74-98-6)	TWAs	1000 ppm TWA [VLA-ED]	Not established
Carbon monoxide (630-08-0)	TWAs	25 ppm TWA [VLA-ED]; 29 mg/m3 TWA [VLA-ED]	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
	Biological Limit Values (BLV)	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)	Not established
	STELs	Not established	100 ppm STV; 120 mg/m3 STV

Exposure Control Notations

Portugal

- Hexane (110-54-3): **Skin:** (skin - potential for cutaneous exposure)

- Nitrogen (7727-37-9): **Simple Asphyxiants:** (Simple Asphyxiant)

France

- Hexane (110-54-3): **Reproductive Toxins:** (Reproductive Toxin category 3)
- Carbon monoxide (630-08-0): **Reproductive Toxins:** (Reproductive Toxin category 1)

Ireland

- Carbon monoxide (630-08-0): **Substances with Potential Chronic Health Effects:** (Repr1A)
- Propane (74-98-6): **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)
- Nitrogen (7727-37-9): **Simple Asphyxiants:** (simple asphyxiant)

Sweden

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

Germany DFG

- Hexane (110-54-3): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to)
- Pentane (109-66-0): **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to)
- Carbon monoxide (630-08-0): **Pregnancy:** (risk to embryo/fetus probable)
- Propane (74-98-6): **Pregnancy:** (classification not yet possible)

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

- 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 or a faint, solvent-like odor.
Color	Colorless	Odor	Odorless or faint, solvent-like odor.
Odor Threshold	Data lacking		
General Properties			

Boiling Point	-195.8 C(-320.44 F) (Nitrogen)	Melting Point	-210 C(-346 F) (Nitrogen)
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	0.906 Water=1 (Nitrogen)	Water Solubility	Data lacking
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Data lacking		
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

- Nitrogen reacts with Li, Nd, and Ti at high temperatures.

10.6 Hazardous decomposition products

- No data available

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Hexane (0% TO 0.48%)	110-54-3	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 25 g/kg; Inhalation-Rat LC50 • 48000 ppm 4 Hour(s); **Irritation:** Eye-Rabbit • 10 mg • Mild irritation; **Reproductive:** Inhalation-Rat TCLo • 5000 ppm 20 Hour(s)(6-19D preg); *Reproductive Effects:Effects on Embryo or Fetus*:**Fetotoxicity (except death, e.g., stunted fetus)**
Pentane (0% TO 0.75%)	109-66-0	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • >2000 mg/kg; Inhalation-Rat LC50 • 364 g/m³ 4 Hour(s)
Carbon monoxide	630-08-	**Acute Toxicity:** Inhalation-Rat LC50 • 1807 ppm 4 Hour(s); **Reproductive:** Inhalation-Rat TCLo • 150 ppm (0-20D preg); *Reproductive Effects:Maternal Effects*:**Other**

(0.0005% TO 1%)	0	**effects**; *Reproductive Effects:Effects on Newborn*:**Biochemical and metabolic**; *Reproductive Effects:Effects on Newborn*:**Physical**
Oxygen (0.0015% TO 23.5%)	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** • Specific Target Organ Toxicity Repeated Exposure 2 **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; Toxic to Reproduction 1A **OSHA HCS 2012** • Toxic to Reproduction 1A
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

Route(s) of entry/exposure

- Inhalation, Skin, Eye

Potential Health Effects

Inhalation

Acute (Immediate)

- Inhalation of carbon dioxide can increase respiration and heart rate. 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. Inhalation over-exposures to atmospheres containing more than the Threshold Limit Value of Carbon Monoxide (25 ppm), another component of this gas mixture, can result in serious health consequences. Carbon Monoxide is classified as a chemical asphyxiant, producing a toxic action by combining with the hemoglobin of the blood and replacing the available oxygen. Through this replacement, the body is deprived of the required oxygen, and asphyxiation occurs. Since the affinity of Carbon Monoxide for hemoglobin is about 200-300 times that of oxygen, only a small amount of Carbon Monoxide will cause a toxic reaction to occur. Carbon Monoxide exposures in excess of 50 ppm will produce symptoms of poisoning if breathed for a sufficiently long time. If this gas mixture is released in a small, poorly ventilated area (i.e. an enclosed or confined space),

symptoms which may develop include the following: bright red lips and fingernails, headache progessing to heart palpitations, staggering, confusion, nausea, dizziness and unconsciousness with higher concentration exposures. For exposures greater than 2500 ppm there is potential for collapse and death before warning symptoms are experienced.

Chronic (Delayed)
- No data available

Skin

Acute (Immediate)
- Under normal conditions of use, no health effects are expected.

Chronic (Delayed)
- Under normal conditions of use, no health effects are expected.

Eye

Acute (Immediate)
- Under normal conditions of use, no health effects are expected.

Chronic (Delayed)
- Under normal conditions of use, no health effects are expected.

Ingestion

Acute (Immediate)
- Ingestion is not anticipated to be a likely route of exposure to this product.

Chronic (Delayed)
- Ingestion is not anticipated to be a likely route of exposure to this product.

Other

Chronic (Delayed)
- May cause damage to organs through prolonged or repeated exposure.

Carcinogenic Effects
- The components of this material are not found on the following lists: FEDERAL OSHA Z LIST, NTP and IARC; therefore, they are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

Reproductive Effects
- The Carbon Monoxide component of this gas mixture can cause teratogenic effects in humans. Severe exposure to Carbon Monoxide during pregnancy has caused adverse effects and the death of the fetus. In general, maternal symptoms are an indicator of the potential risk to the fetus since Carbon Monoxide is toxic to the mother before it is toxic to the fetus.

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. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.	2.2	NDA	NDA
TDG	UN1956	COMPRESSED GAS, N.O.S. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.	2.2	NDA	Potential Marine Pollutant
IMO/IMDG	UN1956	COMPRESSED GAS, FLAMMABLE, N.O.S. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.	2.2	NDA	NDA
IATA/ICAO	UN1956	Compressed gas, n.o.s. (*Oxygen, Nitrogen)*or the gas component with the next highest concentration next to Nitrogen.	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

- Pressure(Sudden Release of), Acute, Chronic

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Carbon monoxide	630-08-0	Yes	Yes	Yes
Hexane	110-54-3	Yes	Yes	Yes
Nitrogen	7727-37-9	Yes	Yes	Yes
Oxygen	7782-44-7	Yes	Yes	Yes
Pentane	109-66-0	Yes	Yes	Yes
Propane	74-98-6	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
Hexane	110-54-3	Yes	No	Yes	Yes	No

Nitrogen	7727-37-9	Yes	No	Yes	Yes	No
Oxygen	7782-44-7	Yes	No	Yes	Yes	No
Pentane	109-66-0	Yes	No	Yes	Yes	No
Propane	74-98-6	Yes	No	Yes	Yes	No

Inventory (Con't.)

Component	CAS	TSCA
Carbon monoxide	630-08-0	Yes
Hexane	110-54-3	Yes
Nitrogen	7727-37-9	Yes
Oxygen	7782-44-7	Yes
Pentane	109-66-0	Yes
Propane	74-98-6	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Carbon monoxide	630-08-0	A, B1, D1A, D2A
• Pentane	109-66-0	B2
• Oxygen	7782-44-7	A, C
• Propane	74-98-6	A, B1
• Hexane	110-54-3	B2, D2A, D2B
• Nitrogen	7727-37-9	A

Canada - WHMIS - Ingredient Disclosure List

• Carbon monoxide	630-08-0	0.1 %
• Pentane	109-66-0	1 %
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	1 %
• Nitrogen	7727-37-9	Not Listed

Environment

Canada - 2004 NPRI (National Pollutant Release Inventory)

• Carbon monoxide	630-08-0	Part 4 Substance
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Part 5 Substance
• Hexane	110-54-3	Part 1, Group 1 Substance; Part 5 Substance
• Nitrogen	7727-37-9	Not Listed

Canada - 2005 NPRI (National Pollutant Release Inventory)

• Carbon monoxide	630-08-0	Part 4 Substance
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Part 5 Substance
• Hexane	110-54-3	Part 1, Group 1 Substance; Part 5 Substance
• Nitrogen	7727-37-9	Not Listed

Canada - CEPA - Greenhouse Gases Subject to Mandatory Reporting

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Canada - CEPA - Priority Substances List

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Canada - DWQ (Drinking Water Quality) - IMACs

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Other

Canada - Accelerated Reduction/Elimination of Toxics (ARET)

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Canada New Brunswick

Environment

Canada - New Brunswick - Ozone Depleting Substances - Schedule A

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Canada - New Brunswick - Ozone Depleting Substances - Schedule B

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

China - Ozone Depleting Substances - Second Schedule

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

China - Ozone Depleting Substances - Third Schedule

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

China - Dangerous Goods List

• Carbon monoxide	630-08-0	
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	(compressed or refrigerated liquid)
• Propane	74-98-6	
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	(compressed or refrigerated liquid)

China - Export Control List - Part I Chemicals

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	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
• Pentane	109-66-0	F+; R12 N; R51-53 Xn; R65 R66 R67
• Oxygen	7782-44-7	O; R8
• Propane	74-98-6	F+; R12
• Hexane	110-54-3	F; R11 Xi; R38 N; R51-53 Repr.Cat.3; R62 Xn; R65-48/20 R67
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	5%<=C: Xn; R:48/20
• Nitrogen	7727-37-9	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
• Pentane	109-66-0	F+ Xn N R:12-51/53-65-66-67 S:(2)-9-16-29-33-61-62
• Oxygen	7782-44-7	O R:8 S:(2)-17
• Propane	74-98-6	F+ R:12 S:(2)-9-16
• Hexane	110-54-3	F Xn N R:11-38-48/20-62-65-67-51/53 S:(2)-9-16-29-33-36/37-61-62
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	E
• Pentane	109-66-0	C
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	S:53-45
• Pentane	109-66-0	S:(2)-9-16-29-33-61-62
• Oxygen	7782-44-7	S:(2)-17
• Propane	74-98-6	S:(2)-9-16
• Hexane	110-54-3	S:(2)-9-16-29-33-36/37-61-62
• Nitrogen	7727-37-9	Not Listed

Germany

Environment

Germany - TA Luft - Types and Classes

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed

• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	ID Number 743, not considered hazardous to water
• Propane	74-98-6	ID Number 560, not considered hazardous to water
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	ID Number 1351, not considered hazardous to water

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

• Carbon monoxide	630-08-0	ID Number 257, hazard class 1 - low hazard to waters
• Pentane	109-66-0	ID Number 452, hazard class 2 - hazard to waters
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	ID Number 124, hazard class 2 - hazard to waters
• Nitrogen	7727-37-9	Not Listed

Germany - Water Classification (VwVwS) - Annex 3

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

United Kingdom

Environment

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

• Carbon monoxide	630-08-0	100000 kg
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

United Kingdom - Substances Contained in Dangerous Substances or Preparations

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Other

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

United Kingdom - List of Dangerous Substances in Water

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

United States

Labor

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

Environment

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	5000 lb final RQ; 2270 kg final RQ
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	1.0 % de minimis concentration
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed

• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

United States - California

Environment

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	developmental toxicity, initial date 7/1/89
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed

• Nitrogen	7727-37-9	Not Listed

United States - Pennsylvania

Labor

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

• Carbon monoxide	630-08-0	
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Carbon monoxide	630-08-0	Not Listed
• Pentane	109-66-0	Not Listed
• Oxygen	7782-44-7	Not Listed
• Propane	74-98-6	Not Listed
• Hexane	110-54-3	Not Listed
• Nitrogen	7727-37-9	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
  H224 - Extremely flammable liquid and vapour
  H225 - Highly flammable liquid and vapour
  H270 - May cause or intensify fire; oxidizer
  H304 - May be fatal if swallowed and enters airways H315 - Causes skin irritation
  H331 - Toxic if inhaled
  H336 - May cause drowsiness or dizziness
  H361f - Suspected of damaging fertility.
  H372 - Causes damage to organs through prolonged or repeated exposure. H411 - Toxic to aquatic life with long lasting effects

  R8 - Contact with combustible material may cause fire.
  R11 - Highly flammable.
  R12 - Extremely flammable.
  R23 - Toxic by inhalation.
  R38 - Irritating to skin.
  R48/23 - Toxic: danger of serious damage to health by prolonged exposure through inhalation.
  R51 - Toxic to aquatic organisms.
  R53 - May cause long-term adverse effects in the aquatic environment. R62 - Possible risk of impaired fertility.
  R65 - Harmful: may cause lung damage if swallowed.
  R66 - Repeated exposure may cause skin dryness or cracking.
  R67 - Vapours may cause drowsiness and dizziness.

Last Revision Date
- 15/October/2014

Preparation Date
- 15/October/2014

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.

Key to abbreviations

NDA = No Data Available