Safety Data Sheet

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

1.1 Product identifier

Product Name
- **Ethylene (50-5000 ppm), Helium (15 - 1000 ppm), Benzene (5 – 1000 ppm), Toluene (10 - 250 ppm), n-Heptane (5 - 250 ppm), n-Hexane (5 - 250 ppm), Octane (10 - 75 ppm), Nitrogen (Balance)**

Product Code
- MSDS No.: 90055

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

Relevant identified use(s)
- Calibration of gas detection devices

Use(s) advised against
- Avoid contact with incompatible materials.

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
- Compressed Gas - H280
  Germ Cell Mutagenicity 1B - H340
  Carcinogenicity 1A - H350

DSD/DPD
- Carcinogenic Substances - Category 1
  Mutagenic Substances - Category 2

R45, R46

2.2 Label Elements

CLP

DANGER

Hazard statements
- H280 - Contains gas under pressure; may explode if heated
H340 - May cause genetic defects.
H350 - May cause cancer.

Precautionary statements

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

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

Storage/Disposal
- 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
- R45 - May cause cancer.
R46 - May cause heritable genetic damage.

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
Germ Cell Mutagenicity 1B - H340
Carcinogenicity 1A - H350
Reproductive Toxicity 2 - H361
Simple Asphyxiant

2.2 Label elements

OSHA HCS 2012

DANGER

Hazard statements
- Contains gas under pressure; may explode if heated - H280
May cause genetic defects. - H340
May cause cancer. - H350
Suspected of damaging fertility or the unborn child. - H361
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
  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
  Other Toxic Effects - D2A

2.2 Label elements

WHMIS

- Compressed Gas - A
  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).

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

Hazardous Components					
Chemical Name	**Identifiers**	**%(weight)**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
Nitrogen	**CAS:**7727-37-9 **EINECS:**231-783-9	99.2175% TO 99.99%	NDA	**EU DSD/DPD:** Not Classified - Classification criteria not met **EU CLP:** Self Classified - Press. Gas - Comp., H280 **OSHA HCS 2012:** Press. Gas - Comp.; Simple Asphyxiant	Balance

Ethylene	**CAS:**74-85-1 **EC Number:**200-815-3	0.005% TO 0.5%	NDA	**EU DSD/DPD:** Annex I - F+; R12 R67 **EU CLP:** Annex VI - Flam. Gas 1, H220; Press. Gas - Comp., H280; STOT SE 3, H336 **OSHA HCS 2012:** Eye Irrit. 2A; Press. Gas - Comp.; Flam. Gas 1; STOT SE 3: Narc	50-5000 ppm
Helium	**CAS:**7440-59-7 **EINECS:**231-168-5	0.0015% TO 0.1%	NDA	**EU DSD/DPD:** Not Classified - Criteria not met **EU CLP:** Self Classified - Press. Gas - Comp., H280 **OSHA HCS 2012:** Press. Gas - Comp.; Simple Asphyxiant	15-1000 ppm
Benzene	**CAS:**71-43-2 **EC Number:**200-753-7	0.0005% TO 0.1%	Ingestion/Oral-Rat LD50 • 930 mg/kg Inhalation-Rat LC50 • 10000 ppm 7 Hour(s) Skin-Rabbit LD50 • >9400 µL/kg	**EU DSD/DPD:** Annex I - F; R11 Carc. Cat. 1; R45 Muta. Cat. 2; R46 T; R48/23/24/25 Xn; R65 Xi; R36/38 **EU CLP:** Annex VI - Flam. Liq. 2, H225; Carc. 1A, H350; Muta. 1B, H340; STOT RE 1, H372; Asp. Tox. 1, H304; Eye Irrit. 2, H319; Skin Irrit. 2, H315 **OSHA HCS 2012:** Flam Liq. 2; Eye Irrit. 2A; Skin Irrit. 2, Muta. 1B; Carc. 1A; Asp. Tox 1; STOT RE 1 - Blood and Bone Marrow; Repr. 2; STOT SE 3: Narc.	5-1000 ppm
Toluene	**CAS:**108-88-3 **EC Number:**203-625-9	0.001% TO 0.025%	Ingestion/Oral-Rat LD50 • 636 mg/kg Inhalation-Rat LC50 • 49 g/m³ 4 Hour(s) Skin-Rabbit LD50 • 14100 µL/kg	**EU DSD/DPD:** Annex I: F; R11 Xi; R38 Xn; R48/20-65 Repr.Cat.3; R63 R67 **EU CLP:** Annex VI - Flam. Liq. 2, H225; Repr. 2, H361d; Asp. Tox. 1, H304; STOT RE 2 * H373; Skin Irrit. 2, H315; STOT SE 3, H336 **OSHA HCS 2012:** Flam. Liq. 2; Repr. 2; Acute Tox 4 (Oral); STOT SE 3: Narc.; Asp. Tox 1	10-250 ppm
n-Heptane	**CAS:**142-82-5 **EC Number:**205-563-8	0.0005% TO 0.025%	Inhalation-Rat LC50 • 103 g/m³ 4 Hour(s)	**EU DSD/DPD:** Annex I - F; R11 Xn; R65 Xi; R38 R67 N; R50-53 **EU CLP:** Annex VI - Flam. Liq. 2, H225; Asp. Tox. 1, H320; Skin Irrit. 2, H315; STOT SE 3, H336; Aquatic Acute 1, H400; Aquatic Chronic 1, H410 **OSHA HCS 2012:** Flam. Liq. 2; Skin Irrit. 2; Eye Irrit. 2; Asp. Tox. 1; STOT SE 3: Narc.	5-250 ppm
n-Hexane	**CAS:**110-54-3 **EC Number:**203-777-6	0.0005% TO 0.025%	Ingestion/Oral-Rat LD50 • 25 g/kg Inhalation-Rat LC50 • 48000 ppm 4 Hour(s)	**EU DSD/DPD:** Annex I - R11 Repr. Cat. 3; R62 Xn; R65-48/20 Xi; R38 R67 **EU CLP:** Annex VI - Flam. Liq. 2, H225; Repr. 2, H361F; Asp. Tox. 1, H304; STOT RE 2 *, H373; Skin Irrit. 2, H315; STOT SE 3, 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	5-250 ppm
Octane	**CAS:**111-65-9 **EC Number:**203-892-1	0.001% TO 0.0075%	Inhalation-Rat LC50 • 118 g/m³ 4 Hour(s)	**EU DSD/DPD:** Annex I - F; R11 Xn; R65 Xi; R38 R67 N; R50-53 **EU CLP:** Annex VI - Flam. Liq. 2, H225; Asp. Tox. 1, H320; Skin Irrit. 2, H315; STOT SE 3, H336; Aquatic Acute 1, H400; Aquatic Chronic 1, H410 **OSHA HCS 2012:** Flam. Liq. 2; Eye Irrit. 2; Skin Irrit. 2, STOT SE 3: Resp. Irrit. & Narc.; Asp. Tox. 1	10-75 ppm

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. If eye irritation persists: Get medical advice/attention.

Ingestion
- As this product is a gas, refer to the inhalation section.

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.

Unsuitable Extinguishing Media
- None known.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- Contains gas under pressure.
  Container may explode in a fire or if 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

- Avoid breathing gas. Ventilate the area before entry. In case of insufficient ventilation, wear suitable respiratory equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Emergency Procedures

- Evacuate area. Keep unauthorized personnel away. As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area)

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 from high heat. 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**	**Europe**	**NIOSH**
n-Hexane (110-54-3)	TWAs	50 ppm TWA	50 ppm TWA	50 ppm TWAEV; 176 mg/m3 TWAEV	20 ppm TWA; 72 mg/m3 TWA	50 ppm TWA; 180 mg/m3 TWA
n-Heptane (142-82-5)	STELs	500 ppm STEL (listed under Heptane, all isomers)	500 ppm STEL (listed under Heptane, all isomers)	500 ppm STEV; 2050 mg/m3 STEV	Not established	Not established
	TWAs	400 ppm TWA (listed under Heptane, all isomers)	400 ppm TWA	400 ppm TWAEV; 1640 mg/m3 TWAEV	Not established	85 ppm TWA; 350 mg/m3 TWA
	Ceilings	Not established	Not established	Not established	Not established	440 ppm Ceiling (15 min); 1800 mg/m3 Ceiling (15 min)
Benzene (71-43-2)	STELs	2.5 ppm STEL	2.5 ppm STEL (applies to workplaces to which the designated substance regulation does not apply); 2.5 ppm STEL (designated substances regulation)	5 ppm STEV; 15.5 mg/m3 STEV	Not established	1 ppm STEL
	TWAs	0.5 ppm TWA	0.5 ppm TWA (applies to workplaces to which the designated substance regulation does not apply); 0.5 ppm TWA (designated substance regulation)	1 ppm TWAEV; 3 mg/m3 TWAEV	Not established	0.1 ppm TWA
Toluene (108-88-3)	STELs	Not established	Not established	Not established	100 ppm STEL; 384 mg/m3 STEL	150 ppm STEL; 560 mg/m3 STEL
	TWAs	20 ppm TWA	20 ppm TWA	50 ppm TWAEV; 188 mg/m3 TWAEV	50 ppm TWA; 192 mg/m3 TWA	100 ppm TWA; 375 mg/m3 TWA
Octane (111-65-9)	TWAs	300 ppm TWA	300 ppm TWA (all isomers)	300 ppm TWAEV; 1400 mg/m3 TWAEV	Not established	75 ppm TWA; 350 mg/m3 TWA
	STELs	Not established	Not established	375 ppm STEV; 1750 mg/m3 STEV	Not established	Not established
	Ceilings	Not established	Not established	Not established	Not established	385 ppm Ceiling (15 min); 1800 mg/m3 Ceiling (15 min)
Ethylene (74-85-1)	TWAs	200 ppm TWA	200 ppm TWA	Not established	Not established	Not established

Exposure Limits/Guidelines (Con't.)		
	Result	**OSHA**
n-Hexane (110-54-3)	TWAs	500 ppm TWA; 1800 mg/m3 TWA
n-Heptane (142-82-5)	TWAs	500 ppm TWA; 2000 mg/m3 TWA
	Ceilings	25 ppm Ceiling

Benzene (71-43-2)	STELs	5 ppm STEL (see 29 CFR 1910.1028)
	TWAs	10 ppm TWA (applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028); 1 ppm TWA
Toluene (108-88-3)	Ceilings	300 ppm Ceiling
	TWAs	200 ppm TWA
Octane (111-65-9)	TWAs	500 ppm TWA; 2350 mg/m3 TWA

Exposure Control Notations

Canada Ontario

•Benzene (71-43-2): **Designated Substances:** (0.5 ppm TWA; 2.5 ppm STEL)

•Nitrogen (7727-37-9): **Simple Asphyxiants:** (Simple asphyxiant)

•Helium (7440-59-7): **Simple Asphyxiants:** (Simple asphyxiant)

Canada Quebec

•Ethylene (74-85-1): **Simple Asphyxiants:** (Simple asphyxiant)

•Benzene (71-43-2): **Carcinogens:** (C1 carcinogen - effect detected in humans)

•Nitrogen (7727-37-9): **Simple Asphyxiants:** (Simple asphyxiant)

•Helium (7440-59-7): **Simple Asphyxiants:** (Simple asphyxiant)

ACGIH

•Nitrogen (7727-37-9): **Simple Asphyxiants:** (Simple asphyxiant)

•Helium (7440-59-7): **Simple Asphyxiants:** (Simple asphyxiant)

Exposure Limits Supplemental

ACGIH

•Octane (111-65-9): **TLV Basis - Critical Effects:** (upper respiratory tract irritation)

•Ethylene (74-85-1): **TLV Basis - Critical Effects:** (asphyxia)

•n-Heptane (142-82-5): **TLV Basis - Critical Effects:** (CNS impairment (listed under Heptane, all isomers); upper respiratory tract irritation (listed under Heptane, all isomers))

•Toluene (108-88-3): **TLV Basis - Critical Effects:** (female reproductive; pregnancy loss; visual impairment)

•Benzene (71-43-2): **TLV Basis - Critical Effects:** (leukemia)

•n-Hexane (110-54-3): **TLV Basis - Critical Effects:** (CNS impairment; eye irritation; peripheral neuropathy)

•Nitrogen (7727-37-9): **TLV Basis - Critical Effects:** (asphyxia)

•Helium (7440-59-7): **TLV Basis - Critical Effects:** (asphyxia)

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
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
TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures
STEV = Short Term Exposure Value
TWAEV = Time-Weighted Average Exposure Value

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with aromatic odor.
Color	Colorless	Odor	Aromatic odor.
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	0.0234 % @ 0 C(32 F) Nitrogen
Viscosity	0.0002 Poise (P, Ps) or dyne-second/cm2 @ 0 C(32 F) Nitrogen	Oxidizing Properties:	Not relevant.
Volatility			
Vapor Pressure	Data lacking	Vapor Density	0.97 Air=1 Data lacking Nitrogen
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

- Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

- No data available.

10.5 Incompatible materials

- No data available

10.6 Hazardous decomposition products

- Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Component Name	CAS	Data
Benzene (0.0005% TO 0.1%)	71-43-2	**Acute Toxicity:** orl-rat LD50:1800 mg/kg; ihl-rat LC50:10000 ppm/7H; **Irritation:** eye-rbt 2 mg/24H SEV; skn-rbt 15 mg/24H open MLD; **Reproductive:** ihl-rat TCLo:50 ppm/24H (7-14D preg); **Tumorigen/Carcinogen:** orl-rat TD :52 gm/kg/1Y-I
Toluene (0.001% TO 0.025%)	108-88-3	**Acute Toxicity:** orl-rat LD50:636 mg/kg; ihl-rat LC50:49 gm/m3/4H; skn-rbt LD50:14100 uL/kg; **Irritation:** eye-rbt 100 mg/30S rinse MLD; skn-rbt 435 mg MLD; **Reproductive:** ihl-rat TCLo:1500 ppm (7-20D preg)
n-Heptane (0.0005% TO 0.025%)	142-82-5	**Acute Toxicity:** ihl-rat LC50:103 gm/m3/4H
n-Hexane (0.0005% TO 0.025%)	110-54-3	**Acute Toxicity:** orl-rat LD50:25 gm/kg; ihl-rat LC50:48000 ppm/4H; **Irritation:** eye-rbt 10 mg MLD; **Reproductive:** ihl-rat TCLo:5000 ppm (6-19D preg)
Octane (0.001% TO 0.0075%)	111-65-9	**Acute Toxicity:** ihl-rat LC50:118 gm/m3/4H

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** • Carcinogenicity 1A **OSHA HCS 2012** • Carcinogenicity 1A
Germ Cell Mutagenicity	**EU/CLP** • Germ Cell Mutagenicity 1B **OSHA HCS 2012** • Germ Cell Mutagenicity 1B
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** • Classification criteria not met **OSHA HCS 2012** • Toxic to Reproduction 2

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, Ingestion

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

Chronic (Delayed)
- No data available

Eye

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

Chronic (Delayed)
- No data available

Ingestion

Acute (Immediate)
- Ingestion will not occur due to the physical form of this product.

Chronic (Delayed)
- No data available

Mutagenic Effects
- Repeated and prolonged exposure may cause mutagenic effects.

Carcinogenic Effects
- Material level data is not available however this gas mixture contains ingredients which may cause carcinogenic effects upon prolonged and repeated exposure.

Reproductive Effects
- Repeated and prolonged exposure may cause reproductive effects.

Key to abbreviations

LC = Lethal Concentration
LD = Lethal Dose
MLD = Mild
SEV = Severe
TC = Toxic Concentration
TD = Toxic Dose

Section 12 - Ecological Information

12.1 Toxicity

Component	CAS	Data	Comments
n-Hexane (0.0005% TO 0.025%)	110-54-3	**Fish:** 96 Hour(s) LC50 Fish 2.1-2.98 mg/L	

- 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

- Material data lacking.

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)	2.2	NDA	NDA
TDG	UN1956	COMPRESSED GAS N.O.S. (Nitrogen)	2.2	NDA	NDA
IMO/IMDG	UN1956	COMPRESSED GAS, N.O.S. (Nitrogen)	2.2	NDA	NDA
IATA/ICAO	UN1956	Compressed gas, n.o.s. (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
- Acute, Chronic, Pressure(Sudden Release of)

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Nitrogen	7727-37-9	Yes	Yes	Yes
Ethylene	74-85-1	Yes	Yes	Yes
Helium	7440-59-7	Yes	Yes	Yes
Benzene	71-43-2	Yes	Yes	Yes
Toluene	108-88-3	Yes	Yes	Yes
n-Heptane	142-82-5	Yes	Yes	Yes
n-Hexane	110-54-3	Yes	Yes	Yes
Octane	111-65-9	Yes	Yes	Yes

Inventory				
Component	**CAS**	**Canada DSL**	**EU EINECS**	**TSCA**
Nitrogen	7727-37-9	Yes	Yes	Yes
Ethylene	74-85-1	Yes	Yes	Yes
Helium	7440-59-7	Yes	Yes	Yes
Benzene	71-43-2	Yes	Yes	Yes
Toluene	108-88-3	Yes	Yes	Yes
n-Heptane	142-82-5	Yes	Yes	Yes
n-Hexane	110-54-3	Yes	Yes	Yes
Octane	111-65-9	Yes	Yes	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Octane	111-65-9	0.001% TO 0.0075%	B2, D2B
• Ethylene	74-85-1	0.005% TO 0.5%	A, B1, D2B
• n-Heptane	142-82-5	0.0005% TO 0.025%	B2, D2B
• Toluene	108-88-3	0.001% TO 0.025%	B2, D2A, D2B
• Benzene	71-43-2	0.0005% TO 0.1%	B2, D2A, D2B
• n-Hexane	110-54-3	0.0005% TO 0.025%	B2, D2A, D2B
• Nitrogen	7727-37-9	99.2175% TO 99.99%	A
• Helium	7440-59-7	0.0015% TO 0.1%	A

Canada - WHMIS - Ingredient Disclosure List

• Octane	111-65-9	0.001% TO 0.0075%	1 %
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	1 %
• Toluene	108-88-3	0.001% TO 0.025%	1 %
• Benzene	71-43-2	0.0005% TO 0.1%	0.1 %
• n-Hexane	110-54-3	0.0005% TO 0.025%	1 %
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

Environment

Canada - CEPA - Priority Substances List

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Priority Substance List 1 (substance not considered toxic)
• Benzene	71-43-2	0.0005% TO 0.1%	Priority Substance List 1 (substance considered toxic)
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

Europe

Other

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

• Octane	111-65-9	0.001% TO 0.0075%	F; R11 Xi; R38 N; R50-53 Xn; R65 R67
• Ethylene	74-85-1	0.005% TO 0.5%	F+; R12 R67
• n-Heptane	142-82-5	0.0005% TO 0.025%	F; R11 Xi; R38 N; R50-53 Xn; R65 R67
• Toluene	108-88-3	0.001% TO 0.025%	F; R11 Xi; R38 Xn; R48/20-65 Repr.Cat.3; R63 R67
• Benzene	71-43-2	0.0005% TO 0.1%	F; R11 Xi; R36/38 Carc.Cat.1; R45 Muta.Cat.2; R46 T; R48/23/24/25 Xn; R65
• n-Hexane	110-54-3	0.0005% TO 0.025%	F; R11 Xi; R38 N; R51-53 Repr.Cat.3; R62 Xn; R65-48/20 R67
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed
• Benzene	71-43-2	0.0005% TO 0.1%	Not Listed
• n-Hexane	110-54-3	0.0005% TO 0.025%	5%<=C: Xn; R48/20
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	F Xn N R:11-38-65-67-50/53 S:(2)-9-16-29-33-60-61-62
• Ethylene	74-85-1	0.005% TO 0.5%	F+ R:12-67 S:(2)-9-16-33-45
• n-Heptane	142-82-5	0.0005% TO 0.025%	F Xn N R:11-38-65-67-50/53 S:(2)-9-16-29-33-60-61-62
• Toluene	108-88-3	0.001% TO 0.025%	F Xn R:11-38-48/20-63-65-67 S:(2)-36/37-46-62
• Benzene	71-43-2	0.0005% TO 0.1%	F T R:45-46-11-36/38-48/23/24/25-65 S:53-45
• n-Hexane	110-54-3	0.0005% TO 0.025%	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	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	C
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	C
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed
• Benzene	71-43-2	0.0005% TO 0.1%	E
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	S:(2)-9-16-29-33-60-61-62
• Ethylene	74-85-1	0.005% TO 0.5%	S:(2)-9-16-33-45
• n-Heptane	142-82-5	0.0005% TO 0.025%	S:(2)-9-16-29-33-60-61-62
• Toluene	108-88-3	0.001% TO 0.025%	S:(2)-36/37-46-62
• Benzene	71-43-2	0.0005% TO 0.1%	S:53-45
• n-Hexane	110-54-3	0.0005% TO 0.025%	S:(2)-9-16-29-33-36/37-61-62
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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United Kingdom

Environment

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	1000 kg
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	100 kg
• Benzene	71-43-2	0.0005% TO 0.1%	1000 kg
• n-Hexane	110-54-3	0.0005% TO 0.025%	10 kg
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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United States

Labor

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed
• Benzene	71-43-2	0.0005% TO 0.1%	Not Listed
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed

• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed
• Benzene	71-43-2	0.0005% TO 0.1%	5 ppm STEL (Cancer hazard, Flammable, See 29 CFR 1910.1028, 15 min); 0.5 ppm Action Level; 1 ppm TWA
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

Environment

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	
• Benzene	71-43-2	0.0005% TO 0.1%	(including Benzene from gasoline)
• n-Hexane	110-54-3	0.0005% TO 0.025%	
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	1000 lb final RQ; 454 kg final RQ
• Benzene	71-43-2	0.0005% TO 0.1%	10 lb final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule); 4.54 kg final RQ (received an adjusted RQ of 10 lbs based on potential carcinogenicity in an August 14, 1989 final rule)
• n-Hexane	110-54-3	0.0005% TO 0.025%	5000 lb final RQ; 2270 kg final RQ
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed

• Benzene	71-43-2	0.0005% TO 0.1%	Not Listed
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed
• Benzene	71-43-2	0.0005% TO 0.1%	Not Listed
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	1.0 % de minimis concentration
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	1.0 % de minimis concentration
• Benzene	71-43-2	0.0005% TO 0.1%	0.1 % de minimis concentration
• n-Hexane	110-54-3	0.0005% TO 0.025%	1.0 % de minimis concentration
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Included in waste streams: F005, F024, F025, F039, K015, K036, K037, K149, K151
• Benzene	71-43-2	0.0005% TO 0.1%	Included in waste streams: F005, F024, F025, F037, F038, F039, K085, K104, K105, K141, K142, K143, K144, K145, K147, K151, K159, K169, K171, K172
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	
• Benzene	71-43-2	0.0005% TO 0.1%	
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed

• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - D Series Wastes - Max Conc of Contaminants for the Tox Characteristic

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed
• Benzene	71-43-2	0.0005% TO 0.1%	0.5 mg/L regulatory level
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	waste number U220
• Benzene	71-43-2	0.0005% TO 0.1%	waste number U019
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - List for Hazardous Constituents

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	
• Benzene	71-43-2	0.0005% TO 0.1%	
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Phase 4 LDR Rule - Universal Treatment Standards

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	0.080 mg/L (wastewater); 10 mg/kg (nonwastewater)
• Benzene	71-43-2	0.0005% TO 0.1%	0.14 mg/L (wastewater); 10 mg/kg (nonwastewater)
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - TSD Facilities Ground Water Monitoring

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	
• Benzene	71-43-2	0.0005% TO 0.1%	
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	waste number U220
• Benzene	71-43-2	0.0005% TO 0.1%	waste number U019 (Ignitable waste, Toxic waste)
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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United States - California

Environment

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed
• Benzene	71-43-2	0.0005% TO 0.1%	carcinogen, initial date 2/27/87
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	developmental toxicity, initial date 1/1/91
• Benzene	71-43-2	0.0005% TO 0.1%	developmental toxicity, initial date 12/26/97
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	7000 µg/day MADL (level represents absorbed dose)
• Benzene	71-43-2	0.0005% TO 0.1%	24 µg/day MADL (oral); 49 µg/day MADL (inhalation)
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed
• Benzene	71-43-2	0.0005% TO 0.1%	6.4 µg/day NSRL (oral); 13 µg/day NSRL (inhalation)
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	female reproductive toxicity, initial date 8/7/09
• Benzene	71-43-2	0.0005% TO 0.1%	Not Listed
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed
• Benzene	71-43-2	0.0005% TO 0.1%	male reproductive toxicity, initial date 12/26/97
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

United States - Pennsylvania

Labor

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	
• Benzene	71-43-2	0.0005% TO 0.1%	
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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

• Octane	111-65-9	0.001% TO 0.0075%	Not Listed
• Ethylene	74-85-1	0.005% TO 0.5%	Not Listed
• n-Heptane	142-82-5	0.0005% TO 0.025%	Not Listed
• Toluene	108-88-3	0.001% TO 0.025%	Not Listed
• Benzene	71-43-2	0.0005% TO 0.1%	
• n-Hexane	110-54-3	0.0005% TO 0.025%	Not Listed
• Nitrogen	7727-37-9	99.2175% TO 99.99%	Not Listed
• Helium	7440-59-7	0.0015% TO 0.1%	Not Listed

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15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H318 - Causes serious eye damage
  H302 - Harmful if swallowed
  H315 - Causes skin irritation
  H319 - Causes serious eye irritation
  R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed.
  R36/38 - Irritating to eyes and skin.

Last Revision Date
- 25/April/2013

Preparation Date
- 10/August/2012

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