30 Components in Nitrogen

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 08/13/2015 Version: 2.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture

Product name : 30 Components in Nitrogen

Product code : SG-2031-02872

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

Use of the substance/mixture : Test gas/Calibration gas.

1.3. Details of the supplier of the safety data sheet

Air Liquide
2700 Post Oak Boulevard
Houston, TX 77056 - USA
T 1-800-819-1704
www.us.airliquide.com

1.4. Emergency telephone number

Emergency number : CHEMTREC: 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Compressed gas H280

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :

GHS04

Signal word (GHS-US) : Warning

Hazard statements (GHS-US) : H280 - Contains gas under pressure; may explode if heated
OSHA-H01 - May displace oxygen and cause rapid suffocation

Precautionary statements (GHS-US) : P202 - Do not handle until all safety precautions have been read and understood
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear eye protection, face protection, protective gloves, protective clothing
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P308+P313 - If exposed or concerned: Get medical advice/attention
P403 - Store in a well-ventilated place
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F)
CGA-PG05 - Use a back flow preventive device in the piping
CGA-PG06 - Close valve after each use and when empty
CGA-PG10 - Use only with equipment rated for cylinder pressure
CGA-PG14 - Approach suspected leak area with caution
CGA-PG21 - Open valve slowly

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

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Name	Product identifier	%	GHS-US classification
Nitrogen	(CAS No) 7727-37-9	99.901 - 99.9997	Compressed gas, H280
Isooctane	(CAS No) 540-84-1	0.00001 - 0.0033	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Ethyl alcohol	(CAS No) 64-17-5	0.00001 - 0.0033	Flam. Liq. 2, H225 Eye Irrit. 2A, H319
ETHYL TERT-BUTYL ETHER	(CAS No) 637-92-3	0.00001 - 0.0033	Flam. Liq. 2, H225 STOT SE 3, H336
TERT-BUTYL ALCOHOL	(CAS No) 75-65-0	0.00001 - 0.0033	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation:gas), H332 Eye Irrit. 2A, H319 STOT SE 3, H335
n-PROPYL BENZENE	(CAS No) 103-65-1	0.00001 - 0.0033	Flam. Liq. 3, H226 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
n-Butane	(CAS No) 106-97-8	0.00001 - 0.0033	Flam. Gas 1, H220 Liquefied gas, H280
Isobutane	(CAS No) 75-28-5	0.00001 - 0.0033	Flam. Gas 1, H220 Liquefied gas, H280
Difluoroethane (R152a)	(CAS No) 75-37-6	0.00001 - 0.0033	Flam. Gas 1, H220 Liquefied gas, H280
Tetrafluoroethane (R134a)	(CAS No) 811-97-2	0.00001 - 0.0033	Liquefied gas, H280
acrylonitrile	(CAS No) 107-13-1	0.00001 - 0.0033	Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 Carc. 1B, H350 STOT SE 3, H335 Aquatic Chronic 2, H411
n-BUTYLBENZENE	(CAS No) 104-51-8	0.00001 - 0.0033	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
1-Methyl-4-Isopropylbenzene	(CAS No) 99-87-6	0.00001 - 0.0033	Flam. Liq. 3, H226 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
PROPIONITRILE	(CAS No) 107-12-0	0.00001 - 0.0033	Flam. Liq. 2, H225 Acute Tox. 3 (Inhalation:gas), H331 Eye Irrit. 2A, H319
tert-Amyl Methyl Ether	(CAS No) 994-05-8	0.00001 - 0.0033	Flam. Liq. 2, H225 STOT SE 3, H336
3-chloropropene, allyl chloride	(CAS No) 107-05-1	0.00001 - 0.0033	Flam. Liq. 2, H225 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Muta. 2, H341 Carc. 2, H351 STOT SE 3, H335 STOT RE 2, H373 Aquatic Acute 1, H400
ISOPROPYL ETHER	(CAS No) 108-20-3	0.00001 - 0.0033	Flam. Liq. 2, H225 STOT SE 3, H336
1,2,3-TRICHLOROBENZENE	(CAS No) 87-61-6	0.00001 - 0.0033	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335 Aquatic Chronic 2, H411
Propane	(CAS No) 74-98-6	0.00001 - 0.0033	Flam. Gas 1, H220 Liquefied gas, H280

Name	Product identifier	%	GHS-US classification
Octane	(CAS No) 111-65-9	0.00001 - 0.0033	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Methyl alcohol	(CAS No) 67-56-1	0.00001 - 0.0033	Flam. Gas 1, H220 Liquefied gas, H280 Acute Tox. 4 (Inhalation:vapour), H332 STOT SE 1, H370
N-NONANE	(CAS No) 111-84-2	0.00001 - 0.0033	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:gas), H332 Acute Tox. 4 (Inhalation:vapour), H332 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H336
N-DECANE	(CAS No) 124-18-5	0.00001 - 0.0033	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:gas), H332 Asp. Tox. 1, H304
ISOPROPYL BENZENE	(CAS No) 98-82-8	0.00001 - 0.0033	Flam. Liq. 3, H226 STOT SE 3, H335 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
sec- BUTYL BENZENE	(CAS No) 135-98-8	0.00001 - 0.0033	Flam. Liq. 3, H226 Skin Irrit. 2, H315 Asp. Tox. 1, H304 Aquatic Chronic 2, H411
TERT-BUTYL BENZENE	(CAS No) 98-06-6	0.00001 - 0.0033	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:gas), H332 Skin Irrit. 2, H315
1,2,3-TRICHLOROPROPANE	(CAS No) 96-18-4	0.00001 - 0.0033	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 3 (Inhalation:gas), H331 Carc. 1B, H350 Repr. 1B, H360
METHYL STYRENE (ALPHA)	(CAS No) 98-83-9	0.00001 - 0.0033	Flam. Liq. 3, H226 Eye Irrit. 2A, H319 STOT SE 3, H335 Aquatic Chronic 2, H411
O-CHLOROTOLUENE	(CAS No) 95-49-8	0.00001 - 0.0033	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation:gas), H332 Aquatic Chronic 2, H411
ETHYL METHACRYLATE	(CAS No) 97-63-2	0.00001 - 0.0033	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Skin Sens. 1, H317 STOT SE 3, H335
1-2-DIBROMO-3CHLOROPROPANE	(CAS No) 96-12-8	0.00001 - 0.0033	Acute Tox. 3 (Oral), H301 Muta. 1B, H340 Carc. 1B, H350 Repr. 1A, H360 STOT RE 2, H373 Aquatic Chronic 3, H412

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact : Adverse effects not expected from this product.

First-aid measures after eye contact : Adverse effects not expected from this product.

First-aid measures after ingestion : Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May displace oxygen and cause rapid suffocation.

Symptoms/injuries after skin contact	:	Adverse effects not expected from this product.
Symptoms/injuries after eye contact	:	Adverse effects not expected from this product.
Symptoms/injuries after ingestion	:	Ingestion is not considered a potential route of exposure.
Symptoms/injuries upon intravenous administration	:	Not known.
Chronic symptoms	:	Adverse effects not expected from this product.

4.3. Indication of any immediate medical attention and special treatment needed

If you feel unwell, seek medical advice. If breathing is difficult, give oxygen.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media	:	Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	The product is not flammable.
Explosion hazard	:	Product is not explosive. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.
Reactivity	:	None known.

5.3. Advice for firefighters

Firefighting instructions	:	In case of fire: Evacuate area. Fight fire remotely due to the risk of explosion. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire.
Protection during firefighting	:	Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Ensure adequate ventilation.

6.1.1. For non-emergency personnel

Protective equipment	:	Wear protective equipment consistent with the site emergency plan.
Emergency procedures	:	Escape the danger area by the closest safe route. Close doors and windows of adjacent premises. Keep containers closed. Mark the danger area. Seal off low-lying areas. Keep upwind.

6.1.2. For emergency responders

Protective equipment	:	Standard protective clothing and equipment (e.g., Self Contained Breathing Apparatus) for fire fighters. Equip cleanup crew with proper protection.
Emergency procedures	:	Evacuate and limit access. Ventilate area.

6.2. Environmental precautions

Try to stop release if safe to do so.

6.3. Methods and material for containment and cleaning up

For containment	:	Try to stop release if safe to do so.
Methods for cleaning up	:	Dispose of this material and its container in accordance with local regulations.

6.4. Reference to other sections

See also Sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	:	Pressurized container: Do not pierce or burn, even after use. Use equipment rated for cylinder pressure. Close valve after each use and when empty.
Precautions for safe handling	:	Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.
Hygiene measures	:	Do not eat, drink or smoke when using this product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations.

Storage conditions	:	Do not expose to temperatures exceeding 52°C (125°F). Keep container closed when not in use. Protect cylinder from physical damage. Store in well ventilated area.
Incompatible products	:	None known.
Incompatible materials	:	None known.

7.3. Specific end use(s)

See Section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

30 Components in Nitrogen		
ACGIH	Not applicable	
OSHA	Not applicable	

Isooctane (540-84-1)		
ACGIH	Not applicable	
OSHA	Not applicable	

Ethyl alcohol (64-17-5)		
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	1900 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

ETHYL TERT-BUTYL ETHER (637-92-3)		
ACGIH	Not applicable	
OSHA	Not applicable	

TERT-BUTYL ALCOHOL (75-65-0)		
ACGIH	Not applicable	
OSHA	Not applicable	

Nitrogen (7727-37-9)		
ACGIH	Not applicable	
OSHA	Not applicable	

n-PROPYL BENZENE (103-65-1)		
ACGIH	Not applicable	
OSHA	Not applicable	

n-BUTYLBENZENE (104-51-8)		
ACGIH	Not applicable	
OSHA	Not applicable	

n-Butane (106-97-8)		
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	Not applicable	

3-chloropropene, allyl chloride (107-05-1)		
ACGIH	Not applicable	
OSHA	Not applicable	

PROPIONITRILE (107-12-0)		
ACGIH	Not applicable	
OSHA	Not applicable	

acrylonitrile (107-13-1)		
ACGIH	Not applicable	

acrylonitrile (107-13-1)	
OSHA	Not applicable

ISOPROPYL ETHER (108-20-3)	
ACGIH	Not applicable
OSHA	Not applicable

Difluoroethane (R152a) (75-37-6)	
ACGIH	Not applicable
OSHA	Not applicable

Isobutane (75-28-5)		
ACGIH	ACGIH STEL (ppm)	1000 ppm
OSHA	Not applicable	

1,2,3-TRICHLOROBENZENE (87-61-6)	
ACGIH	Not applicable
OSHA	Not applicable

Tetrafluoroethane (R134a) (811-97-2)	
ACGIH	Not applicable
OSHA	Not applicable

tert-Amyl Methyl Ether (994-05-8)	
ACGIH	Not applicable
OSHA	Not applicable

1-Methyl-4-Isopropylbenzene (99-87-6)	
ACGIH	Not applicable
OSHA	Not applicable

METHYL STYRENE (ALPHA) (98-83-9)	
ACGIH	Not applicable
OSHA	Not applicable

ISOPROPYL BENZENE (98-82-8)	
ACGIH	Not applicable
OSHA	Not applicable

TERT-BUTYL BENZENE (98-06-6)	
ACGIH	Not applicable
OSHA	Not applicable

ETHYL METHACRYLATE (97-63-2)	
ACGIH	Not applicable
OSHA	Not applicable

1,2,3-TRICHLOROPROPANE (96-18-4)	
ACGIH	Not applicable
OSHA	Not applicable

1-2-DIBROMO-3CHLOROPROPANE (96-12-8)	
ACGIH	Not applicable
OSHA	Not applicable

O-CHLOROTOLUENE (95-49-8)	
ACGIH	Not applicable
OSHA	Not applicable

Propane (74-98-6)		
ACGIH	ACGIH TWA (ppm)	1000 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	1800 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

Methyl alcohol (67-56-1)		
ACGIH	ACGIH TWA (ppm)	200 ppm
ACGIH	ACGIH STEL (ppm)	250 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	260 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	200 ppm

sec- BUTYL BENZENE (135-98-8)	
ACGIH	Not applicable
OSHA	Not applicable

Octane (111-65-9)		
ACGIH	ACGIH TWA (ppm)	300 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	2350 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	500 ppm

N-NONANE (111-84-2)	
ACGIH	Not applicable
OSHA	Not applicable

N-DECANE (124-18-5)	
ACGIH	Not applicable
OSHA	Not applicable

8.2. Exposure controls

Appropriate engineering controls : Ensure exposure is below occupational exposure limits. Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Oxygen detectors should be used when asphyxiating gases may be released. Consider work permit system e.g. for maintenance activities.

Hand protection : Wear working gloves when handling gas containers. 29 CFR 1910.138: Hand Protection.

Eye protection : Wear safety glasses with side shields. 29 CFR 1910.133: Eye and Face Protection.

Skin and body protection : Wear suitable protective clothing, e.g. - lab coats, coveralls or flame resistant clothing.

Respiratory protection : None necessary during normal and routine operations. See Sections 5 & 6.

Thermal hazard protection : None necessary during normal and routine operations.

Environmental exposure controls : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

Other information : Wear safety shoes while handling containers. 29 CFR 1910.136: Foot Protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas

Appearance : Clear, colorless gas.

Color : Colorless

Odor : No data available

Odor threshold : No data available

pH : No data available

Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	Not applicable - not flammable
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	See Section 2.1 and 2.2
Explosion limits	:	Not applicable - not flammable
Explosive properties	:	Not applicable - not flammable.
Oxidizing properties	:	None.
Vapor pressure	:	No data available
Relative density	:	No data available
Relative vapor density at 20 °C	:	No data available
Molecular mass	:	Not applicable for gas-mixtures.
Relative gas density	:	Similar to air
Solubility	:	No data available
Log Pow	:	No data available
Log Kow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

None known.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

None known.

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

Acute toxicity : Not classified

Ethyl alcohol (64-17-5)	
LC50 inhalation rat (mg/l)	124.7 mg/l/4h
LC50 inhalation rat (ppm)	66180 ppm/4h

TERT-BUTYL ALCOHOL (75-65-0)	
ATE US (gases)	4500.000 ppmV/4h

Nitrogen (7727-37-9)	
LC50 inhalation rat (ppm)	820000 ppm/4h

n-PROPYL BENZENE (103-65-1)	
LD50 oral rat	6040 mg/kg
LC50 inhalation rat (ppm)	45955 ppm/4h

n-Butane (106-97-8)	
LC50 inhalation rat (mg/l)	658 g/m³ (Exposure time: 4 h)
LC50 inhalation rat (ppm)	276789.28 ppm/4h

3-chloropropene, allyl chloride (107-05-1)	
ATE US (oral)	500.000 mg/kg body weight
ATE US (dermal)	1100.000 mg/kg body weight
ATE US (gases)	4500.000 ppmV/4h
ATE US (vapors)	11.000 mg/l/4h
ATE US (dust, mist)	1.500 mg/l/4h

PROPIONITRILE (107-12-0)	
LC50 inhalation rat (ppm)	2000 ppm/4h
ATE US (gases)	700.000 ppmV/4h

acrylonitrile (107-13-1)	
LC50 inhalation rat (ppm)	333 ppm/4h
ATE US (oral)	100.000 mg/kg body weight
ATE US (dermal)	300.000 mg/kg body weight
ATE US (gases)	700.000 ppmV/4h
ATE US (vapors)	3.000 mg/l/4h
ATE US (dust, mist)	0.500 mg/l/4h

Difluoroethane (R152a) (75-37-6)	
LC50 inhalation rat (ppm)	256000 ppm/4h
ATE US (gases)	256000.000 ppmV/4h

Isobutane (75-28-5)	
LC50 inhalation rat (mg/l)	658 mg/l/4h
LC50 inhalation rat (ppm)	276713.11 ppm/4h

1,2,3-TRICHLOROBENZENE (87-61-6)	
ATE US (oral)	500.000 mg/kg body weight

Tetrafluoroethane (R134a) (811-97-2)	
LC50 inhalation rat (mg/l)	1500 g/m³ (Exposure time: 4 h)
LC50 inhalation rat (ppm)	359417.88 ppm/4h

1-Methyl-4-Isopropylbenzene (99-87-6)	
LD50 oral rat	4750 mg/kg

ISOPROPYL BENZENE (98-82-8)	
LD50 oral rat	2260 mg/kg Sig Ald
LC50 inhalation rat (ppm)	7932.36836 ppm/4h AS400

TERT-BUTYL BENZENE (98-06-6)	
LD50 oral rat	3045 Sig Ald
ATE US (gases)	4500.000 ppmV/4h

1,2,3-TRICHLOROPROPANE (96-18-4)	
LC50 inhalation rat (ppm)	2000 ppm/4h
ATE US (oral)	500.000 mg/kg body weight
ATE US (dermal)	1100.000 mg/kg body weight
ATE US (gases)	700.000 ppmV/4h

1-2-DIBROMO-3CHLOROPROPANE (96-12-8)	
ATE US (oral)	100.000 mg/kg body weight

O-CHLOROTOLUENE (95-49-8)	
ATE US (gases)	4500.000 ppmV/4h

Propane (74-98-6)	
LC50 inhalation rat (mg/l)	658 mg/l/4h
LC50 inhalation rat (ppm)	282800 ppm/4h

Methyl alcohol (67-56-1)	
LD50 oral rat	5628 mg/kg
LD50 dermal rabbit	17100 mg/kg
LC50 inhalation rat (mg/l)	3.273 mg/l/4h
LC50 inhalation rat (ppm)	2501 ppm/4h
ATE US (oral)	5628.000 mg/kg body weight
ATE US (dermal)	17100.000 mg/kg body weight
ATE US (gases)	2501.000 ppmV/4h
ATE US (vapors)	3.273 mg/l/4h
ATE US (dust, mist)	3.273 mg/l/4h

sec- BUTYL BENZENE (135-98-8)	
LD50 dermal rabbit	13792

Octane (111-65-9)	
LC50 inhalation rat (mg/l)	118 g/m³ (Exposure time: 4 h)
LC50 inhalation rat (ppm)	25260 ppm/4h
ATE US (gases)	25260.000 ppmV/4h
ATE US (vapors)	118.000 mg/l/4h
ATE US (dust, mist)	118.000 mg/l/4h

N-NONANE (111-84-2)	
LC50 inhalation rat (ppm)	3200 ppm/4h
ATE US (gases)	3200.000 ppmV/4h
ATE US (vapors)	16.790 mg/l/4h

N-DECANE (124-18-5)	
LC50 inhalation rat (ppm)	8784.01 ppm/4h
ATE US (gases)	8784.010 ppmV/4h
ATE US (vapors)	51.120 mg/l/4h

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Ethyl alcohol (64-17-5)	
IARC group	1 - Carcinogenic to humans
In OSHA Hazard Communication Carcinogen list	Yes

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard	:	Not classified
Symptoms/injuries after inhalation	:	May displace oxygen and cause rapid suffocation.
Symptoms/injuries after skin contact	:	Adverse effects not expected from this product.
Symptoms/injuries after eye contact	:	Adverse effects not expected from this product.
Symptoms/injuries after ingestion	:	Ingestion is not considered a potential route of exposure.
Symptoms/injuries upon intravenous administration	:	Not known.
Chronic symptoms	:	Adverse effects not expected from this product.

SECTION 12: Ecological information

12.1. Toxicity

Ethyl alcohol (64-17-5)	
LC50 fish 1	12.0 - 16.0 ml/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 Daphnia 1	9268 - 14221 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	> 100 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 Daphnia 2	2 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

Methyl alcohol (67-56-1)	
LC50 fish 1	28200 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
LC50 fish 2	> 100 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])

Octane (111-65-9)	
EC50 Daphnia 1	0.38 mg/l (Exposure time: 48 h - Species: water flea)

12.2. Persistence and degradability

Nitrogen (7727-37-9)	
Persistence and degradability	No ecological damage caused by this product.

n-Butane (106-97-8)	
Persistence and degradability	No data available.

Difluoroethane (R152a) (75-37-6)	
Persistence and degradability	No data available. Study scientifically unjustified.

Isobutane (75-28-5)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

Tetrafluoroethane (R134a) (811-97-2)	
Persistence and degradability	Not readily biodegradable.

Propane (74-98-6)	
Persistence and degradability	The substance is biodegradable. Unlikely to persist.

12.3. Bioaccumulative potential

Ethyl alcohol (64-17-5)	
Log Pow	-0.32

Nitrogen (7727-37-9)	
Log Pow	Not applicable for inorganic gases.
Bioaccumulative potential	No ecological damage caused by this product.

n-Butane (106-97-8)	
Log Pow	2.89
Log Kow	Not applicable for gas-mixtures.
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

Difluoroethane (R152a) (75-37-6)	
Log Pow	0.75
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

Isobutane (75-28-5)	
BCF fish 1	1.57 - 1.97
Log Pow	2.76
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

Tetrafluoroethane (R134a) (811-97-2)	
Log Pow	0.94
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

Propane (74-98-6)	
Log Pow	2.36
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

Methyl alcohol (67-56-1)	
BCF fish 1	< 10
Log Pow	-0.77

Octane (111-65-9)	
Log Pow	5.18

12.4. Mobility in soil

Nitrogen (7727-37-9)	
Ecology - soil	No ecological damage caused by this product.

n-Butane (106-97-8)	
Mobility in soil	No data available.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

Difluoroethane (R152a) (75-37-6)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

Isobutane (75-28-5)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

Tetrafluoroethane (R134a) (811-97-2)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

Propane (74-98-6)	
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Other adverse effects

Effect on ozone layer : No known effects from this product.

Effect on the global warming : Contains fluorinated greenhouse gases covered by the Kyoto protocol. GWP of mixture below 150 according to 842/2006/EC.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Contact supplier if guidance is required. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded.

Waste disposal recommendations : Refer to the CGA Pamphlet P-63 "Disposal of Gases" available at www.cganet.com for more guidance on suitable disposal methods.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description : UN1956 Compressed gas, n.o.s.

UN-No.(DOT) : UN1956

Proper Shipping Name (DOT) : Compressed gas, n.o.s.

Hazard labels (DOT) : 2.2 - Non-flammable gas

DOT Packaging Non Bulk (49 CFR 173.xxx) : 302;305

DOT Packaging Bulk (49 CFR 173.xxx) : 314;315

DOT Symbols : G - Identifies PSN requiring a technical name

DOT Packaging Exceptions (49 CFR 173.xxx) : 306;307

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 75 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 150 kg

DOT Vessel Stowage Location : A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.

Additional information

Other information : No supplementary information available.

ADR

Transport document description : UN 1956 COMPRESSED GAS, N.O.S., 2.2, (E)

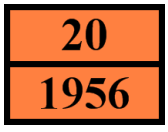
Class (ADR) : 2 - Gases

Hazard identification number (Kemler No.) : 20

Classification code (ADR) : 1A

Hazard labels (ADR) : 2.2 - Non-flammable compressed gas

Orange plates :



Tunnel restriction code (ADR) : E

Limited quantities (ADR)	: 120ml
Excepted quantities (ADR)	: E1

Transport by sea

UN-No. (IMDG)	: 1956
Proper Shipping Name (IMDG)	: COMPRESSED GAS, N.O.S.
Class (IMDG)	: 2 - Gases

Air transport

UN-No. (IATA)	: 1956
Proper Shipping Name (IATA)	: COMPRESSED GAS, N.O.S.
Class (IATA)	: 2

SECTION 15: Regulatory information

15.1. US Federal regulations

Ethyl alcohol (64-17-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Nitrogen (7727-37-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

n-Butane (106-97-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Difluoroethane (R152a) (75-37-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Isobutane (75-28-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Tetrafluoroethane (R134a) (811-97-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Propane (74-98-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Methyl alcohol (67-56-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	1.0 %

Octane (111-65-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

No additional information available

Ethyl alcohol (64-17-5)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Nitrogen (7727-37-9)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas

n-Butane (106-97-8)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

Difluoroethane (R152a) (75-37-6)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

Isobutane (75-28-5)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

Tetrafluoroethane (R134a) (811-97-2)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas

Propane (74-98-6)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class A - Compressed Gas Class B Division 1 - Flammable Gas

Methyl alcohol (67-56-1)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Octane (111-65-9)	
Listed on the Canadian DSL (Domestic Sustances List)	
WHMIS Classification	Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects

EU-Regulations

No additional information available

Ethyl alcohol (64-17-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Nitrogen (7727-37-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

n-Butane (106-97-8)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Difluoroethane (R152a) (75-37-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Isobutane (75-28-5)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Tetrafluoroethane (R134a) (811-97-2)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Propane (74-98-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Methyl alcohol (67-56-1)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Octane (111-65-9)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Not classified

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
No additional information available

National regulations

Ethyl alcohol (64-17-5)

Listed on IARC (International Agency for Research on Cancer)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)

Nitrogen (7727-37-9)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

n-Butane (106-97-8)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Canadian IDL (Ingredient Disclosure List)

Difluoroethane (R152a) (75-37-6)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Isobutane (75-28-5)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Tetrafluoroethane (R134a) (811-97-2)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Propane (74-98-6)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Methyl alcohol (67-56-1)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances) Japanese Poisonous and Deleterious Substances Control Law Listed on the Canadian IDL (Ingredient Disclosure List)

Octane (111-65-9)
Listed on the AICS (Australian Inventory of Chemical Substances) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the Korean ECL (Existing Chemicals List) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances) Listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations

Ethyl alcohol (64-17-5)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
Yes	Yes	No	No	

Methyl alcohol (67-56-1)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
No	Yes	No	No	

Ethyl alcohol (64-17-5)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Nitrogen (7727-37-9)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

n-Butane (106-97-8)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Difluoroethane (R152a) (75-37-6)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List

Isobutane (75-28-5)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Propane (74-98-6)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Methyl alcohol (67-56-1)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Octane (111-65-9)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes	:	Revised safety data sheet in accordance with OSHA final rule on GHS implementation promulgated March 26, 2012.
Other information	:	This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product.

Full text of H-phrases:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhalation) Category 3
Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Acute Tox. 4 (Dermal)	Acute toxicity (dermal) Category 4
Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 4
Acute Tox. 4 (Inhalation:vapour)	Acute toxicity (inhalation:vapour) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment - Chronic Hazard Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment - Chronic Hazard Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 1B	Carcinogenicity Category 1B
Carc. 2	Carcinogenicity Category 2
Compressed gas	Gases under pressure Compressed gas
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Gas 1	Flammable gases Category 1
Flam. Liq. 2	Flammable liquids Category 2
Flam. Liq. 3	Flammable liquids Category 3
Liquefied gas	Gases under pressure Liquefied gas
Muta. 1B	Germ cell mutagenicity Category 1B
Muta. 2	Germ cell mutagenicity Category 2
Repr. 1A	Reproductive toxicity Category 1A
Repr. 1B	Reproductive toxicity Category 1B
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization Category 1
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 1	Specific target organ toxicity (single exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H220	Extremely flammable gas
H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H280	Contains gas under pressure; may explode if heated
H301	Toxic if swallowed
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H311	Toxic in contact with skin
H312	Harmful in contact with skin
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H331	Toxic if inhaled
H332	Harmful if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H340	May cause genetic defects (Inhalation)
H341	Suspected of causing genetic defects
H350	May cause cancer
H351	Suspected of causing cancer
H360	May damage fertility or the unborn child
H370	Causes damage to organs
H373	May cause damage to organs through prolonged or repeated exposure
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

H411	Toxic to aquatic life with long lasting effects
H412	Harmful to aquatic life with long lasting effects

SDS US (GHS HazCom 2012)

This Safety Data Sheet is offered pursuant to OSHA's Hazard Communication Standard, 29 CFR, 1910.1200. Other government regulations must be reviewed for applicability to this product. To the best of Air Liquide America Corporation'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 product 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.