

Safety Data Sheet



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

1.1 Product identifier

Product Name • Isobutane (5.601 - 15%), Nitrogen (Balance)
Product Code • M-388/E-1

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

Relevant identified use(s) • Calibration Gas

1.3 Details of the supplier of the safety data sheet

Manufacturer • Air Liquide
2700 Post Oak Blvd.
Houston, TX 77056
United States
www.us.airliquide.com
sds@airliquide.com
Telephone (Technical) • 713-896-2896
Telephone (Technical) • 800-819-1704

1.4 Emergency telephone number

Manufacturer • 800-424-9300 - CHEMTREC
Manufacturer • +1 703-527-3887 - Outside United States

Section 2: Hazards Identification

EU/EEC

According to 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 • Flammable Gases 1 - H220
Compressed Gas - H280
DSD/DPD • Extremely Flammable (F+)
R12

2.2 Label Elements

CLP

DANGER

Hazard statements • H220 - Extremely flammable gas
H280 - Contains gas under pressure; may explode if heated

Precautionary statements

Prevention • P210 - Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking.
Response • P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

- Storage/Disposal** • P381 - Eliminate all ignition sources if safe to do so.
• P403 - Store in a well-ventilated place.

DSD/DPD



- Risk phrases** • R12 - Extremely flammable.

- Safety phrases** • S9 - Keep container in a well ventilated place
• S16 - Keep away from sources of ignition - No Smoking.

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**
- Flammable Gases 1 - H220
Compressed Gas - H280
Simple Asphyxiant

2.2 Label elements

OSHA HCS 2012

DANGER



- Hazard statements** • Extremely flammable gas - H220
Contains gas under pressure; may explode if heated - H280
May displace oxygen and cause rapid suffocation.

Precautionary statements

- Prevention** • Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking. - P210
Response • Leaking gas fire: Do not extinguish, unless leak can be stopped safely. - P377
Eliminate all ignition sources if safe to do so. - P381

- Storage/Disposal** • Store in a well-ventilated place. - P403

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
Flammable Gases - B1

2.2 Label elements

WHMIS



- Compressed Gas - A
Flammable Gases - B1

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
Isobutane	CAS:75-28-5 EC Number:200-857-2	5.601% TO 15%	Inhalation-Rat LC50 • 57 pph 15 Minute(s)	EU DSD/DPD: Annex VI, Table 3.2: F+; R12 EU CLP: Annex VI: Flam. Gas 1, H220; Press. Gas - Comp., H280 OSHA HCS 2012: Flam. Gas 1; Press Gas - Comp.
Nitrogen	CAS:7727-37-9 EINECS:231-783-9	Balance	NDA	EU DSD/DPD: None EU CLP: Self Classified: Press. Gas - Comp., H280 OSHA HCS 2012: Press. Gas - Comp.; Simp. Asphyx.

See Section 11 for Toxicological Information.

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 eye irritation persists: Get medical advice/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.

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**

- SMALL FIRES: Dry chemical or CO₂.
LARGE FIRES: Water spray or fog.

Unsuitable Extinguishing Media

- No data available

5.2 Special hazards arising from the substance or mixture**Unusual Fire and Explosion Hazards**

- EXTREMELY FLAMMABLE
Will form explosive mixtures with air.
Vapors may travel to source of ignition and flash back.
Cylinders exposed to fire may vent and release flammable gas through pressure relief devices.
Containers may explode when heated.
Ruptured cylinders may rocket.

Hazardous Combustion Products

- No data available

5.3 Advice for firefighters

- Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible.
Wear positive pressure self-contained breathing apparatus (SCBA).
DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED
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 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions.
FIRE INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire.
FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
FIRE INVOLVING TANKS: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
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: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

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

- ELIMINATE** all ignition sources (no smoking, flares, sparks or flames in immediate area). As an immediate precautionary measure, isolate spill or leak area for at least 100 meters (330 feet) in all directions. Stop leak if you can do it without risk. Keep unauthorized personnel away. Keep out of low areas. Stay upwind. **LARGE SPILL:** Consider initial downwind evacuation for at least 800 meters (1/2 mile)

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- All equipment used when handling the product must be grounded. Stop leak if you can do it without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container. Do not direct water at spill or source of leak. Isolate area until gas has dispersed.

6.4 Reference to other sections

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

Section 7 - Handling and Storage

7.1 Precautions for safe handling

Handling

- Keep away from heat and ignition sources – No Smoking. Take precautionary measures against static charges. All equipment used when handling the product must be grounded. Use only non-sparking tools. 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. Use explosion-proof - electrical, ventilating and/or lighting equipment. 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

- Cylinders should be stored in dry, well-ventilated areas away from sources of heat, ignition and direct sunlight. Do not allow area where cylinders are stored to exceed 52C (125F). Cylinders must be protected from the environment, and preferably kept at room temperature approximately 21C (70F). Protect cylinders against physical damage. Cylinders should be firmly secured to prevent falling or being knocked-over. Store locked up.

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	Germany DFG	Germany TRGS	Israel
Isobutane (75-28-5)	TWAs	Not established	800 ppm TWA (listed under Aliphatic hydrocarbon gases)	Not established	1000 ppm TWA AGW (exposure factor 4); 2400 mg/m ³ TWA AGW (exposure factor 4)	Not established
	STELs	1000 ppm STEL	Not established	Not established	Not established	1000 ppm STEL
	Ceilings	Not established	Not established	4000 ppm Peak (listed under Butane); 9600 mg/m ³ Peak (listed under Butane)	Not established	Not established
	MAKs	Not established	Not established	1000 ppm TWA MAK; 2400 mg/m ³ TWA MAK	Not established	Not established
Exposure Limits/Guidelines (Con't.)						
	Result		NIOSH			
Isobutane (75-28-5)	TWAs		800 ppm TWA; 1900 mg/m ³ TWA			

Exposure Control Notations

Portugal

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

Italy

•Isobutane (75-28-5): **Carcinogens:** (Category 1 Carcinogen (containing >= 0.1% Butadiene)) | **Mutagens:** (Category 2 Mutagen (containing >= 0.1% Butadiene))

Ireland

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

Spain

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

Germany DFG

•Isobutane (75-28-5): **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. Use explosion-proof - electrical, ventilating and/or lighting equipment.

Personal Protective Equipment

Respiratory

- In case of insufficient ventilation, wear suitable respiratory equipment.

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

MAK = Maximale Arbeitsplatz Konzentration is the maximum permissible concentration

NIOSH = National Institute of Occupational Safety and Health

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

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	Appearance/Description	Colorless gas with no odor.
Color	Colorless	Odor	Odorless
Odor Threshold	Data lacking		
General Properties			
Boiling Point	-196 C(-320.8 F) Nitrogen	Melting Point	-210 C(-346 F) Nitrogen
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	Data lacking	Water Solubility	Data lacking
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	1.05 to 1.15 Air=1
Evaporation Rate	Data lacking		
Flammability			
Flash Point	83 C(181.4 F)	UEL	10.1 %
LEL	5.6 %	Autoignition	460 C(860 F)
Flammability (solid, gas)	Flammable gas.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

9.2 Other Information

- No additional physical and chemical parameters noted.

Section 10: Stability and Reactivity

10.1 Reactivity

- No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

- Stable under normal temperatures and pressures.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Excess heat, sparks, open flame.

10.5 Incompatible materials

- Incompatible with oxidizing materials.

10.6 Hazardous decomposition products

- No data available.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

Components		
Isobutane (5.601% TO 15%)	75-28-5	Acute Toxicity: Inhalation-Rat LC50 • 658000 mg/m ³ 4 Hour(s)

GHS Properties	Classification
Acute toxicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Aspiration Hazard	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Carcinogenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Germ Cell Mutagenicity	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Skin corrosion/Irritation	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Skin sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-RE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
STOT-SE	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Toxicity for Reproduction	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Respiratory sensitization	EU/CLP • Classification criteria not met OSHA HCS 2012 • Classification criteria not met
Serious eye damage/Irritation	EU/CLP • 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)

- 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)

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

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

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

- No PBT and vPvB assessment has been conducted.

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	UN1954	Compressed gas, flammable, n.o.s. (Isobutane, Nitrogen)	2.1	NDA	NDA
TDG	UN1954	COMPRESSED GAS, FLAMMABLE, N.O.S. (Isobutane, Nitrogen)	2.1	NDA	Potential Marine Pollutant
IMO/IMDG	UN1954	COMPRESSED GAS, FLAMMABLE, N.O.S. (Isobutane, Nitrogen)	2.1	NDA	NDA
IATA/ICAO	UN1954	Compressed gas, flammable, n.o.s. (Isobutane, Nitrogen)	2.1	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
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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, Fire, Pressure(Sudden Release of)

State Right To Know				
Component	CAS	MA	NJ	PA
Isobutane	75-28-5	Yes	Yes	Yes
Nitrogen	7727-37-9	Yes	Yes	Yes

Inventory						
Component	CAS	Canada DSL	Canada NDSL	China	EU EINECS	EU ELNICS
Isobutane	75-28-5	Yes	No	Yes	Yes	No
Nitrogen	7727-37-9	Yes	No	Yes	Yes	No

Inventory (Con't.)		
Component	CAS	TSCA
Isobutane	75-28-5	Yes
Nitrogen	7727-37-9	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Isobutane	75-28-5	A, B1 (listed under Methyl-2 propane)
• Nitrogen	7727-37-9	A

Canada - WHMIS - Ingredient Disclosure List

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Environment

Canada - 2004 NPRI (National Pollutant Release Inventory)

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Canada - 2005 NPRI (National Pollutant Release Inventory)

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Canada - CEPA - Greenhouse Gases Subject to Mandatory Reporting

• Isobutane	75-28-5	Not Listed
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• Nitrogen	7727-37-9	Not Listed
Canada - CEPA - Priority Substances List		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
Canada - DWQ (Drinking Water Quality) - IMACs		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Other

Canada - Accelerated Reduction/Elimination of Toxics (ARET)		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Canada New Brunswick**Environment**

Canada - New Brunswick - Ozone Depleting Substances - Schedule A		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
Canada - New Brunswick - Ozone Depleting Substances - Schedule B		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

China**Environment**

China - Ozone Depleting Substances - First Schedule		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
China - Ozone Depleting Substances - Second Schedule		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
China - Ozone Depleting Substances - Third Schedule		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
China - Dangerous Goods List		
• Isobutane	75-28-5	
• Nitrogen	7727-37-9	(compressed or refrigerated liquid)
China - Export Control List - Part I Chemicals		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Europe

Other

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

• Isobutane	75-28-5	F+; R12
• Nitrogen	7727-37-9	Not Listed

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

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Isobutane	75-28-5	F+ R:12 S:(2)-9-16
• Nitrogen	7727-37-9	Not Listed

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

• Isobutane	75-28-5	C
• Nitrogen	7727-37-9	Not Listed

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

• Isobutane	75-28-5	S:(2)-9-16
• Nitrogen	7727-37-9	Not Listed

Germany

Environment

Germany - TA Luft - Types and Classes

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Germany - Water Classification (VwVwS) - Annex 1

• Isobutane	75-28-5	ID Number 562, not considered hazardous to water (ratio 1,3-butadiene <0.1%)
• Nitrogen	7727-37-9	ID Number 1351, not considered hazardous to water

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

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Germany - Water Classification (VwVwS) - Annex 3

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Portugal

Other

Portugal - Prohibited Substances

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

United Kingdom

Environment

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

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

United Kingdom - Substances Contained in Dangerous Substances or Preparations

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Other

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

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

United Kingdom - List of Dangerous Substances in Water

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

United States

Labor

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

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

Environment

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

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

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

• Isobutane	75-28-5	Not Listed
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• Nitrogen	7727-37-9	Not Listed
U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
U.S. - California - Proposition 65 - Developmental Toxicity		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Female		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
U.S. - California - Proposition 65 - Reproductive Toxicity - Male		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances		
• Isobutane	75-28-5	Not Listed
• Nitrogen	7727-37-9	Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date	• 05/September/2014
Preparation Date	• 13/November/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
