Safety Data Sheet

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

1.1 Product identifier

Product Name
- **Formaldehyde (3 ppm), Acrolein (0.3 ppm), Nitrogen (Balance) [2 Components in Nitrogen]**

Product Code
- MSDS No. 90052

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

Relevant identified use(s)
- Laboratory Instrument Calibration

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

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

DSD/DPD
- Classification criteria not met

2.2 Label Elements

CLP

WARNING

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

Precautionary statements

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

DSD/DPD

Risk phrases
- No label elements required

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.
This product is not considered dangerous under the European Directive 67/548/EEC

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

2.1 Classification of the substance or mixture

OSHA HCS 2012
- Compressed Gas - H280
Simple Asphyxiant

2.2 Label elements

OSHA HCS 2012

WARNING

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

Precautionary statements

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

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

2.2 Label elements

WHMIS

- Compressed Gas - A

2.3 Other hazards

WHMIS
- This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.
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%	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	Balance
Formaldehyde (Gas State)	**CAS:**50-00-0 **EC Number:**200-001-8	0.0003%	NDA	**EU DSD/DPD:** Annex I - Carc. Cat. 3; R40 T; R23/24/25 C; R34 R43 **EU CLP:** Annex VI - Carc. 2, H351; Acute Tox. 3, H331; Acute Tox. 3, H311; Acute Tox. 3, H301; Skin Corr. 1B, H314; Skin Sens. 1 H317 **OSHA HCS 2012:** Self Classified - Acute Tox. 3 (Oral, Dermal); Acute Tox. 2 (Inhalation); Skin Sens 1A; Eye Damage 1; Skin Corr. 1A; Carc 1A; Muta. 1B	3 ppm
Acrolein	**CAS:**107-02-8 **EC Number:**203-453-4	na	Ingestion/Oral-Rat LD50 • 26 mg/kg Inhalation-Rat LC50 • 8 ppm 4 Hour(s) Skin-Rabbit LD50 • 160 mg/kg	**EU DSD/DPD:** Annex I - F; R11 T+; R26 T; R24/25 C; R34 N; R50 **EU CLP:** Annex VI - Flam. Liq. 2 H225; Acute Tox. 2 * H330; Acute Tox. 3 * H311; Acute Tox. 3 * H301; Skin Corr. 1B H314; Aquatic Acute 1 H400 **OSHA HCS 2012:** Self Classified - Flam Liq. 2; Acute Tox 2 (Oral, Dermal), Acute Tox 1 (Inhalation); Skin Corr. 1A; Eye Damage 1	0.3ppm

See Section 16 for full text of H-statements and R-phrases.

Section 4 - First Aid Measures

4.1 Description of first aid measures

Inhalation
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. If signs/symptoms continue, get medical attention.

Skin
- Although exposure is unlikely, in case of contact immediately flush skin with running water. If skin irritation develops get medical advice/attention.

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

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

4.2 Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician

- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. A potential health hazard associated with this gas is anoxia.

4.4 Other information

- Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. RESCUERS SHOULD NOT ATTEMPT TO RETRIEVE VICTIMS OF EXPOSURE TO GASES WITHOUT ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. At a minimum, Self-Contained Breathing Apparatus must be worn. Victim(s) who experience any adverse effect after over-exposure to this gas mixture must be taken for medical attention. Rescuers should be taken for medical attention if necessary. Take a copy of the label and the MSDS to physician or other health professional with victim(s).

Section 5 - Firefighting Measures

5.1 Extinguishing media

Suitable Extinguishing Media

- Use extinguishing agent suitable for type of surrounding fire.

Unsuitable Extinguishing Media

- 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

- Nitrogen Oxides.

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

- No special environmental precautions necessary.

6.3 Methods and material for containment and cleaning up

Containment/Clean-up Measures

- Stop leak if you can do it without risk.
  Do not direct water at spill or source of leak.
  Use water spray to reduce vapors; do not put water directly on leak, spill area or inside container.
  If possible, turn leaking containers so that gas escapes rather than liquid.
  Isolate area until gas has dispersed.
  Ventilate the area.
  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 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**	**Germany DFG**	**Germany TRGS**
Acrolein (107-02-8)	Ceilings	0.1 ppm Ceiling	0.1 ppm Ceiling	Not established	Not established	Not established
	STELs	Not established	Not established	0.3 ppm STEV; 0.69 mg/m3 STEV	Not established	Not established
	TWAs	Not established	Not established	0.1 ppm TWAEV; 0.23 mg/m3 TWAEV	Not established	0.09 ppm TWA AGW (exposure factor 2); 0.2 mg/m3 TWA AGW (exposure factor 2)

Formaldehyde (Gas State) (50-00-0)	Ceilings	0.3 ppm Ceiling	1.5 ppm Ceiling	2 ppm Ceiling; 3 mg/m3 Ceiling	0.6 ppm Peak (no irritation should occur during mixed exposure); 0.74 mg/m3 Peak (no irritation should occur during mixed exposure)	Not established
	STELs	Not established	1.0 ppm STEL	Not established	Not established	Not established
	MAKs	Not established	Not established	Not established	0.3 ppm TWA MAK; 0.37 mg/m3 TWA MAK (no irritation should occur during mixed exposure)	Not established

Exposure Limits/Guidelines (Con't.)

	Result	NIOSH	OSHA
Acrolein (107-02-8)	TWAs	0.1 ppm TWA; 0.25 mg/m3 TWA	0.1 ppm TWA; 0.25 mg/m3 TWA
	STELs	0.3 ppm STEL; 0.8 mg/m3 STEL	Not established
Formaldehyde (Gas State) (50-00-0)	STELs	Not established	2 ppm STEL (see 29 CFR 1910.1048)
	TWAs	0.016 ppm TWA	0.75 ppm TWA
	Ceilings	0.1 ppm Ceiling (15 min)	Not established

Exposure Control Notations

Germany TRGS

•Acrolein (107-02-8): **Skin:** (skin notation)

Germany DFG

•Acrolein (107-02-8): **Carcinogens:** (Category 3B (could be carcinogenic for man))

•Formaldehyde (Gas State) (50-00-0): **Carcinogens:** (Category 4 (no significant contribution to human cancer)) | **Pregnancy:** (no risk to embryo/fetus if exposure limits adhered to) | **Sensitizers:** (skin sensitizer)

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

Pictograms

- 

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

MSHA = Mine Safety and Health Administration
STEL = Short Term Exposure Limits are based on 15-minute exposures
STEV = Short Term Exposure Value
TWAEV = Time-Weighted Average Exposure Value
TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures
ACGIH = American Conference of Governmental Industrial Hygiene
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration

Section 9 - Physical and Chemical Properties

9.1 Information on Physical and Chemical Properties

Material Description			
Physical Form	Gas	**Appearance/Description**	Colorless compressed gas with no odor.
Color	Colorless	**Odor**	Odorless
Taste	Data lacking	**Particulate Type**	Not relevant
Particulate Size	Not relevant	**Aerosol Type**	Not relevant
Odor Threshold	Data lacking	**Physical and Chemical Properties**	Data lacking
General Properties			
Boiling Point	-196 C(-320.8 F) Nitrogen	**Melting Point**	-210 C(-346 F) Nitrogen
Decomposition Temperature	Data lacking	**Heat of Decomposition**	Data lacking
pH	Data lacking	**Specific Gravity/Relative Density**	Data lacking
Density	Data lacking	**Bulk Density**	Data lacking
Water Solubility	Data lacking	**Solvent Solubility**	Data lacking
Viscosity	Data lacking	**Explosive Properties**	Not relevant.
Oxidizing Properties:	Not relevant.		
Volatility			
Vapor Pressure	Data lacking	**Vapor Density**	0.97 Air=1 Nitrogen
Evaporation Rate	Data lacking	**VOC (Wt.)**	Data lacking
VOC (Vol.)	Data lacking	**Volatiles (Wt.)**	Data lacking
Volatiles (Vol.)	Data lacking		
Flammability			
Flash Point	Not relevant	**UEL**	Not relevant
LEL	Not relevant	**Autoignition**	Not relevant
Self-Accelerating Decomposition Temperature (SADT)	Not relevant	**Heat of Combustion (ΔHc)**	Not relevant
Burning Time	Not relevant	**Flame Duration**	Not relevant
Flame Height	Not relevant	**Flame Extension**	Not relevant
Ignition Distance	Not relevant	**Flammability (solid, gas)**	Not flammable.
Environmental			
Half-Life	Data lacking	**Octanol/Water Partition coefficient**	Data lacking

Coefficient of water/oil distribution	Data lacking	**Bioaccumulation Factor**	Data lacking
Bioconcentration Factor	Data lacking	**Biochemical Oxygen Demand BOD/BOD5**	Data lacking
Chemical Oxygen Demand	Data lacking	**Persistence**	Data lacking
Degradation	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

- Excess heat.

10.5 Incompatible materials

- Incompatible with oxidizing materials and Lithium.

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
Acrolein (na)	107-02-8	**Acute Toxicity:** orl-rat LD50:26 mg/kg; ihl-rat LC50:131 ppm/30M; **Irritation:** skn-rbt 2 mg/24H SEV

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, 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 is not anticipated to be a likely route of exposure to this product.

Chronic (Delayed)
- No data available

Carcinogenic Effects
- Material level data is not available however this gas mixture contains ingredients which may cause carcinogenic effects upon prolonged and repeated exposure. The formaldehyde is present in such small amounts that no regulatory agency would consider this material to be a carcinogen.

Carcinogenic Effects				
	CAS	**OSHA**	**IARC**	**NTP**
Formaldehyde (Gas State)	50-00-0	Specifically Regulated Carcinogen	Group 1-Carcinogenic	Known Human Carcinogen

Section 12 - Ecological Information

12.1 Toxicity

- Material data lacking.

12.2 Persistence and degradability

- Material data lacking.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects

- 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 • Pressure(Sudden Release of)

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Nitrogen	7727-37-9	Yes	Yes	Yes
Formaldehyde (Gas State)	50-00-0	Yes	Yes	Yes
Acrolein	107-02-8	Yes	Yes	Yes

Inventory						
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**EU EINECS**	**EU ELNICS**	**TSCA**
Nitrogen	7727-37-9	Yes	No	Yes	No	Yes
Formaldehyde (Gas State)	50-00-0	Yes	No	Yes	No	Yes
Acrolein	107-02-8	Yes	No	Yes	No	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Acrolein	107-02-8	na	B2, D1A, E
• Nitrogen	7727-37-9	> 99%	A
• Formaldehyde (Gas State)	50-00-0	0.0003%	A, B1, D1A, D2A, D2B; B3, D1A, D2A, D2B, E (regulated under Formol)

Canada - WHMIS - Ingredient Disclosure List

• Acrolein	107-02-8	na	1 %
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	0.1 %

Environment

Canada - CEPA - Priority Substances List

• Acrolein	107-02-8	na	Priority Substance List 2 (substance considered toxic)
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Priority Substance List 2 (substance considered toxic)

—

Europe

Other

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

• Acrolein	107-02-8	na	F; R11 T; R24/25 T+; R26 C; R34 N; R50

• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	T; R23/24/25 C; R34 Carc.Cat.3; R40 R43

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

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	0.2%<=C: R:43 25%<=C: T; R:23/24/25 5%<=C<25%: Xn; R:20/21/22 25%<=C: C; R:34 5%<=C<25%: Xi; R:36/37/38

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

• Acrolein	107-02-8	na	F T+ N R:11-24/25-26-34-50 S:23-26-28-36/37/39-45-61
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	T R:23/24/25-34-40-43 S:(1/2)-26-36/37/39-45-51

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

• Acrolein	107-02-8	na	D
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	B, D

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

• Acrolein	107-02-8	na	S:23-26-28-36/37/39-45-61
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	S:(1/2)-26-36/37/39-45-51

United States

Labor

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

• Acrolein	107-02-8	na	150 lb TQ
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	1000 lb TQ

U.S. - OSHA - Specifically Regulated Chemicals

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	2 ppm STEL (Irritant and potential cancer hazard, See 29 CFR 1910.1048, 15 min); 0.5 ppm Action Level; 0.75 ppm TWA

Environment

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

• Acrolein	107-02-8	na	
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	

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

• Acrolein	107-02-8	na	1 lb final RQ; 0.454 kg final RQ
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	100 lb final RQ; 45.4 kg final RQ

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

• Acrolein	107-02-8	na	1 lb EPCRA RQ
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	100 lb EPCRA RQ

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

• Acrolein	107-02-8	na	500 lb TPQ
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	500 lb TPQ

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

• Acrolein	107-02-8	na	1.0 % de minimis concentration
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	0.1 % de minimis concentration

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

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Not Listed

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

• Acrolein	107-02-8	na	Included in waste stream: F039
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Included in waste streams: K009, K010, K038, K040, K156, K157

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

• Acrolein	107-02-8	na	waste number P003
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	waste number U122

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

• Acrolein	107-02-8	na	
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Not Listed

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

• Acrolein	107-02-8	na	waste number P003
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Not Listed

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

• Acrolein	107-02-8	na	0.29 mg/L (wastewater)
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Not Listed

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

• Acrolein	107-02-8	na	
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Not Listed

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

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	waste number U122

United States - California

Environment

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

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	carcinogen, initial date 1/1/88 (gas)

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

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Not Listed

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

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Not Listed

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

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	40 µg/day NSRL (gas)

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

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Not Listed

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

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	Not Listed

United States - Pennsylvania

Labor

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

• Acrolein	107-02-8	na	
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	

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

• Acrolein	107-02-8	na	Not Listed
• Nitrogen	7727-37-9	> 99%	Not Listed
• Formaldehyde (Gas State)	50-00-0	0.0003%	

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

15.3 Other Information

- WARNING: This product contains a chemical known to the State of California to cause cancer.

Section 16 - Other Information

Relevant Phrases (code & full text)

- H225 - Highly flammable liquid and vapour
  H301 - Toxic if swallowed
  H311 - Toxic in contact with skin
  H314 - Causes severe skin burns and eye damage
  H315 - Causes skin irritation
  H317 - May cause an allergic skin reaction
  H330 - Fatal if inhaled
  H331 - Toxic if inhaled
  H351 - Suspected of causing cancer.
  H400 - Very toxic to aquatic life

  R11 - Highly flammable.
  R23/24/25 - Toxic by inhalation, in contact with skin and if swallowed.
  R24/25 - Toxic in contact with skin and if swallowed.
  R26 - Very toxic by inhalation.
  R34 - Causes burns.
  R40 - Limited evidence of a carcinogenic effect.
  R43 - May cause sensitisation by skin contact.
  R50 - Very toxic to aquatic organisms.

Last Revision Date

- 17/August/2012

Preparation Date

- 17/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