



Safety Data Sheet

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

1.1 Product identifier

Product Name	• trans-1,3,3,3-TETRAFLUOROPROP-1-EN
Synonyms	• HFC-1234ze
CAS Number	• 29118-24-9
Product Code	• 90101
Molecular Formula	• C ₃ H ₂ F ₄
Molecular Weight	• 114.04 g/mol

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

Relevant identified use(s)	• Semiconductor manufacture, thin film etch
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1.3 Details of the supplier of the safety data sheet

Manufacturer	• Air Liquide 9811 Katy Freeway, Suite 100 Houston, TX 77024 United States www.us.airliquide.com sds@airliquide.com
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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	• Liquefied Gas - H280
DSD/DPD	• Not classified - 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 element(s) required

2.3 Other Hazards

CLP

- This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces. Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite. 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. Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite. 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

- Liquefied Gas - H280
Simple Asphyxiant
Hazards Not Otherwise Classified - Health Hazard - Frostbite

2.2 Label elements

OSHA HCS 2012

WARNING



Hazard statements • Contains gas under pressure; may explode if heated - H280
May displace oxygen and cause rapid suffocation.
Contact with rapidly expanding gas may cause burns or frostbite.

Precautionary statements

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

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. Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite. 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	%	Classifications According to Regulation/Directive
trans-1,3,3,3-TETRAFLUOROPROP-1-ENE	CAS:29118-24-9	>= 99.5%	EU DSD/DPD: Not Classified EU CLP: Self Classified: Press Gas - Liq, H280 OSHA HCS 2012: Press Gas - Liq.; Simp. Asphyx.; HNOC(Health)-Frostbite

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

- If frostbite has occurred, seek medical attention immediately; do NOT rub the affected area(s) or flush them with water. In order to prevent further tissue damage, do NOT attempt to remove frozen clothing from frostbitten areas. If frostbite has not occurred, immediately and thoroughly wash contaminated skin with soap and water.

Eye

- If eye tissue is frozen, seek medical attention immediately; if tissue is not frozen, immediately and thoroughly flush the eyes with large amounts of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation, pain, swelling,

lacrimation or photophobia persist, get medical attention as soon as possible.

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 such as water mist, dry powder, foam or Carbon dioxide (CO₂).

Unsuitable Extinguishing Media

- None known.

5.2 Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards

- Containers may explode when heated.
Ruptured cylinders may rocket.
In the case of fire it is possible to form decomposition products including HF which is toxic/corrosive.

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).
Move containers from fire area if you can do it without risk.
FIRE: If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also, consider initial evacuation for 800 meters (1/2 mile) in all directions.
FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
FIRE INVOLVING TANKS: Cool containers with flooding quantities of water until well after fire is out.
FIRE INVOLVING TANKS: Do not direct water at source of leak or safety devices; icing may occur.
FIRE INVOLVING TANKS: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
FIRE INVOLVING TANKS: ALWAYS stay away from tanks engulfed in fire.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal Precautions

- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not touch or walk through spilled material. Ventilate the area before entry.

Emergency Procedures

- Stop leak if you can do it without risk. Keep unauthorized personnel away. Keep out of low areas. Stay upwind. Do not direct water at spill or source of leak. **LARGE SPILL:** Consider initial downwind evacuation for at least 500 meters (1/3 mile)

6.2 Environmental precautions

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

6.3 Methods and material for containment and cleaning up**Containment/Clean-up Measures**

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

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.

7.4 Other Information

- Compatible with: copper, steel, aluminum, polyethylene, polypropylene, polyurethane, PVC, Teflon, BUNA, natural rubbers.

Section 8 - Exposure Controls/Personal Protection**8.1 Control parameters**

Exposure Limits/Guidelines		
	Result	Manufacturer
trans-1,3,3,3-TETRAFLUOROPROP-1-EN (29118-24-9)	TWAs	800 ppm TWA

8.2 Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment**Respiratory**

- Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or symptoms are experienced.

Eye/Face

- Wear safety glasses.

Skin/Body

- Wear leather gloves when handling cylinders.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Key to abbreviations

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 an ethereal odor.
Color	Colorless	Odor	Ethereal odor.
Odor Threshold	Data lacking		
General Properties			
Boiling Point	-16 C(3.2 F)	Melting Point	Data lacking
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	1.17 Water=1 @ 21.1 C(69.98 F)	Density	1146.26 kg/m ³ @ 86 F(30 C)
Water Solubility	0.373 g/L	Viscosity	Data lacking
Explosive Properties	Not explosive.	Oxidizing Properties:	Not an oxidizing gas.
Volatility			
Vapor Pressure	46.4 psig	Vapor Density	4 Air=1
Evaporation Rate	Data lacking		
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	368 C(694.4 F)
Flammability (solid, gas)	Not flammable.		
Environmental			
Octanol/Water Partition coefficient	1.6 log Kow		

9.2 Other Information

- Specific heat liquid @86F: 1.4012 kJ/kgC Critical temperature: 109.4C Critical pressure: 36.36bar (512.7psig) Molecular Weight: 114.04g/mol.

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. Hazardous decomposition products formed under fire conditions. To avoid thermal decomposition, do not overheat.

10.3 Possibility of hazardous reactions

- Hazardous polymerization will not occur.

10.4 Conditions to avoid

- Excess heat.

10.5 Incompatible materials

- Reacts with alkali metals.

10.6 Hazardous decomposition products

- In the case of fire it is possible to form decomposition products including HF which is toxic/corrosive.

Section 11 - Toxicological Information

11.1 Information on toxicological effects

trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9								
Test Type	Dosage	Route	Species	Duration	Results	Test Class	Target Organs	Comments
Acute Toxicity	> 965 mg/L	Inhalation	Rat	4 Hour(s)	LC50	NDA	NDA	NDA
Acute Toxicity	> 207000 ppm	Inhalation	Rat	4 Hour(s)	LC50	NDA	NDA	NDA
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				

Potential Health Effects

Inhalation**Acute (Immediate)**

- This material is a simple asphyxiant. May displace or reduce oxygen available for breathing especially in confined spaces.

Chronic (Delayed)

- No data available

Skin**Acute (Immediate)**

- Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.

Chronic (Delayed)

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

Eye**Acute (Immediate)**

- Contact with gas or liquefied gas will cause burns, severe injury and/or frostbite.

Chronic (Delayed)

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

Ingestion**Acute (Immediate)**

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

Chronic (Delayed)

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

Key to abbreviations

LC = Lethal Concentration

Section 12 - Ecological Information**12.1 Toxicity**

trans-1,3,3,3-TETRAFLUOROPROP-1-EN			29118-24-9		
Dosage	Species	Duration	Results	Exposure Conditions	Comments
> 117 mg/L	Fish: Cyprinus carpio (Carp)	96 Hour(s)	NOEC	NDA	NDA
> 170 mg/L	Algae: NDA	72 Hour(s)	NOEC	NDA	Growth inhibition
> 160 mg/L	Water Flea: Daphnia magna	48 Hour(s)	EC50	NDA	NDA

- Material data lacking.

12.2 Persistence and degradability

- Not readily biodegradable.

12.3 Bioaccumulative potential

- Material data lacking.

12.4 Mobility in Soil

- Material data lacking.

12.5 Results of PBT and vPvB assessment

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

12.6 Other adverse effects

- No studies have been found.

Section 13 - Disposal Considerations**13.1 Waste treatment methods****Product waste**

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	14.1 UN number	14.2 UN proper shipping name	14.3 Transport hazard class(es)	14.4 Packing group	14.5 Environmental hazards
DOT	UN3163	Liquefied gas, n.o.s. (trans-1,3,3,3-TETRAFLUOROPROP-1-EN)	2.2	NDA	NDA
TDG	UN3163	LIQUEFIED GAS, N.O.S. (trans-1,3,3,3-TETRAFLUOROPROP-1-EN)	2.2	NDA	NDA
IMO/IMDG	UN3163	LIQUEFIED GAS, N.O.S. (trans-1,3,3,3-TETRAFLUOROPROP-1-EN)	2.2	NDA	NDA
IATA/ICAO	UN3163	Liquefied gas, n.o.s. (trans-1,3,3,3-TETRAFLUOROPROP-1-EN)	2.2	NDA	NDA

14.6 Special precautions for user

- Cylinders should be transported in a secure position, in a well-ventilated vehicle. The transportation of compressed gas cylinders in automobiles or in closed-body vehicles can present serious safety hazards. If transporting these cylinders in vehicles, ensure these cylinders are not exposed to extremely high temperatures (as may occur in an enclosed vehicle on a hot day). Additionally, the vehicle should be well-ventilated during transportation.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

- Not relevant.

Section 15 - Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications

- Acute, Pressure(Sudden Release of)

State Right To Know				
Component	CAS	MA	NJ	PA
trans-1,3,3,3-TETRAFLUOROPROP-1-ENE	29118-24-9	No	No	No

Inventory						
Component	CAS	Canada DSL	Canada NDSL	China	EU EINECS	EU ELNICS
trans-1,3,3,3-TETRAFLUOROPROP-1-ENE	29118-24-9	No	No	No	No	No

Inventory (Con't.)		
Component	CAS	TSCA
trans-1,3,3,3-TETRAFLUOROPROP-1-ENE	29118-24-9	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed

- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Canada - WHMIS - Ingredient Disclosure List

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Environment

Canada - CEPA - Priority Substances List

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

China

Environment

China - Ozone Depleting Substances - First Schedule

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

China - Ozone Depleting Substances - Second Schedule

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

China - Ozone Depleting Substances - Third Schedule

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Other

China - Annex I & II - Controlled Chemicals Lists

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

China - Dangerous Goods List

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

China - Export Control List - Part I Chemicals

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Europe

Other

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Germany

Environment

Germany - TA Luft - Types and Classes

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Germany - Water Classification (VwVwS) - Annex 1

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Germany - Water Classification (VwVwS) - Annex 3

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Other

Germany - Specifically Regulated Chemicals in TRGS

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Portugal

Other

Portugal - Prohibited Substances

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

United Kingdom

Environment

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

United Kingdom - Substances Contained in Dangerous Substances or Preparations

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Other

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

United Kingdom - The Red List - Dangerous Substances in Water

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

United States

Labor

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

Environment

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

United States - California

Environment

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed

- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

United States - Pennsylvania

Labor

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

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

- trans-1,3,3,3-TETRAFLUOROPROP-1-EN 29118-24-9 Not Listed
- trans-1,3,3,3-TETRAFLUOROPROP-1-ENE 29118-24-9 Not Listed

15.2 Chemical Safety Assessment

- No Chemical Safety Assessment has been carried out.

Section 16 - Other Information

Last Revision Date

- 15/January/2020

Preparation Date

- 25/July/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