



Response: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Storage: Protect from sunlight. Store in a well-ventilated place.

Hazard(s) not otherwise classified (HNOC): None.

3. Composition/information on ingredients

Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Ethene, 1,2-dichloro-, (1E)-	156-60-5	50 - <100%
Ethane, 1,1,1,2-tetrafluoro-	811-97-2	20 - <50%
Butane, 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluoro-	163702-05-4	10 - <20%
Propane, 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoro-	163702-06-5	10 - <20%
Butane, 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-	163702-07-6	5 - <10%
Propane, 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoro-	163702-08-7	5 - <10%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Ingestion: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

Inhalation: Move to fresh air.

Skin Contact: Wash skin thoroughly with soap and water. If skin irritation occurs: Get medical advice/attention.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention.

Most important symptoms/effects, acute and delayed

Symptoms: No data available.

Hazards: No data available.

Indication of immediate medical attention and special treatment needed

Treatment: No data available.

5. Fire-fighting measures

General Fire Hazards: Use water spray to keep fire-exposed containers cool. Fight fire from a protected location. Move containers from fire area if you can do so without risk.



Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical: Vapors may travel considerable distance to a source of ignition and flash back.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: No data available.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Ventilate closed spaces before entering them. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Keep upwind.

Methods and material for containment and cleaning up: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste.

Notification Procedures: Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk.

Environmental Precautions: Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so.

7. Handling and storage

Precautions for safe handling: Wash hands thoroughly after handling. Avoid contact with eyes. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Do not pierce or burn, even after use.

Conditions for safe storage, including any incompatibilities: Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Aerosol Level 1

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Ethene, 1,2-dichloro-, (1E)-	TWA	200 ppm 790 mg/m3	US. Tennessee. OELs. Occupational Exposure Limits, Table Z1A (06 2008)



	REL	200 ppm	790 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	TWA	200 ppm	790 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA PEL	200 ppm	790 mg/m3	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (09 2006)
	TWA	200 ppm		US. ACGIH Threshold Limit Values (02 2012)
	ST ESL		7,900 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	AN ESL		790 µg/m3	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	PEL	200 ppm	790 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	AN ESL		200 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)
	ST ESL		2,000 ppb	US. Texas. Effects Screening Levels (Texas Commission on Environmental Quality) (11 2016)

Appropriate Engineering Controls No data available.

Individual protection measures, such as personal protective equipment

General information: Provide easy access to water supply and eye wash facilities. Good general ventilation (typically 10 air changes per hour) 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. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Eye/face protection: Wear safety glasses with side shields (or goggles).

Skin Protection

Hand Protection: No data available.

Other: Wear suitable protective clothing.

Respiratory Protection: In case of inadequate ventilation use suitable respirator. Seek advice from local supervisor.

Hygiene measures: Observe good industrial hygiene practices. Avoid contact with eyes. When using do not smoke.

9. Physical and chemical properties

Appearance

Physical state: Gas
Form: Compressed gas
Color: No data available.
Odor: No data available.
Odor threshold: No data available.
pH: No data available.
Melting point/freezing point: No data available.



Initial boiling point and boiling range:	No data available.
Flash Point:	Not applicable
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	Estimated 13.7 %(V)
Flammability limit - lower (%):	Estimated 6.7 %(V)
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	2,757.9029 - 3,447.3786 hPa (20 °C)
Vapor density:	No data available.
Density:	No data available.
Relative density:	No data available.
Solubility(ies)	
Solubility in water:	No data available.
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.

10. Stability and reactivity

Reactivity:	No data available.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	No data available.
Conditions to avoid:	Avoid heat or contamination.
Incompatible Materials:	No data available.
Hazardous Decomposition Products:	No data available.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	No data available.
Skin Contact:	No data available.
Eye contact:	No data available.
Ingestion:	No data available.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:	No data available.
Skin Contact:	No data available.



Eye contact: No data available.

Ingestion: No data available.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product:

Dermal

Product:

Inhalation

Product:

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: No data available.

Serious Eye Damage/Eye Irritation

Product: No data available.

Respiratory or Skin Sensitization

Product: No data available.

Carcinogenicity

Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified

US. National Toxicology Program (NTP) Report on Carcinogens:

No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: No data available.

In vivo

Product: No data available.

Reproductive toxicity

Product: No data available.

Specific Target Organ Toxicity - Single Exposure

Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure

Product: No data available.



Aspiration Hazard
Product: No data available.

Other effects: No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Chronic hazards to the aquatic environment:

Fish
Product: No data available.

Aquatic Invertebrates
Product: No data available.

Toxicity to Aquatic Plants
Product: No data available.

Persistence and Degradability

Biodegradation
Product: No data available.

BOD/COD Ratio
Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)
Product: No data available.

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

Ethene, 1,2-dichloro-, (1E)- No data available.

Ethane, 1,1,1,2-tetrafluoro- No data available.

Butane, 1-ethoxy- No data available.

1,1,2,2,3,3,4,4,4-nonafluoro-
Propane, 2-

(ethoxydifluoromethyl)- No data available.

1,1,1,2,3,3,3-heptafluoro-

Butane, 1,1,1,2,2,3,3,4,4-

nonafluoro-4-methoxy-



Propane, 2-
(difluoromethoxymethyl)-
1,1,1,2,3,3,3-heptafluoro-

No data available.

Other adverse effects:

No data available.

13. Disposal considerations

Disposal instructions:

Wash before disposal. Dispose to controlled facilities.

Contaminated Packaging:

No data available.

14. Transport information

DOT

UN Number:	UN 1950
UN Proper Shipping Name:	Aerosols, non-flammable
Transport Hazard Class(es)	
Class:	2.2
Label(s):	–
Packing Group:	II
Marine Pollutant:	No
Environmental Hazards:	No
Marine Pollutant	No
Special precautions for user:	Not regulated.

IMDG

UN Number:	UN 1950
UN Proper Shipping Name:	Aerosols, non-flammable
Transport Hazard Class(es)	
Class:	2
Label(s):	–
EmS No.:	
Packing Group:	–
Environmental Hazards:	No
Marine Pollutant	No
Special precautions for user:	Not regulated.

IATA

UN Number:	UN 1950
Proper Shipping Name:	Aerosols, non-flammable
Transport Hazard Class(es):	
Class:	2.2
Label(s):	–
Packing Group:	–
Environmental Hazards:	No
Marine Pollutant	No
Special precautions for user:	Not regulated.
Cargo aircraft only:	Allowed.



15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Ethene, 1,2-dichloro-, (1E)-	lbs. 1000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

- Sudden Release of Pressure
- Immediate (Acute) Health Hazards
- Gases under pressure
- Serious Eye Damage/Eye Irritation

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Ethene, 1,2-dichloro-, (1E)-	lbs. 1000

SARA 311/312 Hazardous Chemical

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
Ethene, 1,2-dichloro-, (1E)-	10000 lbs
Ethane, 1,1,1,2-tetrafluoro-	10000 lbs
Butane, 1-ethoxy- 1,1,2,2,3,3,4,4,4- nonafluoro-	10000 lbs
Propane, 2- (ethoxydifluoromethyl)- 1,1,1,2,3,3,3-heptafluoro-	10000 lbs
Butane, 1,1,1,2,2,3,3,4,4- nonafluoro-4-methoxy-	10000 lbs
Propane, 2- (difluoromethoxymethyl)- 1,1,1,2,3,3,3-heptafluoro-	10000 lbs

SARA 313 (TRI Reporting)

<u>Chemical Identity</u>	<u>Reporting threshold for other users</u>	<u>Reporting threshold for manufacturing and processing</u>
Ethene, 1,2-dichloro-, (1E)-	lbs	lbs.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

US State Regulations

US. California Proposition 65

No ingredient requiring a warning under CA Prop 65.



US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity

Ethene, 1,2-dichloro-, (1E)-

US. Massachusetts RTK - Substance List

No ingredient regulated by MA Right-to-Know Law present.

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity

Ethene, 1,2-dichloro-, (1E)-

US. Rhode Island RTK

No ingredient regulated by RI Right-to-Know Law present.

International regulations

Montreal protocol

Ethane, 1,1,1,2-tetrafluoro-

Group I Annex F

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol



Inventory Status:

Australia AICS:	Not in compliance with the inventory.
Canada DSL Inventory List:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	Not in compliance with the inventory.
Japan (ENCS) List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	Not in compliance with the inventory.
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.
Mexico INSQ:	Not in compliance with the inventory.
Ontario Inventory:	Not in compliance with the inventory.
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory

16. Other information, including date of preparation or last revision

Issue Date:	07/25/2019
Revision Information:	No data available.
Version #:	1.0
Further Information:	No data available.
Disclaimer:	This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.