

2. HAZARD IDENTIFICATION (CONT.)

Signal Word:	Danger
Hazard Statement:	Contains gas under pressure; may explode if heated. Causes skin irritation. Causes serious eye irritation. Suspected of causing genetic defects. May cause cancer. May cause drowsiness or dizziness. Harmful to aquatic life.
Precautionary Statements	
Prevention:	Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Keep container tightly closed.
Response:	IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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. IF ON SKIN: Wash with plenty of water/... If skin irritation occurs: Get medical advice/attention. Call a POISON CENTER/doctor if you feel unwell. Specific treatment (see on this label). Take off contaminated clothing.
Storage:	Protect from sunlight. Store in a well-ventilated place. Store locked up. Keep container tightly closed.
Disposal:	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
Hazard(s) not otherwise classified (HNOC):	None.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixtures

Chemical Identity	CAS number	Content in percent (%)*
Ethene, 1,1,2-trichloro-	79-01-6	50 - <100%
Carbon dioxide	124-38-9	1 - <5%
Oxirane, 2-(chloromethyl)-	106-89-8	0.1 - <1%

* 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 physician or poison control center immediately. Never give liquid to an unconscious person. Do not induce vomiting without advice from poison control center. Rinse mouth.
Inhalation:	Move to fresh air.
Skin Contact:	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash contaminated clothing before reuse. Get medical 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: No unusual fire or explosion hazards noted.

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.

5. FIRE-FIGHTING MEASURES (CONT.)

Specific hazards arising from the chemical:	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	
Special fire fighting procedures:	No data available.
Special protective equipment for fire-fighters:	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:	Ventilate closed spaces before entering them. See Section 8 of the SDS for Personal Protective Equipment. Keep unauthorized personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Methods and material for containment and cleaning up:	Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Dike far ahead of larger spill for later recovery and disposal.
Notification Procedures:	Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk.
Environmental Precautions:	Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid release to the environment.

7. HANDLING AND STORAGE

Precautions for safe handling:	Do not taste or swallow. Wash hands thoroughly after handling. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use personal protective equipment as required. Avoid contact with eyes. Avoid contact with skin.
Conditions for safe storage, including any incompatibilities:	Store locked up. Aerosol Level 1

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
Ethene, 1,1,2-trichloro-	TWA	10 ppm	US. ACGIH Threshold Limit Values (2008)
	STEL	200 ppm 1,080 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	25 ppm	US. ACGIH Threshold Limit Values (2008)
	TWA	100 ppm	US. OSHA Table Z-2 (29 CFR 1910.1000) (02 2006)
	MAX. CONC	300 ppm	US. OSHA Table Z-2 (29 CFR 1910.1000) (02 2006)
	TWA	50 ppm 270 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	Ceiling	200 ppm	US. OSHA Table Z-2 (29 CFR 1910.1000) (02 2006)
	REL	25 ppm	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	Ceiling_Time	2 ppm	US. NIOSH: Pocket Guide to Chemical Hazards (2016)
Carbon dioxide	TWA	5,000 ppm	US. ACGIH Threshold Limit Values (2008)
	STEL	30,000 ppm	US. ACGIH Threshold Limit Values (2008)
	STEL	30,000 ppm 54,000 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	REL	5,000 ppm 9,000 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards (2005)
	PEL	5,000 ppm 9,000 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	10,000 ppm 18,000 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	STEL	30,000 ppm 54,000 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
Oxirane, 2-(chloromethyl)-	TWA	2 ppm 8 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	PEL	5 ppm 19 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)
	TWA	0.5 ppm	US. ACGIH Threshold Limit Values (2008)

Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
Ethene, 1,1,2-trichloro- (Trichloroacetic acid: Sampling time: End of shift at end of work week.)	15 mg/l (Urine)	ACGIH BEL (03 2013)
Ethene, 1,1,2-trichloro- (Trichloroethanol, without hydrolysis: Sampling time: End of shift at end of work week.)	0.5 mg/l (Blood)	ACGIH BEL (03 2013)

Appropriate Engineering Controls

No data available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONT.)

Controls

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. Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

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

Hygiene measures: Observe good industrial hygiene practices. Do not eat, drink or smoke when using the product. Wash hands after handling. Wash hands before breaks and immediately after handling the product. Avoid contact with eyes. Wash contaminated clothing before reuse. Avoid contact with skin.

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:	No data available.
Evaporation rate:	No data available.
Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	4,826.3301 - 6,205.2816 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: Not classified for acute toxicity based on available data.

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.

11. TOXICOLOGICAL INFORMATION (CONT.)

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

Ethene, 1,1,2-trichloro-	Overall evaluation: 1. Carcinogenic to humans.
Oxirane, 2-(chloromethyl)-	Overall evaluation: 2A. Probably carcinogenic to humans.

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

Ethene, 1,1,2-trichloro-	Known To Be Human Carcinogen.
Oxirane, 2-(chloromethyl)-	Reasonably Anticipated to be a Human Carcinogen.

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.

Target Organs

Specific Target Organ Toxicity - Single Exposure: Narcotic effect.

Aspiration Hazard

Product: No data available.

Other effects: Narcotic effect.

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 K_{ow})

Product: No data available.

Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

Ethene, 1,1,2-trichloro- No data available.

Carbon dioxide No data available.

Oxirane, 2-(chloromethyl)- No data available.

Other adverse effects: Harmful to aquatic organisms.

13. DISPOSAL CONSIDERATIONS

Disposal instructions:	Discharge, treatment, or disposal may be subject to national, state, or local laws.
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

Restrictions on use: Not known.

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, 1,1,2-trichloro-	lbs. 100
Oxirane, 2-(chloromethyl)-	lbs. 100

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Sudden Release of Pressure
 Immediate (Acute) Health Hazards
 Delayed (Chronic) Health Hazard
 Gases under pressure
 Skin Corrosion/Irritation
 Serious Eye Damage/Eye Irritation
 Germ Cell Mutagenicity
 Carcinogenicity
 Specific Target Organ Toxicity - Single Exposure
 Simple asphyxiant

SARA 302 Extremely Hazardous Substance

<u>Chemical Identity</u>	<u>Reportable quantity</u>	<u>Threshold Planning Quantity</u>
Oxirane, 2-(chloromethyl)-	lbs. 100	lbs. 1000

SARA 304 Emergency Release Notification

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Ethene, 1,1,2-trichloro-	lbs. 100
Oxirane, 2-(chloromethyl)-	lbs. 100

SARA 311/312 Hazardous Chemical

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
Oxirane, 2-(chloromethyl)-	lbs
Ethene, 1,1,2-trichloro-	10000 lbs
Carbon dioxide	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, 1,1,2-trichloro-	lbs	lbs.
Oxirane, 2-(chloromethyl)-	lbs	lbs.

15. REGULATORY INFORMATION (CONT.)

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

This product contains chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm.

Ethene, 1,1,2-trichloro-	Carcinogenic. 05 2011
Ethene, 1,1,2-trichloro-	Male reproductive toxin. 04 2014
Ethene, 1,1,2-trichloro-	Developmental toxin. 04 2014
Oxirane, 2-(chloromethyl)-	Carcinogenic. 05 2011
Oxirane, 2-(chloromethyl)-	Male reproductive toxin. 03 2008

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

Chemical Identity

Ethene, 1,1,2-trichloro-
Carbon dioxide
Oxirane, 2-(chloromethyl)-

US. Massachusetts RTK - Substance List

Chemical Identity

Ethene, 1,1,2-trichloro-
Oxirane, 2-(chloromethyl)-

US. Pennsylvania RTK - Hazardous Substances

Chemical Identity

Ethene, 1,1,2-trichloro-
Carbon dioxide
Oxirane, 2-(chloromethyl)-

US. Rhode Island RTK

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

International regulations

15. REGULATORY INFORMATION (CONT.)**Montreal protocol**

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol**Inventory Status:**

EINECS, ELINCS or NLP:	Not in compliance with the inventory.
Canada NDSL Inventory:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.
Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or 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:	On or in compliance with the inventory
Mexico INSQ:	On or in compliance with the inventory
Ontario Inventory:	On or 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: 09/10/2019

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.