7. HANDLING AND STORAGE

Precautions for safe handling: Keep away from heat, sparks and flame. Keep out of reach of children. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Do not breathe vapour. Do not get in eyes, on skin, on clothing. Do not swallow. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation. Never use air pressure for transferring product. No smoking, open flames or sources of ignition in handling and storage area. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Minimize sources of ignition, such as static build-up, heat, spark or flame.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
1,3-Dichloropropene	ACGIH	TWA	1 ppm
	ACGIH	TWA	SKIN
Chloropicrin	ACGIH	TWA	0.1 ppm
	OSHA Z-1	TWA	0.7 mg/m3 0.1 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only in enclosed systems or with local exhaust ventilation. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. Lethal concentrations may exist in areas with poor ventilation.

Individual protection measures

Eye/face protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Ethyl vinyl alcohol laminate ("EVAL"). Viton. Examples of acceptable glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Butyl rubber. Avoid gloves made of: Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection),

potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. When respiratory protection is required, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Liquid.
Color	Yellow
Odor	pungent
Odor Threshold	No test data available
pH	6.9 1% *pH Electrode* 1% aqueous solution.
Melting point/range	Not applicable
Freezing point	-85 °C (-121 °F)
Boiling point (760 mmHg)	93 °C (199 °F)
Flash point	**closed cup** 27 °C (81 °F) *Pensky-Martens Closed Cup ASTM D 93*
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	No
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	1.34 at 23 °C (73 °F) / 4 °C *EC Method A3*
Water solubility	Soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	310 °C (590 °F) at 752 mmHg *92/69/EEC A15* Ramped Temperature
Decomposition temperature	No test data available
Dynamic Viscosity	0.690 mPa.s at 40 °C (104 °F) *OECD 114*
Kinematic Viscosity	0.515 mm2/s at 40 °C (104 °F) *OECD 114*
Explosive properties	No *EEC A14*
Oxidizing properties	No

Molecular weight No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Unstable at elevated temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid static discharge.

Incompatible materials: Avoid contact with: Amines. Oxidizers. Strong bases. Avoid contact with metals such as: Zinc. Cadmium. Magnesium. Magnesium alloys. Aluminum. Aluminum alloys.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Hydrogen chloride. Nitrogen oxides. Toxic gases are released during decomposition.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity
Moderate toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Swallowing may result in gastrointestinal irritation or ulceration.

As product:
LD50, Rat, male and female, 238 mg/kg OECD 401 or equivalent
LD50, Rat, male, 145 mg/kg

Acute dermal toxicity
Prolonged or widespread skin contact may result in absorption of harmful amounts.

As product:
LD50, Rabbit, male, 907 mg/kg

Acute inhalation toxicity
Initial symptoms due to low-level exposure may not seem severe but death may ensue due to delayed effects of lung injury and/or infection. Brief exposure (minutes) to easily attainable concentrations may cause serious adverse effects, even death. Excessive exposure may cause severe irritation to upper respiratory tract (nose and throat) and lungs. May cause severe pulmonary edema (fluid in the lungs). Excessive exposure may cause lung injury. Effects may be delayed. May cause methemoglobinemia, thereby impairing the blood's ability

to transport oxygen. May cause central nervous system effects. May cause nausea and vomiting.

As product:
LC50, Rat, 4 Hour, vapour, 0.206 mg/l

Skin corrosion/irritation
Brief contact may cause severe skin burns. Symptoms may include pain, severe local redness and tissue damage.
Vapor may cause skin irritation.
May cause more severe response if skin is abraded (scratched or cut).
Classified as corrosive to the skin according to DOT guidelines.

Serious eye damage/eye irritation
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.
Vapor may cause lacrimation (tears).
Vapor may cause eye irritation experienced as mild discomfort and redness.

Sensitization
Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
May cause respiratory irritation.
Route of Exposure: Inhalation

Specific Target Organ Systemic Toxicity (Repeated Exposure)
For the active ingredient(s):
In animals, effects have been reported on the following organs:
Bladder.
Liver.
Lung.
Respiratory tract.
Gastrointestinal tract.
Blood-forming organs (Bone marrow & Spleen).

Carcinogenicity
For the active ingredient(s): 1,3-Dichloropropene. Has been shown to cause cancer in laboratory animals by the oral route. Inhalation exposure resulted in an increase in the normal occurrence of benign lung tumors in male mice. Chloropicrin. Available data are inadequate to evaluate carcinogenicity.

Teratogenicity
For the active ingredient(s): Chloropicrin. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals. 1,3-Dichloropropene. Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive toxicity
For the active ingredient(s): In animal studies, did not interfere with reproduction.

Mutagenicity
For the active ingredient(s): Chloropicrin. Has been shown to have mutagenic activity in bacteria. Animal genetic toxicity studies were inconclusive

For the active ingredient(s): 1,3-Dichloropropene. In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

Aspiration Hazard
May be fatal if swallowed and enters airways.

Carcinogenicity

Component	List	Classification
1,3-Dichloropropene	IARC	Group 2B: Possibly carcinogenic to humans
	US NTP	Reasonably anticipated to be a human carcinogen
	ACGIH	A3: Confirmed animal carcinogen with unknown relevance to humans.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Acute toxicity to fish
LC50, Cyprinus carpio (Carp), static test, 96 Hour, 0.53 mg/l

Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, 0.73 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, 0.0035 mg/l, OECD Test Guideline 201 or Equivalent

EbC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, 0.00033 mg/l

Persistence and degradability

1,3-Dichloropropene
Biodegradability: Biodegradation may occur under aerobic conditions (in the presence of oxygen).
10-day Window: Fail
Biodegradation: 4.9 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 1.281 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
	0.148 mg/mg

Stability in Water (1/2-life)
, 2.3 - 4.75 d

Chloropicrin

Biodegradability: Biodegradation may occur under both aerobic and anaerobic conditions (in the presence or absence of oxygen).

Theoretical Oxygen Demand: 0.10 mg/mg

Balance

Biodegradability: No relevant data found.

Bioaccumulative potential

1,3-Dichloropropene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 1.82 - 2.1 Measured

Chloropicrin

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.09 Measured

Balance

Bioaccumulation: No relevant data found.

Mobility in soil

1,3-Dichloropropene

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 44.7 Measured

Chloropicrin

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 36 - 62 Estimated.

Balance

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or

otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

Contaminated packaging: Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Toxic by inhalation liquid, flammable, corrosive, n.o.s.(1,3-Dichloropropene, Chloropicrin)
UN number	UN 3489
Class	6.1 (3, 8)
Packing group	I
Marine pollutant	Chloropicrin, 1,3-Dichloropropene
Reportable Quantity	1,3-Dichloropropene

Toxic-Inhalation Hazard, Zone B

Classification for SEA transport (IMO-IMDG):

Proper shipping name	TOXIC BY INHALATION LIQUID, FLAMMABLE, CORROSIVE, N.O.S.(1,3-Dichloropropene, Chloropicrin)
UN number	UN 3489
Class	6.1 (3, 8)
Packing group	I
Marine pollutant	Chloropicrin
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Transport forbidden by regulation(1,3-Dichloropropene, Chloropicrin)

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Flammable (gases, aerosols, liquids, or solids)
Carcinogenicity
Aspiration hazard
Acute toxicity (any route of exposure)
Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation
Respiratory or skin sensitisation
Skin corrosion or irritation

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

Components	**CASRN**
1,3-Dichloropropene	542-75-6
Chloropicrin	76-06-2

Pennsylvania Right To Know
The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	**CASRN**
1,3-Dichloropropene	542-75-6
Chloropicrin	76-06-2

California Prop. 65
WARNING: This product can expose you to chemicals including 1,3-Dichloropropene, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

United States TSCA Inventory (TSCA)
This product contains chemical substance(s) exempt from U.S. EPA TSCA Inventory requirements. It is regulated as a pesticide subject to Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) requirements.

Federal Insecticide, Fungicide and Rodenticide Act
EPA Registration Number: 95290-2
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

DANGER

May cause lung, liver, and kidney damage and respiratory system irritation upon prolonged contact.
Fatal if inhaled or swallowed.
Poisonous liquid and vapor.
Corrosive
Liquid causes skin burns and irreversible eye damage.
Do not get in eyes, on skin or on clothing.
Chloropicrin is readily identifiable by smell. Exposures to very low concentrations of vapor will cause irritation of eyes, nose and throat. Continued exposure after irritation occurs, or exposure to higher concentration, may cause painful irritation or temporary blindness.

16. OTHER INFORMATION

Hazard Rating System
NFPA

Health	Flammability	Instability
4	3	1

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Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
SKIN	Absorbed via skin
TWA	8-hour time weighted average

Full text of other abbreviations
AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

SALT LAKE HOLDING LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is

the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.
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