



SAFETY DATA SHEET

DOW EUROPE GmbH

Product name: DORLONE™ EC Soil Fumigant

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DOW EUROPE GmbH encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: DORLONE™ EC Soil Fumigant

Recommended use of the chemical and restrictions on use

Identified uses: Plant Protection Product Fumigant Product users and applicators should primarily refer to the product label attached to or accompanying the product container.

COMPANY IDENTIFICATION

DOW EUROPE GmbH
A Subsidiary of The Dow Chemical Company
BACHTOBELSTRASSE 3
8810 HORGEN
SWITZERLAND

Customer Information Number:

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SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: +41 (0)447 28 2822

Local Emergency Contact: 00 212 2331 5090

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

Flammable liquids - Category 3 - H226
Acute toxicity - Category 3 - Oral - H301
Acute toxicity - Category 3 - Inhalation - H331
Skin irritation - Category 2 - H315
Serious eye damage - Category 1 - H318
Skin sensitisation - Category 1 - H317
Specific target organ toxicity - single exposure - Category 3 - H335
Aspiration hazard - Category 1 - H304
Short-term (acute) aquatic hazard - Category 1 - H400
Long-term (chronic) aquatic hazard - Category 1 - H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

Label elements

Hazard pictograms



Signal word: DANGER

Hazard statements

H226	Flammable liquid and vapour.
H301 + H331	Toxic if swallowed or if inhaled.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe vapours.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
P301 + P310 + P331	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P501	Dispose of contents/container to an approved waste disposal plant in accordance with local, regional and national legislations.

Supplemental information

EUH401	To avoid risks to human health and the environment, comply with the instructions for use.
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Contains 1,3-Dichloropropene; Solvent naphtha, petroleum, light aromatic

Other hazards

This product contains no substances assessed to be PBT or vPvB at levels of 0.1% or higher.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

CASRN / EC-No. / Index-No.	Concentration	Component	Classification
CASRN 542-75-6 EC-No. 208-826-5 Index-No. 602-030-00-5	93.6%	1,3-Dichloropropene	Flam. Liq. - 3 - H226 Acute Tox. - 3 - H301 Acute Tox. - 3 - H331 Acute Tox. - 3 - H311 Skin Irrit. - 2 - H315 Eye Irrit. - 2 - H319 Skin Sens. - 1 - H317 STOT SE - 3 - H335 Asp. Tox. - 1 - H304 Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410
CASRN 64742-95-6 EC-No. 265-199-0 Index-No. 649-356-00-4	< 5.0 %	Solvent naphtha (petroleum), light aromatic	Flam. Liq. - 3 - H226 STOT SE - 3 - H336 STOT SE - 3 - H335 Asp. Tox. - 1 - H304 Aquatic Chronic - 2 - H411
CASRN 95-63-6 EC-No. 202-436-9 Index-No. 601-043-00-3	< 1.0 %	1,2,4-Trimethylbenzene	Flam. Liq. - 3 - H226 Acute Tox. - 4 - H332 Skin Irrit. - 2 - H315 Eye Irrit. - 2 - H319 STOT SE - 3 - H335 Asp. Tox. - 1 - H304 Aquatic Chronic - 2 - H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

Description of first aid measures

General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation or rash occurs. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts and watchbands. Suitable emergency safety shower facility should be available in work area.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. If burn is present, treat as any thermal burn, after decontamination. Because rapid absorption may occur through the lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis. Repeated excessive exposure may aggravate preexisting lung disease.

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function. Water fog, applied gently may be used as a blanket for fire extinguishment. Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire.

Unsuitable extinguishing media: Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Hydrogen chloride. Carbon monoxide. Carbon dioxide. Nitrogen oxides.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Electrically ground and bond all equipment. Flammable mixtures of this product are readily ignited even by static discharge. Vapors are heavier than air and may travel a long

distance and accumulate in low lying areas. Flammable mixtures may exist within the vapor space of containers at room temperature. When product is stored in closed containers, a flammable atmosphere can develop.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Water fog, applied gently may be used as a blanket for fire extinguishment. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS. Consider feasibility of a controlled burn to minimize environment damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, see Section 8 of the safety data sheet.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to section 7, Handling, for additional precautionary measures. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapor explosion hazard. Keep out of sewers. For large spills, warn public of downwind explosion hazard. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Ground and bond all containers and handling equipment. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Contain spilled material if possible. Absorb with materials such as: Clay. Dirt. Sand.

Sweep up. Collect in suitable and properly labeled containers. Contact Dow for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Keep away from heat, sparks and flame. 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. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. 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: Minimize sources of ignition, such as static build-up, heat, spark or flame. Keep container closed. Do not store in: Zinc. Aluminum. Aluminum alloys. Magnesium. Magnesium alloys. Store in a dry place. Store in original container. Keep container tightly closed. Do not store near food, foodstuffs, drugs or potable water supplies.

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
1,3-Dichloropropene	ACGIH	TWA	1 ppm
	Further information: A3: Confirmed animal carcinogen with unknown relevance to humans; Skin: Danger of cutaneous absorption		
Solvent naphtha (petroleum), light aromatic	ACGIH	TWA	200 mg/m ³ , total hydrocarbon vapor
	Further information: A3: Confirmed animal carcinogen with unknown relevance to humans; Skin: Danger of cutaneous absorption		
	Dow IHG	TWA	100 mg/m ³
	Dow IHG	STEL	300 mg/m ³
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm
	2000/39/EC	TWA	100 mg/m ³ 20 ppm
	Further information: Indicative		

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 with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent. If exposure causes eye discomfort, use a full-face respirator (meeting standard EN 136) with organic vapor cartridge (meeting standard EN 14387).

Skin protection

Hand protection: Use chemical resistant gloves classified under Standard EN374:

Protective gloves against chemicals and micro-organisms. 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"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. 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. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2 (meeting standard EN 14387).

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance**Physical state**

liquid

Color

Colorless to brown

Odor

Sweet pungent

Odor Threshold

No test data available

pH	4.5 1% CIPAC MT 75
Melting point/range	Not applicable
Freezing point	No data available
Boiling point (760 mmHg)	No test data available
Flash point	28.5 °C Pensky-Martens Closed Cup ASTM D 93
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not Applicable
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)	1.20 at 25 °C / 4 °C Pyknometer
Water solubility	emulsifiable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	none below 400 degC
Decomposition temperature	No data available
Dynamic Viscosity	0.859 mPa.s at 40 °C
Kinematic Viscosity	0.710 mm ² /s at 40 °C
Explosive properties	No EEC A14
Oxidizing properties	No EPA OPPTS 830.6314 (Oxidizing or Reducing Action)
Liquid Density	1.20 g/cm ³ at 25 °C Pyknometer
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 data available

Chemical stability: Unstable at elevated temperatures. Thermally stable at typical use 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: Acids. Bases. Oxidizers. Avoid contact with metals such as: Zinc. Cadmium. Magnesium. 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:

Carbon monoxide. Carbon dioxide. Hydrogen chloride. Toxic gases are released during decomposition. Decomposition products can include trace amounts of: Phosgene.

11. TOXICOLOGICAL INFORMATION

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

Information on likely routes of exposure

Inhalation, Eye contact, Skin contact, Ingestion.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

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.

Based on product testing:

LD50, Rat, male, > 100 mg/kg

Based on product testing:

LD50, Rat, female, 212 mg/kg

Information for components:

1,3-Dichloropropene

Single dose oral LD50 has not been determined. LD50,

For similar material(s): LD50, Rat, 110 mg/kg

Solvent naphtha (petroleum), light aromatic

LD50, Rat, 3,500 mg/kg

1,2,4-Trimethylbenzene

LD50, Rat, > 3,400 mg/kg

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

Based on product testing:

LD50, Rat, male, 2,966 mg/kg

Based on product testing:

LD50, Rat, female, > 5,000 mg/kg

Information for components:

1,3-Dichloropropene

The dermal LD50 has not been determined.

For similar material(s): LD50, Rabbit, 333 mg/kg

For similar material(s): LD50, Rat, 1,200 mg/kg

Solvent naphtha (petroleum), light aromatic

LD50, Rabbit, > 3,160 mg/kg

1,2,4-Trimethylbenzene

LD50, Rabbit, > 3,160 mg/kg

Acute inhalation toxicity

Prolonged excessive exposure may cause serious adverse effects, even death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.

Observations in animals include: Lethargy.

As product: The LC50 has not been determined.

For the active ingredient(s):

LC50, Rat, 4 Hour, vapour, > 855 ppm

Information for components:

1,3-Dichloropropene

The LC50 has not been determined.

For similar material(s): LC50, Rat, 4 Hour, vapour, 2.7 - 3.07 mg/l

Solvent naphtha (petroleum), light aromatic

Vapor concentrations are attainable which could be hazardous on single exposure.

May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

LC50, Rat, 4 Hour, vapour, > 10.2 mg/l

1,2,4-Trimethylbenzene

Prolonged excessive exposure may cause serious adverse effects, even death.

Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50, Rat, 4 Hour, vapour, 18 mg/l

Skin corrosion/irritation

Based on product testing:

Brief contact may cause moderate skin irritation with local redness.

May cause drying and flaking of the skin.

Information for components:

1,3-Dichloropropene

For similar material(s):

Brief contact may cause moderate skin irritation with local redness.

May cause drying and flaking of the skin.

Solvent naphtha (petroleum), light aromatic

Prolonged contact may cause slight skin irritation with local redness.
Repeated contact may cause skin irritation with local redness.
May cause drying and flaking of the skin.

1,2,4-Trimethylbenzene

Brief contact may cause moderate skin irritation with local redness.
May cause drying and flaking of the skin.

Serious eye damage/eye irritation

Based on product testing:

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Effects may be slow to heal.

Vapor may cause lacrimation (tears).

Vapor may cause eye irritation experienced as mild discomfort and redness.

Information for components:

1,3-Dichloropropene

For similar material(s):

May cause severe eye irritation.

May cause slight corneal injury.

Vapor may cause lacrimation (tears).

Vapor may cause eye irritation experienced as mild discomfort and redness.

Solvent naphtha (petroleum), light aromatic

May cause moderate eye irritation which may be slow to heal.

Corneal injury is unlikely.

Vapor may cause eye irritation experienced as mild discomfort and redness.

1,2,4-Trimethylbenzene

May cause eye irritation.

Vapor may cause eye irritation experienced as mild discomfort and redness.

Sensitization

Based on product testing:

Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Information for components:

1,3-Dichloropropene

Animal data indicate that 1,3-dichloropropene is a potential skin sensitizer.

For respiratory sensitization:

No relevant data found.

Solvent naphtha (petroleum), light aromatic

For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

1,2,4-Trimethylbenzene

For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

Information for components:

1,3-Dichloropropene

May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

Solvent naphtha (petroleum), light aromatic

May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract
May cause drowsiness or dizziness.
Route of Exposure: Inhalation
Target Organs: Central nervous system

1,2,4-Trimethylbenzene

May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

Aspiration Hazard

May be fatal if swallowed and enters airways.

Information for components:

1,3-Dichloropropene

Aspiration into the lungs may occur during ingestion or vomiting, resulting in rapid absorption and injury to other body systems.

Solvent naphtha (petroleum), light aromatic

May be fatal if swallowed and enters airways.

1,2,4-Trimethylbenzene

May be fatal if swallowed and enters airways.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

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.

Gastrointestinal tract.

Respiratory tract.

Nasal tissue.

Blood-forming organs (Bone marrow & Spleen).

Contains component(s) which have been reported to cause effects on the following organs in animals:

Kidney

Blood.

Liver

Information for components:

1,3-Dichloropropene

For similar material(s):

In animals, effects have been reported on the following organs:

Bladder.

Liver.

Lung.

Gastrointestinal tract.

Respiratory tract.

Nasal tissue.

Blood-forming organs (Bone marrow & Spleen).

Solvent naphtha (petroleum), light aromatic

In animals, effects have been reported on the following organs:

Blood.

Kidney.

Liver.

Xylene is reported to have caused hearing loss in laboratory animals upon exposure to high concentrations; such effects have not been reported in humans.

For the minor component(s):

Cumene.

Eye.

1,2,4-Trimethylbenzene

In animals, effects have been reported on the following organs:

Respiratory tract.

Carcinogenicity

For the active ingredient(s): 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.

Information for components:

1,3-Dichloropropene

For similar material(s): 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.

Solvent naphtha (petroleum), light aromatic

Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

1,2,4-Trimethylbenzene

No relevant data found.

Teratogenicity

For the active ingredient(s): Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Information for components:**1,3-Dichloropropene**

For similar material(s): Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Solvent naphtha (petroleum), light aromatic

Has caused birth defects in laboratory animals only at doses producing severe toxicity in the mother. Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects. No malformations were induced at exposures less than those causing severe toxicity to the adult animals. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

1,2,4-Trimethylbenzene

Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity

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

Information for components:**1,3-Dichloropropene**

For similar material(s): In animal studies, did not interfere with reproduction.

Solvent naphtha (petroleum), light aromatic

In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

1,2,4-Trimethylbenzene

For similar material(s): In animal studies, did not interfere with reproduction.

Mutagenicity

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

Information for components:**1,3-Dichloropropene**

For similar material(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

Solvent naphtha (petroleum), light aromatic

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

1,2,4-Trimethylbenzene

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

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

Toxicity**1,3-Dichloropropene****Acute toxicity to fish**

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

For similar material(s):

LC50. Cyprinodon variegatus (sheepshead minnow). 96 Hour. 0.87 mg/l. Method Not Specified.

For similar material(s):

LC50. Rainbow trout (Oncorhynchus mykiss). 96 Hour. 2.78 mg/l

For similar material(s):

LC50. Lepomis macrochirus (Bluegill sunfish). 96 Hour. 3.7 mg/l

Acute toxicity to aquatic invertebrates

For similar material(s):

EC50. Daphnia magna (Water flea). static test. 48 Hour. 3.58 mg/l

For similar material(s):

EC50. eastern oyster (Crassostrea virginica). 48 Hour. 0.64 mg/l

Acute toxicity to algae/aquatic plants

For similar material(s):

EbC50. Pseudokirchneriella subcapitata (green algae). 72 Hour. 14.9 mg/l

For similar material(s):

EC50. diatom Navicula sp.. 120 Hour. 2.35 mg/l

For similar material(s):

EC50. Lemna gibba. 14 d. 14.56 mg/l

Chronic toxicity to fish

For similar material(s):

NOEC. Pimephales promelas (fathead minnow). flow-through test. 33 d. survival. 0.117 mg/l

Chronic toxicity to aquatic invertebrates

For similar material(s):

NOEC. water flea *Daphnia magna*. 21 d. number of offspring. 0.0701 mg/l

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

Based on information for a similar material:

oral LD50. *Colinus virginianus* (Bobwhite quail). 139.8mg/kg bodyweight.

Based on information for a similar material:

dietary LC50. *Anas platyrhynchos* (Mallard duck). > 6243mg/kg diet.

Toxicity to soil-dwelling organisms

Based on information for a similar material:

LC50. *Eisenia fetida* (earthworms). 14 d. 55.6 mg/kg

Solvent naphtha (petroleum), light aromatic**Acute toxicity to fish**

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

LC50. *Oncorhynchus mykiss* (rainbow trout). static test. 96 Hour. 9.22 mg/l. OECD Test Guideline 203 or Equivalent

Acute toxicity to algae/aquatic plants

For similar material(s):

ErC50. *Pseudokirchneriella subcapitata* (green algae). 72 Hour. 2.9 mg/l

Toxicity to bacteria

EC50. 10 min. > 99 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

dietary LC50. *Colinus virginianus* (Bobwhite quail). 8 d. > 6500mg/kg diet.

oral LD50. *Colinus virginianus* (Bobwhite quail). 21 d. > 2150mg/kg bodyweight.

1,2,4-Trimethylbenzene**Acute toxicity to fish**

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

LC50. *Pimephales promelas* (fathead minnow). flow-through test. 96 Hour. 7.7 mg/l

Acute toxicity to aquatic invertebrates

EC50. *Daphnia magna* (Water flea). 48 Hour. 3.6 mg/l

Acute toxicity to algae/aquatic plants

EC50. *Desmodesmus subspicatus* (green algae). 96 Hour. 2.356 mg/l

Persistence and degradability**1,3-Dichloropropene**

Biodegradability: Biodegradation may occur under aerobic conditions (in the presence of oxygen).

10-day Window: Fail For similar material(s):

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)

Based on data from similar materials. Hydrolysis. half-life. 2.3 - 4.75 d

Solvent naphtha (petroleum), light aromatic

Biodegradability:

For the major component(s): Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. For some component(s): Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

1,2,4-Trimethylbenzene

Biodegradability: Material has inherent, ultimate biodegradability according to OECD test (s) guidelines (reaches > 60 or 70% biodegradation in OECD test(s)).

Biodegradation: 100 %

Exposure time: 1 d

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

Solvent naphtha (petroleum), light aromatic

Bioaccumulation: For the major component(s): Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). For the minor component(s): Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

1,2,4-Trimethylbenzene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 3.63 Measured

Bioconcentration factor (BCF): 33 - 275 Cyprinus carpio (Carp) 56 d Measured

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

Solvent naphtha (petroleum), light aromatic

For the major component(s):

Potential for mobility in soil is low (Koc between 500 and 2000).

1,2,4-Trimethylbenzene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 720 Estimated.

Results of PBT and vPvB assessment**1,3-Dichloropropene**

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Solvent naphtha (petroleum), light aromatic

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

1,2,4-Trimethylbenzene

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Other adverse effects**1,3-Dichloropropene**

1,3-Dichloropropene has a stratospheric ozone depletion potential (ODP) of 0.002, relative to CFC 12 (ODP=1).

Solvent naphtha (petroleum), light aromatic

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

1,2,4-Trimethylbenzene

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

13. DISPOSAL CONSIDERATIONS

Disposal methods:

This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required. Do not dump into any sewers, on the ground, or into any body of water.

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

Proper shipping name	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S.(1,3-Dichloropropene)
UN number	UN 2903
Class	6.1 (3)
Packing group	II
Hazard Identification Number	63
Environmental hazards	1,3-Dichloropropene

Classification for SEA transport (IMO-IMDG):

Proper shipping name	PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S.(1,3-Dichloropropene)
UN number	UN 2903
Class	6.1 (3)
Packing group	II
Marine pollutant	1,3-Dichloropropene
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):

Proper shipping name	Pesticide, liquid, toxic, flammable, n.o.s.(1,3-Dichloropropene)
UN number	UN 2903
Class	6.1 (3)
Packing group	II

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

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Listed in Regulation: ACUTE TOXIC

Number in Regulation: H2

50 t

200 t

Listed in Regulation: FLAMMABLE LIQUIDS

Number in Regulation: P5c

5,000 t

50,000 t

Listed in Regulation: ENVIRONMENTAL HAZARDS

Number in Regulation: E1

100 t

200 t

Classification and labeling have been performed according to Regulation (EC) No 1272/2008.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H304	May be fatal if swallowed and enters airways.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Revision

Identification Number: 99178997 / 3000 / Issue Date: 10.02.2021 / Version: 1.1

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

Legend

2000/39/EC	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
ACGIH	USA. ACGIH Threshold Limit Values (TLV)
Dow IHG	Dow Industrial Hygiene Guideline
STEL	Short term exposure limit
TWA	Time weighted average
Acute Tox.	Acute toxicity
Aquatic Acute	Short-term (acute) aquatic hazard
Aquatic Chronic	Long-term (chronic) aquatic hazard
Asp. Tox.	Aspiration hazard
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
Skin Irrit.	Skin irritation
Skin Sens.	Skin sensitisation
STOT SE	Specific target organ toxicity - single exposure

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; 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; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; 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.

DOW EUROPE GmbH 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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