

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



PERMETHRIN 38% EC

Version
1.0

Revision Date:
2023/03/28

SDS Number:
50000569

Date of last issue: -
Date of first issue: 2023/03/28

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : PERMETHRIN 38% EC

Recommended use of the chemical and restrictions on use

Recommended use : Can be used as insecticide only.

Restrictions on use : Use as recommended by the label.

Manufacturer or supplier's details

Company : FMC Corporation

Address : 2929 WALNUT ST
PHILADELPHIA PA 19104
USA

Telephone : (215) 299-6000

E-mail address : SDS-Info@fmc.com

Emergency telephone : For leak, fire, spill or accident emergencies, call:
0086-0532 8388 9090 (National Registration Center for Chemicals)

Medical emergency:
86 532 8388 9090

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance	: liquid
Color	: amber
Odor	: hydrocarbon-like

Flammable liquid and vapor. Harmful if swallowed. May be fatal if swallowed and enters airways. May be harmful in contact with skin or if inhaled. Causes mild skin irritation. Causes serious eye damage. May cause drowsiness or dizziness. Suspected of causing cancer. Very toxic to aquatic life with long lasting effects.

GHS Classification

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 5

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Acute toxicity (Dermal)	: Category 5
Skin corrosion/irritation	: Category 3
Serious eye damage/eye irritation	: Category 1
Carcinogenicity	: Category 2
Specific target organ toxicity - single exposure	: Category 3 (Narcotic effects)
Aspiration hazard	: Category 1
Short-term (acute) aquatic hazard	: Category 1
Long-term (chronic) aquatic hazard	: Category 1

GHS label elements

Hazard pictograms	:	
Signal Word	:	Danger
Hazard Statements	:	H226 Flammable liquid and vapor. H302 Harmful if swallowed. H304 May be fatal if swallowed and enters airways. H313 + H333 May be harmful in contact with skin or if inhaled. H316 Causes mild skin irritation. H318 Causes serious eye damage. H336 May cause drowsiness or dizziness. H351 Suspected of causing cancer. H410 Very toxic to aquatic life with long lasting effects.
Precautionary Statements	:	Prevention: P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. P242 Use only non-sparking tools. P243 Take precautionary measures against static discharge. P261 Avoid breathing mist or vapors. P264 Wash skin thoroughly after handling.

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P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P312 Call a POISON CENTER/ doctor if you feel unwell.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391 Collect spillage.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Physical and chemical hazards

Flammable liquid and vapor.

Health hazards

Harmful if swallowed. May be harmful if inhaled. May be harmful in contact with skin. Causes mild skin irritation. Causes serious eye damage. Suspected of causing cancer. May cause drowsiness or dizziness. May be fatal if swallowed and enters airways.

Environmental hazards

Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

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Components

Chemical name	CAS-No.	Concentration (% w/w)
permethrin (ISO)	52645-53-1	38
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5	>= 50 -< 70
Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts	84989-14-0	>= 3 -< 10
2-methylpropan-1-ol	78-83-1	>= 1 -< 3
Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched	68412-54-4	>= 1 -< 2.5

4. FIRST AID MEASURES

General advice

- : Move out of dangerous area.
- Consult a physician.
- Show this safety data sheet to the doctor in attendance.
- Symptoms of poisoning may appear several hours later.
- Do not leave the victim unattended.

If inhaled

- : Consult a physician after significant exposure.
- If unconscious, place in recovery position and seek medical advice.

In case of skin contact

- : If skin irritation persists, call a physician.
- If on skin, rinse well with water.
- If on clothes, remove clothes.

In case of eye contact

- : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
- In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- Continue rinsing eyes during transport to hospital.
- Remove contact lenses.
- Protect unharmed eye.
- Keep eye wide open while rinsing.
- If eye irritation persists, consult a specialist.

If swallowed

- : Clean mouth with water and drink afterwards plenty of water.
- Keep respiratory tract clear.
- Do NOT induce vomiting.
- Do not give milk or alcoholic beverages.
- Never give anything by mouth to an unconscious person.
- If symptoms persist, call a physician.
- Take victim immediately to hospital.

Most important symptoms and effects, both acute and delayed

- : Harmful if swallowed.
- May be fatal if swallowed and enters airways.
- May be harmful in contact with skin or if inhaled.
- Causes mild skin irritation.
- Causes serious eye damage.
- May cause drowsiness or dizziness.
- Suspected of causing cancer.

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Notes to physician : Treat symptomatically.
It may be helpful to show this safety data sheet to physician.

5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Halogenated compounds
Sulfur oxides
Hazardous combustion products
- Specific extinguishing methods : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Evacuate personnel to safe areas.
Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Handling

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Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.

Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.

Avoidance of contact : Strong acids and strong bases
Strong oxidizing agents

Storage

Conditions for safe storage : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5	TWA	200 mg/m ³ (total hydrocarbon vapor)	ACGIH
2-methylpropan-1-ol	78-83-1	TWA	50 ppm	ACGIH

Personal protective equipment

Respiratory protection : In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

Eye/face protection : Eye wash bottle with pure water

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	Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	: Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hand protection Material	: Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber.
Remarks	: The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Hygiene measures	: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Color	: amber
Odor	: hydrocarbon-like
pH	: 5.3 - 7.5 (20 °C)
Melting point/freezing point	: not determined
Boiling point/boiling range	: not determined
Flash point	: 42 - 47 °C
Flammability (liquids)	: Sustains combustion
Relative density	: 8.35
Density	: 1.035 - 1.050 g/cm3 (20 °C)
Solubility(ies) Water solubility	: emulsifiable
Viscosity Viscosity, dynamic	: 1 - 25 mPa.s

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10. STABILITY AND REACTIVITY

Reactivity	: No decomposition if stored and applied as directed.
Chemical stability	: No decomposition if stored and applied as directed.
Possibility of hazardous reactions	: No decomposition if stored and applied as directed. Vapors may form explosive mixture with air.
Conditions to avoid	: Heat, flames and sparks.
Incompatible materials	: Strong acids and strong bases Strong oxidizing agents
Hazardous decomposition products	: Nitrogen oxides (NOx) Carbon oxides Chlorine compounds

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed.
May be harmful in contact with skin or if inhaled.

Product:

Acute oral toxicity	: LD50 (Rat, female): 1,470 mg/kg Method: GB 15670-1995
Acute inhalation toxicity	: LC50 (Rat): > 2.5 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: GB 15670-1995 Assessment: The component/mixture is minimally toxic after short term inhalation.
Acute dermal toxicity	: LD50 (Rat): > 2,150 mg/kg Method: GB 15670-1995

Components:

permethrin (ISO):

Acute oral toxicity	: LD50 (Rat, female): 3,129 mg/kg Method: OECD Test Guideline 425
Acute inhalation toxicity	: LC50 (Rat, male and female): > 2.09 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403
Acute dermal toxicity	: LD50 (Rabbit, male and female): > 2,000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal

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toxicity

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

- Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials
- Acute inhalation toxicity : LC50 (Rat, male and female): > 5.28 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Based on data from similar materials
- Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

- Acute oral toxicity : LD50 (Rat, male and female): 1,080 - 1,630 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials
- Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Remarks: Based on data from similar materials

2-methylpropan-1-ol:

- Acute oral toxicity : LD50 (Rat): 3,350 mg/kg
- Acute inhalation toxicity : LC50 (Rat): > 18.18 mg/l
Exposure time: 6 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rabbit): 2,460 mg/kg

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

- Acute oral toxicity : LD50 (Rat, male and female): 1,980 mg/kg

Skin corrosion/irritation

Causes mild skin irritation.

Product:

- Species : Rabbit
Method : GB 15670-1995
Result : slight irritation

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Components:

permethrin (ISO):

Species : Rabbit
Method : OECD Test Guideline 404
Result : slight irritation

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Rabbit
Result : No skin irritation

Assessment : Repeated exposure may cause skin dryness or cracking.

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

Species : reconstructed human epidermis (RhE)
Method : OECD Test Guideline 439
Result : Skin irritation

2-methylpropan-1-ol:

Species : Rabbit
Result : Skin irritation

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Species : Rabbit
Method : Draize Test
Result : Skin irritation

Serious eye damage/eye irritation

Causes serious eye damage.

Product:

Species : Rabbit
Result : slight irritation
Method : GB 15670-1995

Components:

permethrin (ISO):

Species : Rabbit
Result : slight irritation
Method : OECD Test Guideline 405

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Rabbit
Result : No eye irritation
Remarks : Based on data from similar materials

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Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

Species	:	Bovine cornea
Result	:	Irreversible effects on the eye
Method	:	OECD Test Guideline 437

2-methylpropan-1-ol:

Species	:	Rabbit
Result	:	Irreversible effects on the eye

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Method	:	Draize Test

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Product:

Test Type	:	Buehler Test
Species	:	Guinea pig
Method	:	GB 15670-1995
Result	:	Not a skin sensitizer.

Components:

permethrin (ISO):

Test Type	:	Buehler Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Not a skin sensitizer.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Test Type	:	Buehler Test
Species	:	Guinea pig
Result	:	Does not cause skin sensitization.
Remarks	:	Based on data from similar materials

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

Test Type	:	Maximization Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitization.
Remarks	:	Based on data from similar materials

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2-methylpropan-1-ol:

Routes of exposure : Skin contact
Result : Not a skin sensitizer.

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Test Type : Magnussen-Kligman test
Species : Guinea pig
Result : Does not cause skin sensitization.

Germ cell mutagenicity

Not classified based on available information.

Components:

permethrin (ISO):

Genotoxicity in vitro : Test Type: Ames test
Result: negative

Test Type: Mouse lymphoma assay
Result: negative

Genotoxicity in vivo : Test Type: dominant lethal test
Species: Mouse (male)
Result: negative

Test Type: Sex-linked Recessive Lethal Test
Species: Drosophila melanogaster (vinegar fly)
Result: negative

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Genotoxicity in vitro : Test Type: reverse mutation assay
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: sister chromatid exchange assay
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative
Remarks: Based on data from similar materials

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

Genotoxicity in vitro : Test Type: reverse mutation assay
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Bone marrow chromosome aberration.
Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 475
Result: negative
Remarks: Based on data from similar materials

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Germ cell mutagenicity - Assessment : Weight of evidence does not support classification as a germ cell mutagen.

2-methylpropan-1-ol:

Genotoxicity in vitro : Result: negative

Genotoxicity in vivo : Result: negative

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Genotoxicity in vitro : Test Type: reverse mutation assay
Method: OECD Test Guideline 471
Result: negative

Test Type: gene mutation test
Method: OECD Test Guideline 476
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Carcinogenicity

Suspected of causing cancer.

Components:

permethrin (ISO):

Species : Rat
Application Route : Oral
Exposure time : 2 Years
Result : negative

Species : Mouse
Application Route : Oral
Exposure time : 2 Years
Result : negative

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Mouse
Application Route : Dermal
Exposure time : 104 weeks
Result : negative
Remarks : Based on data from similar materials

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

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Reproductive toxicity

Not classified based on available information.

Components:

permethrin (ISO):

- Effects on fertility : Test Type: Three-generation study
Species: Rat, male and female
Application Route: Oral
Result: negative
- Effects on fetal development : Test Type: Embryo-fetal development
Species: Rabbit
Application Route: Oral
Symptoms: No maternal effects.
Result: negative

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

- Effects on fertility : Test Type: Fertility
Species: Rat, male and female
Application Route: Oral
Method: OECD Test Guideline 415
Result: negative
Remarks: Based on data from similar materials
- Effects on fetal development : Test Type: reproductive and developmental toxicity study
Species: Rat
Application Route: Oral
Method: OECD Test Guideline 414
Result: negative
Remarks: Based on data from similar materials

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

- Effects on fertility : Test Type: Two-generation study
General Toxicity Parent: NOAEL: > 350 mg/kg body weight
General Toxicity F1: NOAEL: > 350 mg/kg body weight
Method: OECD Test Guideline 416
Result: negative
Remarks: Based on data from similar materials
- Effects on fetal development : Test Type: reproductive and developmental toxicity study
Species: Rat
Developmental Toxicity: NOAEL: > 350 mg/kg body weight
Result: negative
Remarks: Based on data from similar materials
- Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

2-methylpropan-1-ol:

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Effects on fertility : Species: Rat
Application Route: Inhalation
Fertility: NOAEC Mating/Fertility: 7.5 mg/l

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Effects on fetal development : Test Type: reproductive and developmental toxicity study
Species: Rat
Application Route: Oral
General Toxicity Maternal: NOEL: 50 mg/kg body weight
Developmental Toxicity: NOAEL: 50 mg/kg body weight
Symptoms: Fetal abnormalities.
Result: negative
Remarks: Based on data from similar materials

Test Type: reproductive and developmental toxicity study
Species: Rat
Application Route: Dermal
Developmental Toxicity: NOAEL: 500 mg/kg body weight
Symptoms: Fetal abnormalities.
Result: negative
Remarks: Based on data from similar materials

STOT-single exposure

May cause drowsiness or dizziness.

Components:

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Assessment : May cause drowsiness or dizziness.

2-methylpropan-1-ol:

Assessment : May cause respiratory irritation.
May cause drowsiness or dizziness.

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure

Not classified based on available information.

Components:

permethrin (ISO):

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

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Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Components:

permethrin (ISO):

Species : Rat
NOAEL : 270 mg/kg
Application Route : Oral - feed
Exposure time : 90 days
Symptoms : No adverse effects.

Species : Rat
NOAEL : 20 mg/kg
Application Route : Oral - feed
Exposure time : 90 days
Symptoms : Liver effects

Species : Dog
Application Route : Oral - feed
Exposure time : 13 weeks
Symptoms : No adverse effects.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Species : Rat, male and female
NOAEL : 750 mg/kg
Application Route : Oral - gavage
Exposure time : 90 day
Remarks : Based on data from similar materials

Species : Rat, male and female
NOAEL : 1 mg/l
LOAEL : 0.5 mg/l
Application Route : inhalation (vapor)
Exposure time : 90 day
Symptoms : Alpha-2u-globulin nephropathy

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

Species : Rat, male and female
NOAEL : 85 mg/kg
LOAEL : 145 mg/kg
Application Route : Oral
Exposure time : 9 mo
Target Organs : Kidney, Liver
Remarks : Based on data from similar materials

2-methylpropan-1-ol:

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Species	:	Rat
	:	1450 mg/kg
Application Route	:	Oral
Species	:	Rat
	:	7.5 mg/l
Application Route	:	Inhalation

Aspiration toxicity

May be fatal if swallowed and enters airways.

Components:

permethrin (ISO):

No data available

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Neurological effects

Components:

permethrin (ISO):

No neurotoxicity observed in animal studies.

Further information

Product:

Remarks	:	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.
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12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

permethrin (ISO):

Toxicity to fish	:	LC50 (Fish): 5.3 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Crustaceans): 0.001 mg/l Exposure time: 48 h
Toxicity to algae/aquatic	:	EC50 (algae): 0.0125 mg/l

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plants	Exposure time: 72 h NOEC (algae): 0.9 µg/l Exposure time: 96 h
M-Factor (Acute aquatic toxicity)	: 1,000
Toxicity to fish (Chronic toxicity)	: NOEC (Fish): 0.3 µg/l Exposure time: 21 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Crustaceans): 0.039 µg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	: 1,000

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Toxicity to fish	: LL50 (Oncorhynchus mykiss (rainbow trout)): 2 - 5 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: water accommodated fractions (WAF)
Toxicity to daphnia and other aquatic invertebrates	: EL50 (Daphnia magna (Water flea)): 1.4 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: water accommodated fractions (WAF)
Toxicity to algae/aquatic plants	: EL50 (Pseudokirchneriella subcapitata (green algae)): > 1 - 3 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: water accommodated fractions (WAF)
Toxicity to microorganisms	: LL50 (Tetrahymena pyriformis): 677.9 mg/l Exposure time: 72 h Test Type: Growth inhibition

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

Toxicity to fish	: LC50 (Fish): 1.7 - 7.7 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	: EL50 (Daphnia magna (Water flea)): 5.7 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: water accommodated fractions (WAF)
Toxicity to algae/aquatic plants	: NOELR (Pseudokirchneriella subcapitata (green algae)): 10 mg/l Exposure time: 72 h

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Method: OECD Test Guideline 201
Remarks: water accommodated fractions (WAF)

EL50 (Pseudokirchneriella subcapitata (algae)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: water accommodated fractions (WAF)

Toxicity to microorganisms : EC50 (activated sludge): 162 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

2-methylpropan-1-ol:

Toxicity to fish : LC50 : 1,430 mg/l
Exposure time: 4 d

Toxicity to daphnia and other aquatic invertebrates : EC50: 1,100 mg/l
Exposure time: 48 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 20 mg/l
Exposure time: 21 d

Toxicity to microorganisms : EC50 (Anabaena flos-aquae (cyanobacterium)): 593 - 1,799 mg/l
Exposure time: 72 h

IC50 (Natural microorganism): 1,000 mg/l
Exposure time: 16 h

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 7.9 mg/l
Exposure time: 96 h

Persistence and degradability

Components:

permethrin (ISO):

Biodegradability : Result: Not readily biodegradable.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Biodegradability : Result: Inherently biodegradable.
Biodegradation: 58.6 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
Remarks: Based on data from similar materials

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301F

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2-methylpropan-1-ol:

Biodegradability : Result: Readily biodegradable.

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Biodegradability : Result: Not readily biodegradable.
Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

permethrin (ISO):

Bioaccumulation : Remarks: The product may be accumulated in organisms.
Partition coefficient: n-octanol/water : Remarks: No data available

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Partition coefficient: n-octanol/water : log Pow: 1.99 - 18.02
Method: QSAR

Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts:

Partition coefficient: n-octanol/water : log Pow: 4.3 - 5.8 (25 °C)
pH: 7
Method: OECD Test Guideline 117

2-methylpropan-1-ol:

Bioaccumulation : Remarks: No bioaccumulation is to be expected (log Pow <= 4).
Partition coefficient: n-octanol/water : Pow: 10 (25 °C)

Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega-hydroxy-, branched:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.
Based on data from similar materials

Partition coefficient: n-octanol/water : log Pow: 5.39 (20 °C)

Mobility in soil

Components:

permethrin (ISO):

Distribution among environmental compartments : Remarks: immobile

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Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 1993
Proper shipping name : FLAMMABLE LIQUID, N.O.S.
(Permethrin, Isobutyl Alcohol)
Class : 3
Packing group : III
Labels : 3

IATA-DGR

UN/ID No. : UN 1993
Proper shipping name : Flammable liquid, n.o.s.
(Permethrin, Isobutyl Alcohol)
Class : 3
Packing group : III
Labels : Flammable Liquids
Packing instruction (cargo aircraft) : 366
Packing instruction (passenger aircraft) : 355
Environmentally hazardous : yes

IMDG-Code

UN number : UN 1993
Proper shipping name : FLAMMABLE LIQUID, N.O.S.
(Permethrin, Isobutyl Alcohol)
Class : 3
Packing group : III

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Labels	:	3
EmS Code	:	F-E, S-E
Marine pollutant	:	yes

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

Not applicable for product as supplied.

Domestic regulation

GB 6944/12268

UN number	:	UN 1993
Proper shipping name	:	FLAMMABLE LIQUID, N.O.S. (Permethrin, Isobutyl Alcohol)
Class	:	3
Packing group	:	III
Labels	:	3

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

15. REGULATORY INFORMATION

National regulatory information

Law on the Prevention and Control of Occupational Diseases

Regulations on Safety Management of Hazardous Chemicals

Catalogue of Hazardous Chemicals : Listed

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)

No. / Code	Chemical name / Category	Threshold quantity
W5.4	Flammable liquids	5,000 t

Yangtze River Protection Law

This product does not contain any dangerous chemicals prohibited for inland river transport.

The ingredients of this product are reported in the following inventories:

TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	Product contains substance(s) not listed on TSCA inventory.
AIIC	:	Not in compliance with the inventory
DSL	:	This product contains the following components that are not on the Canadian DSL nor NDSL. permethrin (ISO) Benzenesulfonic acid, 4-C10-13-sec-alkyl derivs., calcium salts
ENCS	:	Not in compliance with the inventory

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ISHL	:	Not in compliance with the inventory
KECI	:	Not in compliance with the inventory
PICCS	:	Not in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
TECI	:	Not in compliance with the inventory

16. OTHER INFORMATION

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Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA	:	8-hour, time-weighted average

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recom-

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mendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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