

Permethrin Formulation

Version 4.0 Revision Date: 2023/04/04 SDS Number: 829658-00016 Date of last issue: 2022/10/01
Date of first issue: 2016/08/02

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Permethrin Formulation

Manufacturer or supplier's details

Company : MSD

Address : 126 E. Lincoln Avenue
Rahway, New Jersey U.S.A. 07065

Telephone : 908-740-4000

Emergency telephone number : 1-908-423-6000

E-mail address : EHSDATASTEWARD@msd.com

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

Restrictions on use :
Not applicable

2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 3

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 2A

Skin sensitisation : Category 1

Germ cell mutagenicity : Category 1B

Carcinogenicity : Category 1B

Reproductive toxicity : Category 2

Specific target organ toxicity - single exposure : Category 3

Specific target organ toxicity - repeated exposure : Category 2 (Auditory system)

Aspiration hazard : Category 1

Short-term (acute) aquatic hazard : Category 1

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Long-term (chronic) aquatic hazard : Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H226 Flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H340 May cause genetic defects.
H350 May cause cancer.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs (Auditory system) through prolonged or repeated exposure.
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.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
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 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and

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easy to do. Continue rinsing.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P331 Do NOT induce vomiting.
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
 P337 + P313 If eye irritation persists: Get medical advice/ attention.
 P362 + P364 Take off contaminated clothing and wash it before reuse.
 P391 Collect spillage.

Storage:

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.

Other hazards which do not result in classification

Cutaneous sensations may occur, such as burning or stinging on the face and mucosae. However, these sensations cause no lesions and are of a transitory nature (max. 24 hours).
 Vapours may form explosive mixture with air.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

| Chemical name | CAS-No. | Concentration (% w/w) |
|---|-------------|-----------------------|
| Solvent naphtha (petroleum), light aromatic | 64742-95-6 | 60 -70 |
| Xylene | 1330-20-7 | 6 -16 |
| Permethrin (ISO) | 52645-53-1 | 11.76 |
| 4-Nonylphenol, branched, ethoxylated | 127087-87-0 | 8.4 |
| Calcium bis(dodecylbenzenesulphonate), branched | 70528-83-5 | 2.52 |

4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
 When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.
 Get medical attention.

In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
 Get medical attention.
 Wash clothing before reuse.
 Thoroughly clean shoes before reuse.

In case of eye contact : In case of contact, immediately flush eyes with plenty of water

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| | for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention. |
| If swallowed | : If swallowed, DO NOT induce vomiting. If vomiting occurs have person lean forward. Call a physician or poison control centre immediately. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person. |
| Most important symptoms and effects, both acute and delayed | : May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. May cause drowsiness or dizziness. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. This product contains a pyrethroid. Pyrethroid poisoning should not be confused with carbamate or organophosphate poisoning. |
| Protection of first-aiders | : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8). |
| Notes to physician | : Treat symptomatically and supportively. |

5. FIREFIGHTING MEASURES

| | |
|---|---|
| Suitable extinguishing media | : Water spray Alcohol-resistant foam Carbon dioxide (CO ₂) Dry chemical |
| Unsuitable extinguishing media | : High volume water jet |
| Specific hazards during fire-fighting | : Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapours may form explosive mixtures with air. Exposure to combustion products may be a hazard to health. |
| Hazardous combustion products | : Chlorine compounds Carbon oxides Sulphur oxides Metal oxides |
| Specific extinguishing methods | : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area. |
| Special protective equipment for firefighters | : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment. |

6. ACCIDENTAL RELEASE MEASURES

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Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition.
Use personal protective equipment.
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions : Avoid release to the environment.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up : Non-sparking tools should be used.
Soak up with inert absorbent material.
Suppress (knock down) gases/vapours/mists with a water spray jet.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.
Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling : Do not get on skin or clothing.
Do not breathe mist or vapours.
Do not swallow.
Do not get in eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Non-sparking tools should be used.
Keep container tightly closed.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges.
Take care to prevent spills, waste and minimize release to the environment.

Conditions for safe storage : Keep in properly labelled containers.
Store locked up.

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Materials to avoid : Keep tightly closed.
 Keep in a cool, well-ventilated place.
 Store in accordance with the particular national regulations.
 Keep away from heat and sources of ignition.
 Do not store with the following product types:
 Self-reactive substances and mixtures
 Organic peroxides
 Oxidizing agents
 Flammable gases
 Pyrophoric liquids
 Pyrophoric solids
 Self-heating substances and mixtures
 Poisonous gases
 Explosives

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---|------------|---|--|----------|
| Solvent naphtha (petroleum), light aromatic | 64742-95-6 | TWA | 200 mg/m ³ (total hydrocarbon vapor) | ACGIH |
| Xylene | 1330-20-7 | NAB | 100 ppm 434 mg/m ³ | ID OEL |
| | | Further information: Not classified as carcinogenic to humans. Not enough data to classify these materials as carcinogenic to humans or animals | | |
| | | PSD | 150 ppm 651 mg/m ³ | ID OEL |
| | | Further information: Not classified as carcinogenic to humans. Not enough data to classify these materials as carcinogenic to humans or animals | | |
| | | TWA | 20 ppm | ACGIH |
| Permethrin (ISO) | 52645-53-1 | TWA | 80 µg/m ³ (OEB 3) | Internal |
| | | Wipe limit | 800 µg/100 cm ² | Internal |

Biological occupational exposure limits

| Components | CAS-No. | Control parameters | Biological specimen | Sampling time | Permissible concentration | Basis |
|------------|-----------|----------------------|---------------------|--|---------------------------|--------------|
| Xylene | 1330-20-7 | Methylhippuric acids | Urine | End of shift (As soon as possible after exposure ceases) | 1.5 g/g creatinine | ACGIH BEI |

Engineering measures : Minimize workplace exposure concentrations.
 If sufficient ventilation is unavailable, use with local exhaust

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ventilation.
Use explosion-proof electrical, ventilating and lighting equipment.

Personal protective equipment

- Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
- Filter type : Combined particulates and organic vapour type
- Hand protection
- Material : Chemical-resistant gloves
- Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Take note that the product is flammable, which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.
- Eye protection : Wear the following personal protective equipment:
Safety goggles
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
- Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.
When using do not eat, drink or smoke.
Contaminated work clothing should not be allowed out of the workplace.
Wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Colour : clear
- Odour : aromatic
- Odour Threshold : No data available
- pH : 6.69
- Melting point/freezing point : No data available

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| Initial boiling point and boiling range | : | No data available |
| Flash point | : | 51.1 °C |
| Evaporation rate | : | No data available |
| Flammability (solid, gas) | : | Not applicable |
| Flammability (liquids) | : | No data available |
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower flammability limit | : | No data available |
| Vapour pressure | : | 15 mmHg (25 °C) |
| Relative vapour density | : | No data available |
| Relative density | : | 0.870 - 0.880 (25 °C) |
| Density | : | No data available |
| Solubility(ies) Water solubility | : | emulsifiable |
| Partition coefficient: n-octanol/water | : | Not applicable |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Viscosity Viscosity, dynamic | : | No data available |
| Viscosity, kinematic | : | No data available |
| Explosive properties | : | Not explosive |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |
| Molecular weight | : | No data available |
| Particle size | : | Not applicable |

10. STABILITY AND REACTIVITY

| | | |
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| Reactivity | : | Not classified as a reactivity hazard. |
| Chemical stability | : | Stable under normal conditions. |
| Possibility of hazardous reac- | : | Flammable liquid and vapour. |

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| tions | Vapours may form explosive mixture with air. Can react with strong oxidizing agents. |
| Conditions to avoid | : Heat, flames and sparks. |
| Incompatible materials | : Oxidizing agents |
| Hazardous decomposition products | : No hazardous decomposition products are known. |

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Components:

Solvent naphtha (petroleum), light aromatic:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity : LC50 (Rat): > 5.61 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

Xylene:

Acute oral toxicity : LD50 (Rat): 3,523 mg/kg
Method: Directive 67/548/EEC, Annex V, B.1.
Acute inhalation toxicity : LC50 (Rat): 27.571 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Acute dermal toxicity : LD50 (Rabbit): > 4,200 mg/kg

Permethrin (ISO):

Acute oral toxicity : LD50 (Rat): 480 - 554 mg/kg
Acute inhalation toxicity : LC50 (Rat): 2.3 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg

4-Nonylphenol, branched, ethoxylated:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Calcium bis(dodecylbenzenesulphonate), branched:

Acute oral toxicity : LD50 (Rat): 404 - 1,980 mg/kg
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Remarks: Based on data from similar materials

Skin corrosion/irritation

Causes skin irritation.

Components:**Solvent naphtha (petroleum), light aromatic:**

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

Xylene:

Species : Rabbit
Result : Skin irritation

Permethrin (ISO):

Species : Rabbit
Result : No skin irritation

4-Nonylphenol, branched, ethoxylated:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
Remarks : Based on data from similar materials

Calcium bis(dodecylbenzenesulphonate), branched:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation
Remarks : Based on data from similar materials

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:**Solvent naphtha (petroleum), light aromatic:**

Species : Rabbit

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Result : No eye irritation
Method : OECD Test Guideline 405

Xylene:

Species : Rabbit
Result : Irritation to eyes, reversing within 21 days

Permethrin (ISO):

Species : Rabbit
Result : No eye irritation

4-Nonylphenol, branched, ethoxylated:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405
Remarks : Based on data from similar materials

Calcium bis(dodecylbenzenesulphonate), branched:

Species : Rat
Result : Irreversible effects on the eye
Method : OECD Test Guideline 405
Remarks : Based on data from similar materials

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:

Solvent naphtha (petroleum), light aromatic:

Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative

Xylene:

Test Type : Local lymph node assay (LLNA)
Exposure routes : Skin contact
Species : Mouse
Result : negative

Permethrin (ISO):

Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : positive

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|| Assessment : Probability or evidence of skin sensitisation in humans

4-Nonylphenol, branched, ethoxylated:

|| Test Type : Maximisation Test
 || Exposure routes : Skin contact
 || Species : Guinea pig
 || Result : negative
 || Remarks : Based on data from similar materials

Calcium bis(dodecylbenzenesulphonate), branched:

|| Test Type : Maximisation Test
 || Exposure routes : Skin contact
 || Species : Guinea pig
 || Result : negative
 || Remarks : Based on data from similar materials

Germ cell mutagenicity

May cause genetic defects.

Components:**Solvent naphtha (petroleum), light aromatic:**

|| Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
 Result: negative
 Test Type: In vitro mammalian cell gene mutation test
 Result: positive
 || Genotoxicity in vivo : Test Type: Sister chromatid exchange analysis in spermatogonia
 Species: Mouse
 Application Route: Intraperitoneal injection
 Result: positive
 || Germ cell mutagenicity - Assessment : Positive result(s) from in vivo heritable germ cell mutagenicity tests in mammals

Xylene:

|| Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
 Result: negative
 Test Type: Chromosome aberration test in vitro
 Result: negative
 Test Type: In vitro mammalian cell gene mutation test
 Result: negative
 Test Type: In vitro sister chromatid exchange assay in mammalian cells
 Result: negative
 || Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)

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Species: Mouse
 Application Route: Skin contact
 Result: negative

Permethrin (ISO):

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| Genotoxicity in vitro | : | <p>Test Type: Bacterial reverse mutation assay (AMES) Result: negative</p> <p>Test Type: In vitro mammalian cell gene mutation test Result: negative</p> <p>Test Type: Chromosome aberration test in vitro Result: negative</p> <p>Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro) Result: negative</p> <p>Test Type: Chromosome aberration test in vitro Result: positive</p> |
| Genotoxicity in vivo | : | <p>Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Result: negative</p> <p>Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis) Species: Mouse Result: negative</p> <p>Test Type: Rodent dominant lethal test (germ cell) (in vivo) Species: Mouse Result: negative</p> <p>Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Rat Application Route: Intraperitoneal injection Result: negative</p> <p>Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis) Species: Mouse Application Route: Ingestion Result: positive</p> |
| Germ cell mutagenicity - Assessment | : | Weight of evidence does not support classification as a germ cell mutagen. |

4-Nonylphenol, branched, ethoxylated:

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| Genotoxicity in vitro | : | <p>Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative</p> |
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Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro
 Method: OECD Test Guideline 473
 Result: negative
 Remarks: Based on data from similar materials

Test Type: In vitro mammalian cell gene mutation test
 Method: OECD Test Guideline 476
 Result: negative
 Remarks: Based on data from similar materials

Calcium bis(dodecylbenzenesulphonate), branched:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
 Method: OECD Test Guideline 471
 Result: negative
 Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro
 Method: OECD Test Guideline 473
 Result: negative
 Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
 Species: Mouse
 Application Route: Ingestion
 Result: negative
 Remarks: Based on data from similar materials

Carcinogenicity

May cause cancer.

Components:**Solvent naphtha (petroleum), light aromatic:**

Species : Mouse
 Application Route : Skin contact
 Exposure time : 2 Years
 Result : positive

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in animal experiments

Xylene:

Species : Rat
 Application Route : Ingestion
 Exposure time : 103 weeks
 Result : negative

Permethrin (ISO):

Species : Rat
 Result : negative

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| Species | : Mouse |
| Result | : negative |

Reproductive toxicity

Suspected of damaging fertility or the unborn child.

Components:

Solvent naphtha (petroleum), light aromatic:

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| Effects on fertility | : Test Type: Reproduction/Developmental toxicity screening test Species: Rat Application Route: inhalation (vapour) Result: negative |
| Effects on foetal development | : Test Type: Embryo-foetal development Species: Rat Application Route: inhalation (vapour) Result: negative |

Xylene:

| | |
|-------------------------------|---|
| Effects on fertility | : Test Type: One-generation reproduction toxicity study Species: Rat Application Route: inhalation (vapour) Result: negative |
| Effects on foetal development | : Test Type: Embryo-foetal development Species: Rat Application Route: inhalation (vapour) Result: negative |

Permethrin (ISO):

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| Effects on fertility | : Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Ingestion Result: negative |
| Effects on foetal development | : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Result: negative |

4-Nonylphenol, branched, ethoxylated:

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| Reproductive toxicity - Assessment | : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments. |
|------------------------------------|--|

Calcium bis(dodecylbenzenesulphonate), branched:

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| Effects on fertility | : Test Type: Three-generation reproduction toxicity study Species: Rat Application Route: Ingestion |
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| Effects on foetal development | : | Result: negative Remarks: Based on data from similar materials Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 422 Result: negative Remarks: Based on data from similar materials |
|-------------------------------|---|---|

STOT - single exposure

May cause drowsiness or dizziness.

Components:**Solvent naphtha (petroleum), light aromatic:**

| | | |
|------------|---|------------------------------------|
| Assessment | : | May cause drowsiness or dizziness. |
|------------|---|------------------------------------|

Xylene:

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| Assessment | : | May cause respiratory irritation. |
|------------|---|-----------------------------------|

STOT - repeated exposure

May cause damage to organs (Auditory system) through prolonged or repeated exposure.

Components:**Xylene:**

| | | |
|-----------------|---|--|
| Exposure routes | : | inhalation (vapour) |
| Target Organs | : | Auditory system |
| Assessment | : | Shown to produce significant health effects in animals at concentrations of >0.2 to 1 mg/l/6h/d. |

Repeated dose toxicity**Components:****Solvent naphtha (petroleum), light aromatic:**

| | | |
|-------------------|---|-----------|
| Species | : | Rat |
| LOAEL | : | 500 mg/kg |
| Application Route | : | Ingestion |
| Exposure time | : | 28 Days |

Xylene:

| | | |
|-------------------|---|--------------------------------------|
| Species | : | Rat |
| LOAEL | : | > 0.2 - 1 mg/l |
| Application Route | : | inhalation (vapour) |
| Exposure time | : | 13 Weeks |
| Remarks | : | Based on data from similar materials |

| | | |
|-------------------|---|-----------|
| Species | : | Rat |
| LOAEL | : | 150 mg/kg |
| Application Route | : | Ingestion |

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|| Exposure time : 90 Days

Permethrin (ISO):

|| Species : Rat
 || NOAEL : 0.2201 mg/l
 || Application Route : Inhalation
 || Exposure time : 90 Days

|| Species : Rat
 || NOAEL : 175 mg/kg
 || Application Route : Ingestion
 || Exposure time : 90 Days

4-Nonylphenol, branched, ethoxylated:

|| Species : Rat
 || LOAEL : 150 mg/kg
 || Application Route : Ingestion
 || Exposure time : 90 Days
 || Method : OPPTS 870.3100
 || Remarks : Based on data from similar materials

Aspiration toxicity

May be fatal if swallowed and enters airways.

Components:

Solvent naphtha (petroleum), light aromatic:

|| 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.

Xylene:

|| 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.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Solvent naphtha (petroleum), light aromatic:

|| Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 8.2 mg/l
 Exposure time: 96 h
 Test substance: Water Accommodated Fraction

|| Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 4.5 mg/l
 Exposure time: 48 h
 Test substance: Water Accommodated Fraction
 Method: OECD Test Guideline 202

|| Toxicity to algae/aquatic : EL50 (Pseudokirchneriella subcapitata (microalgae)): 3.1 mg/l

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plants
 Exposure time: 96 h
 Test substance: Water Accommodated Fraction
 Method: OECD Test Guideline 201

NOELR (Pseudokirchneriella subcapitata (microalgae)): 0.5 mg/l
 Exposure time: 96 h
 Test substance: Water Accommodated Fraction
 Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOELR (Daphnia magna (Water flea)): 2.6 mg/l
 Exposure time: 21 d
 Test substance: Water Accommodated Fraction
 Method: OECD Test Guideline 211

Xylene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 13.5 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l
 Exposure time: 24 h
 Method: OECD Test Guideline 202
 Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EC50 (Skeletonema costatum (marine diatom)): 10 mg/l
 Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC (Danio rerio (zebra fish)): > 0.1 - < 1 mg/l
 Exposure time: 35 d
 Method: OECD Test Guideline 210
 Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EL10 (Daphnia magna (Water flea)): > 1 - 10 mg/l
 Exposure time: 21 d
 Method: OECD Test Guideline 211
 Remarks: Based on data from similar materials

Toxicity to microorganisms : NOEC: > 100 mg/l
 Exposure time: 3 h
 Method: OECD Test Guideline 209
 Remarks: Based on data from similar materials

Permethrin (ISO):

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.00079 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.0001 mg/l
 Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1.13 mg/l
 Exposure time: 72 h

EC10 (Pseudokirchneriella subcapitata (green algae)): 0.0023

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| | | |
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| | | mg/l |
| | | Exposure time: 72 h |
| M-Factor (Acute aquatic toxicity) | : | 10,000 |
| Toxicity to fish (Chronic toxicity) | : | NOEC (Danio rerio (zebra fish)): 0.00041 mg/l Exposure time: 35 d Method: OECD Test Guideline 210 |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC (Daphnia magna (Water flea)): 0.0047 µg/l Exposure time: 21 d Method: OECD Test Guideline 211 |
| M-Factor (Chronic aquatic toxicity) | : | 10,000 |
| Toxicity to microorganisms | : | EC50: > 1,000 mg/l Exposure time: 3 h |

4-Nonylphenol, branched, ethoxylated:

| | | |
|------------------|---|--|
| Toxicity to fish | : | LC50 (Oryzias latipes (Orange-red killifish)): 8.2 mg/l Exposure time: 96 h |
|------------------|---|--|

Calcium bis(dodecylbenzenesulphonate), branched:

| | | |
|---|---|---|
| Toxicity to fish | : | LC50 : > 1 - 10 mg/l Exposure time: 96 h Remarks: Based on data from similar materials |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 62 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 |
| Toxicity to algae/aquatic plants | : | ErC50 (Pseudokirchneriella subcapitata (green algae)): > 10 - 100 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials |
| | | NOEC (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials |

Persistence and degradability**Components:****Solvent naphtha (petroleum), light aromatic:**

| | | |
|------------------|---|--|
| Biodegradability | : | Result: Inherently biodegradable. Biodegradation: 94 % Exposure time: 25 d |
|------------------|---|--|

Xylene:

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Biodegradability : Result: Readily biodegradable.
 Biodegradation: > 70 %
 Exposure time: 28 d
 Method: OECD Test Guideline 301F
 Remarks: Based on data from similar materials

Permethrin (ISO):

Biodegradability : Result: Not readily biodegradable.
 Method: OECD Test Guideline 301F

4-Nonylphenol, branched, ethoxylated:

Biodegradability : Result: Not readily biodegradable.

Calcium bis(dodecylbenzenesulphonate), branched:

Biodegradability : Result: Readily biodegradable.
 Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

Xylene:

Partition coefficient: n-octanol/water : log Pow: 3.16
 Remarks: Calculation

Permethrin (ISO):

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
 Bioconcentration factor (BCF): 570

Partition coefficient: n-octanol/water : log Pow: 4.67

4-Nonylphenol, branched, ethoxylated:

Bioaccumulation : Species: Fish
 Bioconcentration factor (BCF): < 100
 Remarks: Based on data from similar materials

Calcium bis(dodecylbenzenesulphonate), branched:

Partition coefficient: n-octanol/water : Remarks: Not applicable

Mobility in soil

No data available

Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with local regulations.

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|| Contaminated packaging : Do not dispose of waste into sewer.
 : Empty containers should be taken to an approved waste handling site for recycling or disposal.
 Empty containers retain residue and can be dangerous.
 Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
 If not otherwise specified: Dispose of as unused product.

14. TRANSPORT INFORMATION

International Regulations**UNRTDG**

UN number : UN 1993
 Proper shipping name : FLAMMABLE LIQUID, N.O.S.
 (Solvent naphtha (petroleum), light aromatic, Xylene)
|| Class : 3
|| Packing group : III
|| Labels : 3

IATA-DGR

UN/ID No. : UN 1993
 Proper shipping name : Flammable liquid, n.o.s.
 (Solvent naphtha (petroleum), light aromatic, Xylene)
|| Class : 3
|| Packing group : III
|| Labels : Flammable Liquids
 Packing instruction (cargo aircraft) : 366
 Packing instruction (passenger aircraft) : 355

IMDG-Code

UN number : UN 1993
 Proper shipping name : FLAMMABLE LIQUID, N.O.S.
 (Solvent naphtha (petroleum), light aromatic, Xylene, Permethrin (ISO))
|| Class : 3
|| Packing group : III
|| 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.

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.

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15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Minister of Industry Regulation No. 23/M-IND/PER/4/2013 concerning the Revision of Minister of Industry Regulation No. 87/M-IND/PER/9/2009 concerning Globally Harmonized System of Classification and Labelling of Chemicals.

Regulation of the Minister of Health No. 472 of 1996 on the Safeguarding of Substances Hazardous to Health

Hazardous substances that must be registered : Not applicable

Government Regulation No. 74 of 2001 on the Management of Hazardous and Toxic Substances

Hazardous substances approved for use : Not applicable

Prohibited substances : Not applicable

Restricted substances : Not applicable

Regulation of the Ministry of Trade No. 7 of 2022 on Distribution and Control of Hazardous Materials

Type of hazardous materials subject to distribution and control, Annex I : Not applicable

Type of hazardous materials subject to distribution and control, Annex II : Not applicable

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

AICS : not determined

DSL : not determined

IECSC : not determined

16. OTHER INFORMATION

Revision Date : 2023/04/04

Further information

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format : yyyy/mm/dd

Full text of other abbreviations

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| | | |
|--------------|---|---|
| ACGIH | : | USA. ACGIH Threshold Limit Values (TLV) |
| ACGIH BEI | : | ACGIH - Biological Exposure Indices (BEI) |
| ID OEL | : | Indonesia. Occupational Exposure Limits |
| ACGIH / TWA | : | 8-hour, time-weighted average |
| ID OEL / NAB | : | Long term exposure limit |
| ID OEL / PSD | : | Short term exposure limit |

AIC - 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; TECl - Thailand Existing Chemicals 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; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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