

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

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### SECTION 1. IDENTIFICATION

Product name : Permethrin Formulation  
Other means of identification : No data available

#### Manufacturer or supplier's details

Company name of supplier : Merck & Co., Inc  
Address : 126 E. Lincoln Avenue  
Rahway, New Jersey U.S.A. 07065  
Telephone : 908-740-4000  
Emergency telephone : 1-908-423-6000  
E-mail address : EHSDATASTEWARD@merck.com

#### Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product  
Restrictions on use : Not applicable

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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with the Hazardous Products Regulations

Flammable liquids : Category 3  
Skin irritation : Category 2  
Eye irritation : Category 2A  
Skin sensitization : Category 1  
Germ cell mutagenicity : Category 1B  
Carcinogenicity : Category 1B  
Reproductive toxicity : Category 2  
Specific target organ toxicity : Category 3  
- single exposure  
Specific target organ toxicity : Category 2 (Auditory system)  
- repeated exposure  
Aspiration hazard : Category 1

#### GHS label elements

Hazard pictograms : 

Signal Word : Danger

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 09/30/2023  |
| 3.12    | 09/28/2024     | 829652-00018 | Date of first issue: 08/02/2016 |

---

Hazard Statements : H226 Flammable liquid and vapor.  
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.

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, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P260 Do not breathe mist or vapors.  
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.  
P280 Wear protective gloves, protective clothing, eye protection and face protection.

**Response:**  
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical attention.  
P331 Do NOT induce vomiting.  
P333 + P313 If skin irritation or rash occurs: Get medical attention.  
P337 + P313 If eye irritation persists: Get medical attention.  
P362 + P364 Take off contaminated clothing and wash it before reuse.

**Storage:**  
P405 Store locked up.

**Disposal:**  
P501 Dispose of contents and container to an approved waste disposal plant.

# SAFETY DATA SHEET

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### Other hazards

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).  
Vapors may form explosive mixture with air.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

#### Components

| Chemical name                                   | Common Name/Synonym   | CAS-No.     | Concentration (% w/w) |
|---|---|-------------|-----------------------|
| Solvent naphtha (petroleum), light aromatic     | No data available   | 64742-95-6  | 60 - 70               |
| Xylene  | Benzene, dimethyl-  | 1330-20-7   | 6 - 16                |
| Permethrin (ISO)                                | m-phenoxybenzyl 3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate | 52645-53-1  | 11.76                 |
| 4-Nonylphenol, branched, ethoxylated            | No data available   | 127087-87-0 | 8.4                   |
| Calcium bis(dodecylbenzenesulphonate), branched | Benzenesulfonic acid, dodecyl-, branched, calcium salts                   | 70528-83-5  | 2.52                  |

### SECTION 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 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 center immediately.  
Rinse mouth thoroughly with water.

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 09/30/2023  |
| 3.12    | 09/28/2024     | 829652-00018 | Date of first issue: 08/02/2016 |

---

|   |   |  |
|---|---|--|
| Most important symptoms and effects, both acute and delayed | : | Never give anything by mouth to an unconscious person.<br>May be fatal if swallowed and enters airways.<br>Causes skin irritation.<br>May cause an allergic skin reaction.<br>Causes serious eye irritation.<br>May cause drowsiness or dizziness.<br>May cause genetic defects.<br>May cause cancer.<br>Suspected of damaging fertility or the unborn child.<br>May cause damage to organs through prolonged or repeated exposure.<br>This product contains a pyrethroid.<br>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.  |

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### SECTION 5. FIRE-FIGHTING MEASURES

|  |   |   |
|--|---|---|
| Suitable extinguishing media                   | : | Water spray<br>Alcohol-resistant foam<br>Carbon dioxide (CO <sub>2</sub> )<br>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.<br>Flash back possible over considerable distance.<br>Vapors may form explosive mixtures with air.<br>Exposure to combustion products may be a hazard to health.             |
| Hazardous combustion products                  | : | Chlorine compounds<br>Carbon oxides<br>Sulfur oxides<br>Metal oxides  |
| Specific extinguishing methods                 | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.<br>Use water spray to cool unopened containers.<br>Remove undamaged containers from fire area if it is safe to do so.<br>Evacuate area. |
| Special protective equipment for fire-fighters | : | In the event of fire, wear self-contained breathing apparatus.<br>Use personal protective equipment.  |

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### SECTION 6. ACCIDENTAL RELEASE MEASURES

|                                  |   |                                 |
|----------------------------------|---|---------------------------------|
| Personal precautions, protection | : | Remove all sources of ignition. |
|----------------------------------|---|---------------------------------|

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according to the Hazardous Products Regulations



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|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
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| 3.12    | 09/28/2024     | 829652-00018 | Date of first issue: 08/02/2016 |

---

- tive equipment and emergency procedures : 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/vapors/mists with a water spray jet. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked 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.

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### SECTION 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 vapors. 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.

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according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
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- Conditions for safe storage : Keep in properly labeled containers.  
Store locked up.  
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.
- Materials to avoid : Do not store with the following product types:  
Strong oxidizing agents  
Self-reactive substances and mixtures  
Organic peroxides  
Flammable solids  
Pyrophoric liquids  
Pyrophoric solids  
Self-heating substances and mixtures  
Substances and mixtures which in contact with water emit flammable gases  
Explosives  
Gases  
Very acutely toxic substances and mixtures

### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Ingredients with workplace control parameters

| Components                                  | CAS-No.    | Value type<br>(Form of exposure) | Control parameters / Permissible concentration     | Basis     |
|---|------------|----------------------------------|--|-----------|
| Solvent naphtha (petroleum), light aromatic | 64742-95-6 | TWA                              | 200 mg/m <sup>3</sup><br>(total hydrocarbon vapor) | CA AB OEL |
|   |            | TWA                              | 200 mg/m <sup>3</sup><br>(total hydrocarbon vapor) | ACGIH     |
| Xylene                                      | 1330-20-7  | TWA                              | 100 ppm<br>434 mg/m <sup>3</sup>                   | CA AB OEL |
|   |            | STEL                             | 150 ppm<br>651 mg/m <sup>3</sup>                   | CA AB OEL |
|   |            | TWAEV                            | 100 ppm<br>434 mg/m <sup>3</sup>                   | CA QC OEL |
|   |            | STEV                             | 150 ppm<br>651 mg/m <sup>3</sup>                   | CA QC OEL |
|   |            | TWA                              | 100 ppm  | CA BC OEL |
|   |            | STEL                             | 150 ppm  | CA BC OEL |
|   |            | TWA                              | 20 ppm   | ACGIH     |
| Permethrin (ISO)                            | 52645-53-1 | TWA                              | 80 µg/m <sup>3</sup> (OEB 3)                       | Internal  |
|   |            | Wipe limit                       | 800 µg/100 cm <sup>2</sup>                         | Internal  |

#### Biological occupational exposure limits

| Components | CAS-No.   | Control parameters | Biological specimen | Sampling time | Permissible concentration | Basis |
|------------|-----------|--------------------|---------------------|---------------|---------------------------|-------|
| Xylene     | 1330-20-7 | Methylhippu        | Urine               | End of        | 0.3 g/g                   | ACGIH |

## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

|  |  |           |  |   |            |     |
|--|--|-----------|--|---|------------|-----|
|  |  | ric acids |  | shift (As soon as possible after exposure ceases) | creatinine | BEI |
|--|--|-----------|--|---|------------|-----|

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

Hand protection

Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending on the concentration 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.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : clear

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|         |                |              |                                 |
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| 3.12    | 09/28/2024     | 829652-00018 | Date of first issue: 08/02/2016 |

---

|  |   |  |
|--|---|--|
| Odor   | : | aromatic   |
| Odor Threshold                                   | : | No data available  |
| pH   | : | 6.69   |
| Melting point/freezing point                     | : | No data available  |
| 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  |
| Vapor pressure                                   | : | 15 mmHg (25 °C)  |
| Relative vapor 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   |
| Autoignition 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. |



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|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 09/30/2023  |
| 3.12    | 09/28/2024     | 829652-00018 | Date of first issue: 08/02/2016 |

Molecular weight : No data available

Particle characteristics  
Particle size : Not applicable

### SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.  
Chemical stability : Stable under normal conditions.  
Possibility of hazardous reactions : Flammable liquid and vapor.  
Vapors 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.

### SECTION 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: > 20 mg/l  
Exposure time: 4 h  
Test atmosphere: vapor  
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg  
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: vapor

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

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

---

### **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: vapor

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

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

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 09/30/2023  |
| 3.12    | 09/28/2024     | 829652-00018 | Date of first issue: 08/02/2016 |

---

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  
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 sensitization**

#### **Skin sensitization**

May cause an allergic skin reaction.

#### **Respiratory sensitization**

Not classified based on available information.

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

---

### Components:

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

Test Type : Buehler Test  
Routes of exposure : Skin contact  
Species : Guinea pig  
Result : negative

#### **Xylene:**

Test Type : Local lymph node assay (LLNA)  
Routes of exposure : Skin contact  
Species : Mouse  
Result : negative

#### **Permethrin (ISO):**

Test Type : Buehler Test  
Routes of exposure : Skin contact  
Species : Guinea pig  
Result : positive

Assessment : Probability or evidence of skin sensitization in humans

#### **4-Nonylphenol, branched, ethoxylated:**

Test Type : Maximization Test  
Routes of exposure : Skin contact  
Species : Guinea pig  
Result : negative  
Remarks : Based on data from similar materials

#### **Calcium bis(dodecylbenzenesulphonate), branched:**

Test Type : Maximization Test  
Routes of exposure : 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

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
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---

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)  
Species: Mouse  
Application Route: Skin contact  
Result: negative

### Permethrin (ISO):

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Result: negative

Test Type: Chromosome aberration test in vitro  
Result: negative

Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)  
Result: negative

Test Type: Chromosome aberration test in vitro  
Result: positive

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Result: negative

Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)  
Species: Mouse  
Result: negative

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

---

Test Type: Rodent dominant lethal test (germ cell) (in vivo)  
Species: Mouse  
Result: negative

Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Rat  
Application Route: Intraperitoneal injection  
Result: negative

Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)  
Species: Mouse  
Application Route: Ingestion  
Result: positive

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

### **4-Nonylphenol, branched, ethoxylated:**

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

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

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

---

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

Species : Mouse  
Result : negative

### **Reproductive toxicity**

Suspected of damaging fertility or the unborn child.

### **Components:**

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

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test  
Species: Rat  
Application Route: inhalation (vapor)  
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: inhalation (vapor)  
Result: negative

#### **Xylene:**

Effects on fertility : Test Type: One-generation reproduction toxicity study  
Species: Rat  
Application Route: inhalation (vapor)  
Result: negative

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 09/30/2023  |
| 3.12    | 09/28/2024     | 829652-00018 | Date of first issue: 08/02/2016 |

---

Effects on fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: inhalation (vapor)  
Result: negative

### **Permethrin (ISO):**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on fetal 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:**

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:**

Effects on fertility : Test Type: Three-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative  
Remarks: Based on data from similar materials

Effects on fetal development : 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:**

Assessment : May cause respiratory irritation.

### **STOT-repeated exposure**

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



# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

---

### Components:

#### **Xylene:**

Routes of exposure : inhalation (vapor)  
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 (vapor)  
Exposure time : 13 Weeks  
Remarks : Based on data from similar materials

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

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

---

### 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.

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## SECTION 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 plants : EL50 (Pseudokirchneriella subcapitata (microalgae)): 3.1 mg/l  
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
-

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

---

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 mg/l  
Exposure time: 72 h

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

Toxicity to microorganisms : EC50: > 1,000 mg/l  
Exposure time: 3 h

### 4-Nonylphenol, branched, ethoxylated:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): > 0.1 - 1 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 09/30/2023  |
| 3.12    | 09/28/2024     | 829652-00018 | Date of first issue: 08/02/2016 |

---

Toxicity to daphnia and other aquatic invertebrates : EC50 (Ceriodaphnia dubia (water flea)): > 0.1 - 1 mg/l  
Exposure time: 48 h  
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): > 1 - 10 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials

EC10 (Selenastrum capricornutum (green algae)): > 1 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes (Japanese medaka)): > 0.1 - 1 mg/l  
Exposure time: 100 d  
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Mysidopsis bahia (opossum shrimp)): > 0.001 - 0.01 mg/l  
Exposure time: 28 d  
Remarks: Based on data from similar materials

### **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

## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

---

### **Xylene:**

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.  
Remarks: Based on data from similar materials

### **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

##### **Calcium bis(dodecylbenzenesulphonate), branched:**

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

##### **Mobility in soil**

No data available

##### **Other adverse effects**

No data available

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

### **Disposal methods**

Waste from residues : Do not dispose of waste into sewer.  
Dispose of in accordance with local regulations.

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

Version 3.12      Revision Date: 09/28/2024      SDS Number: 829652-00018      Date of last issue: 09/30/2023  
Date of first issue: 08/02/2016

---

Contaminated packaging : 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.

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### SECTION 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  
Environmentally hazardous : no

##### 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.

#### Domestic regulation

##### TDG

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

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 09/30/2023  |
| 3.12    | 09/28/2024     | 829652-00018 | Date of first issue: 08/02/2016 |

Labels : 3  
ERG Code : 128  
Marine pollutant : yes(Permethrin (ISO))

### 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.

## SECTION 15. REGULATORY INFORMATION

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

AICS : not determined  
DSL : not determined  
IECSC : not determined

## SECTION 16. OTHER INFORMATION

### Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)  
CA AB OEL : Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)  
CA BC OEL : Canada. British Columbia OEL  
CA QC OEL : Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants  
ACGIH / TWA : 8-hour, time-weighted average  
CA AB OEL / TWA : 8-hour Occupational exposure limit  
CA AB OEL / STEL : 15-minute occupational exposure limit  
CA BC OEL / TWA : 8-hour time weighted average  
CA BC OEL / STEL : short-term exposure limit  
CA QC OEL / TWA EV : Time-weighted average exposure value  
CA QC OEL / STEV : Short-term exposure value

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 Or-

# SAFETY DATA SHEET

according to the Hazardous Products Regulations



## Permethrin Formulation

|         |                |              |                                 |
|---------|----------------|--------------|---------------------------------|
| Version | Revision Date: | SDS Number:  | Date of last issue: 09/30/2023  |
| 3.12    | 09/28/2024     | 829652-00018 | Date of first issue: 08/02/2016 |

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

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

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Date format : mm/dd/yyyy

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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