SAFETY DATA SHEET

Deltamethrin (5%) Formulation

Version 5.0  Revision Date: 2021/08/18  SDS Number: 2333289-00012  Date of last issue: 2021/04/09  Date of first issue: 2017/12/12

1. PRODUCT AND COMPANY IDENTIFICATION

   Chemical product name : Deltamethrin (5%) Formulation

   Supplier’s company name, address and phone number

   Company name of supplier : MSD

   Address : Kumagaya, Saitama Prefecture , Xicheng 810 MSD Co., Ltd.

   Menuma factory

   Telephone : 048-588-8411

   E-mail address : EHSDATASTEWARD@msd.com

   Emergency telephone number : +1-908-423-6000

   Recommended use of the chemical and restrictions on use

   Recommended use : Veterinary product

2. HAZARDS IDENTIFICATION

   GHS classification of chemical product

   Flammable liquids : Category 3

   Acute toxicity (Oral) : Category 4

   Skin corrosion/irritation : Category 2

   Serious eye damage/eye irritation : Category 1

   Skin sensitisation : Category 1

   Reproductive toxicity : Category 2

   Specific target organ toxicity - single exposure : Category 3

   Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Central nervous system, Immune system)

   Specific target organ toxicity - repeated exposure (Inhalation) : Category 2 (Central nervous system)

   Aspiration hazard : Category 1

   Short-term (acute) aquatic hazard : Category 1

   Long-term (chronic) aquatic : Category 1
## GHS label elements

### Hazard pictograms

- Flammable liquid and vapour
- Harmful if swallowed
- May be fatal if swallowed and enters airways
- Causes skin irritation
- May cause an allergic skin reaction
- Causes serious eye damage
- May cause respiratory irritation
- May cause drowsiness or dizziness
- Suspected of damaging fertility. Suspected of damaging the unborn child
- May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed
- May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled
- Very toxic to aquatic life with long lasting effects

### Signal word

- Danger

### Hazard statements

- H226 Flammable liquid and vapour.
- H302 Harmful if swallowed.
- H304 May be fatal if swallowed and enters airways.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H335 May cause respiratory irritation.
- H336 May cause drowsiness or dizziness.
- H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
- H373 May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.
- H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.
- 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, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P233 Keep container tightly closed.
- P241 Use explosion-proof electrical/ventilating/lighting equipment.
- P242 Use non-sparking tools.
- P243 Take action to prevent static discharges.
- P260 Do not breathe mist or vapours.
- P264 Wash skin thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- 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.
- 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.
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.
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
Important symptoms and outlines of the emergency assumed
Vapours may form explosive mixture with air.
Repeated exposure may cause skin dryness or cracking.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Mixture</th>
</tr>
</thead>
</table>

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
<th>ENCS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons, C9, aromatics</td>
<td>Not Assigned</td>
<td>&gt;= 30 - &lt; 40</td>
<td>9-1700</td>
</tr>
<tr>
<td>2-Methoxy-1-methylethyl acetate</td>
<td>108-65-6</td>
<td>&gt;= 20 - &lt; 30</td>
<td>2-3144</td>
</tr>
<tr>
<td>Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts</td>
<td>Not Assigned</td>
<td>&gt;= 3 - &lt; 10</td>
<td></td>
</tr>
<tr>
<td>2-Methyl-1-propanol</td>
<td>78-83-1</td>
<td>&gt;= 3 - &lt; 10</td>
<td>2-3049</td>
</tr>
<tr>
<td>deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>&gt;= 3 - &lt; 10</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>In case of eye contact</th>
<th>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 immediately.</th>
</tr>
</thead>
<tbody>
<tr>
<td>If swallowed</td>
<td>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.</td>
</tr>
</tbody>
</table>

| Most important symptoms and effects, both acute and delayed | Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation. May cause drowsiness or dizziness. Suspected of damaging fertility. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure if swallowed. May cause damage to organs through prolonged or repeated exposure if inhaled. Prolonged or repeated contact may dry skin and cause irritation. |

<table>
<thead>
<tr>
<th>Protection of first-aiders</th>
<th>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).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notes to physician</td>
<td>Treat symptomatically and supportively.</td>
</tr>
</tbody>
</table>

### 5. FIREFIGHTING MEASURES

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable extinguishing media</td>
<td>High volume water jet</td>
</tr>
<tr>
<td>Specific hazards during firefighting</td>
<td>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.</td>
</tr>
<tr>
<td>Hazardous combustion products</td>
<td>Carbon oxides Nitrogen oxides (NOx) Bromine compounds Sulphur oxides Metal oxides</td>
</tr>
<tr>
<td>Specific extinguishing method</td>
<td>Use extinguishing measures that are appropriate to local cir-</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

Deltamethrin (5%) Formulation

6. ACCIDENTAL RELEASE MEASURES

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

Handling
- 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 practices.
practice, based on the results of the workplace exposure assessment.
Non-sparking tools should be used.
Keep container tightly closed.
Already sensitised individuals should consult their physician regarding working with respiratory irritants or sensitisers.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges.
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the environment.

Avoidance of contact:
Oxidizing agents

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.
The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

Storage
Conditions for safe storage:
Keep in properly labelled 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:
Oxidizing solids
Oxidizing liquids

Packaging material:
Unsuitable material: None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Threshold limit value and permissible exposure limits for each component in the work environment

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Reference concentration / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methyl-1-propanol</td>
<td>78-83-1</td>
<td>ACL</td>
<td>50 ppm</td>
<td>JP OEL ISHL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OEL-M</td>
<td>50 ppm 150 mg/m3</td>
<td>JP OEL JSOH</td>
</tr>
<tr>
<td>deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>TWA</td>
<td>50 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>15 µg/m3 (OEB 3)</td>
<td>Internal</td>
</tr>
</tbody>
</table>

Further information: DSEN, Skin
Engineering measures

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., dripless quick connections).
All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.
Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).
Minimize open handling.

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
Chemical-resistant gloves

Remarks
Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.

Eye protection
Wear safety glasses with side shields or goggles.
If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.
Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

Skin and body protection
Work uniform or laboratory coat.
Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.
Use appropriate degowning techniques to remove potentially contaminated clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state    : liquid
Colour           : yellow
Odour            : No data available
Odour Threshold  : No data available
Melting point/freezing point : No data available
Boiling point, initial boiling point and boiling range : No data available
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Lower explosion limit and upper explosion limit / flammability limit</td>
<td>Upper explosion limit / Upper flammability limit: No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>45 - 51 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>3 - 5</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>completely miscible</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Density and / or relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>0.963 - 0.967 g/cm³</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing.</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No data available</td>
</tr>
<tr>
<td>Particle characteristics</td>
<td></td>
</tr>
<tr>
<td>Particle size</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>Not classified as a reactivity hazard.</td>
</tr>
</tbody>
</table>
Chemical stability: Stable under normal conditions. 
Possibility of hazardous reactions: Flammable liquid and vapour. 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.

Harmful if swallowed.

Acute toxicity: Acute oral toxicity: Acute toxicity estimate: 1,334 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:

Hydrocarbons, C9, aromatics:
Acute oral toxicity: LD50 (Rat, female): 3,492 mg/kg
Acute inhalation toxicity: LC50 (Rat): > 6.193 mg/l Exposure time: 4 h Test atmosphere: vapour Assessment: The substance or mixture has no acute inhalation toxicity.
Acute dermal toxicity: LD50 (Rabbit): > 3,160 mg/kg Assessment: The substance or mixture has no acute dermal toxicity.

2-Methoxy-1-methylethyl acetate:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity: LC0 (Rat): 9.48 mg/l Exposure time: 4 h Test atmosphere: vapour
Acute dermal toxicity: LD50 (Rat): > 5,000 mg/kg
Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:
Acute oral toxicity: LD50 (Rat): 4,445 mg/kg
Acute dermal toxicity: LD50 (Rat): >2,000 mg/kg
   Method: OECD Test Guideline 402
   Remarks: Based on data from similar materials

2-Methyl-1-propanol:
Acute oral toxicity: LD50 (Rat): 3,350 mg/kg
   Method: OECD Test Guideline 401
Acute inhalation toxicity: LC50 (Rat): >24.6 mg/l
   Exposure time: 4 h
   Test atmosphere: vapour
Acute dermal toxicity: LD50 (Rabbit): 2,460 mg/kg
   Method: OECD Test Guideline 402

deltamethrin (ISO):
Acute oral toxicity: LD50 (Rat): 66.7 mg/kg
   LD50 (Rat): 9 - 139 mg/kg
   LD50 (Mouse): 19 - 34 mg/kg
Acute inhalation toxicity: LC50 (Rat): 0.8 mg/l
   Exposure time: 2 h
   Test atmosphere: dust/mist
Acute dermal toxicity: LD50 (Rabbit): 2,000 mg/kg
   LD50 (Rat): >800 mg/kg
   LD50 (Mouse): 10 mg/kg
   Application Route: Intravenous
Acute toxicity (other routes of administration):
   LD50 (Rat): 2.5 mg/kg
   Application Route: Intravenous

Skin corrosion/irritation
Causes skin irritation.

Components:
Hydrocarbons, C9, aromatics:
Assessment: Repeated exposure may cause skin dryness or cracking.

2-Methoxy-1-methylethyl acetate:
Species: Rabbit
Result: No skin irritation

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:
SAFETY DATA SHEET

Deltamethrin (5%) Formulation

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 404</td>
</tr>
<tr>
<td>Result</td>
<td>Skin irritation</td>
</tr>
</tbody>
</table>

2-Methyl-1-propanol:

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 404</td>
</tr>
<tr>
<td>Result</td>
<td>Skin irritation</td>
</tr>
</tbody>
</table>

deltamethrin (ISO):

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>

Serious eye damage/eye irritation

- Causes serious eye damage.

Components:

Hydrocarbons, C9, aromatics:

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>No eye irritation</td>
</tr>
</tbody>
</table>

2-Methoxy-1-methylethyl acetate:

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>No eye irritation</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Irreversible effects on the eye</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 405</td>
</tr>
</tbody>
</table>

2-Methyl-1-propanol:

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Irreversible effects on the eye</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 405</td>
</tr>
</tbody>
</table>

deltamethrin (ISO):

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Moderate eye irritation</td>
</tr>
</tbody>
</table>

Respiratory or skin sensitisation

Skin sensitisation

- May cause an allergic skin reaction.

Respiratory sensitisation

- Not classified based on available information.
**Components:**

<table>
<thead>
<tr>
<th>Components:</th>
<th>Test Type</th>
<th>Exposure routes</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hydrocarbons, C9, aromatics:</strong></td>
<td>Maximisation Test</td>
<td>Skin contact</td>
<td>Guinea pig</td>
<td>OECD Test Guideline 406</td>
<td>negative</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td><strong>2-Methoxy-1-methylethyl acetate:</strong></td>
<td>Maximisation Test</td>
<td>Skin contact</td>
<td>Guinea pig</td>
<td>OECD Test Guideline 406</td>
<td>negative</td>
<td></td>
</tr>
<tr>
<td><strong>Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:</strong></td>
<td>Magnusson-Kligman-Test</td>
<td>Skin contact</td>
<td>Guinea pig</td>
<td>OECD Test Guideline 406</td>
<td>negative</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td><strong>2-Methyl-1-propanol:</strong></td>
<td>Maximisation Test</td>
<td>Skin contact</td>
<td>Guinea pig</td>
<td>negative</td>
<td>Based on data from similar materials</td>
<td></td>
</tr>
<tr>
<td><strong>deltamethrin (ISO):</strong></td>
<td>Maximisation Test</td>
<td>Dermal</td>
<td>Guinea pig</td>
<td>negative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germ cell mutagenicity:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not classified based on available information.</td>
</tr>
</tbody>
</table>

**Genotoxicity in vitro:**
 Test Type: Chromosome aberration test in vitro  
Result: negative

**Genotoxicity in vivo:**
 Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

2-Methoxy-1-methylethyl acetate:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

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

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

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative  
Remarks: Based on data from similar materials

2-Methyl-1-propanol:
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

Genotoxicity in vivo: Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Method: OECD Test Guideline 474  
Result: negative

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

  Test Type: DNA Repair  
Test system: Escherichia coli  
Result: negative

  Test Type: Chromosomal aberration  
Test system: Chinese hamster ovary cells  
Result: negative

  Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Concentration: LOAEL: 20 mg/kg
Result: positive

Genotoxicity in vivo:
- Test Type: Micronucleus test
  - Species: Mouse
  - Application Route: Oral
  - Result: negative
- Test Type: dominant lethal test
  - Species: Mouse
  - Application Route: Oral
  - Result: negative
- Test Type: sister chromatid exchange assay
  - Species: Mouse
  - Cell type: Bone marrow
  - Application Route: Oral
  - Result: negative

Carcinogenicity
- Not classified based on available information.

Components:

2-Methoxy-1-methylethyl acetate:
- Species: Rat
- Application Route: inhalation (vapour)
- Exposure time: 2 Years
- Result: negative
- Remarks: Based on data from similar materials

deltamethrin (ISO):
- Species: Mouse, male and female
- Application Route: oral (feed)
- Exposure time: 104 weeks
- NOAEL: 8 mg/kg body weight
- LOAEL: 4 mg/kg body weight
- Result: positive
- Target Organs: Lymph nodes

Species: Rat, male and female
Application Route: oral (feed)
Exposure time: 2 Years
Result: negative

Species: Dog, male and female
Application Route: oral (feed)
Exposure time: 2 Years
NOAEL: 1 mg/kg body weight
Result: negative
### Reproductive toxicity

- Suspected of damaging fertility. Suspected of damaging the unborn child.

#### Components:

<table>
<thead>
<tr>
<th><strong>Hydrocarbons, C9, aromatics:</strong></th>
</tr>
</thead>
</table>
| **Effects on fertility** | Test Type: Three-generation reproduction toxicity study  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative |
| **Effects on foetal development** | Test Type: Embryo-foetal development  
Species: Mouse  
Application Route: inhalation (vapour)  
Result: negative |

<table>
<thead>
<tr>
<th><strong>2-Methoxy-1-methylethyl acetate:</strong></th>
</tr>
</thead>
</table>
| **Effects on fertility** | Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: inhalation (vapour)  
Method: OECD Test Guideline 416  
Result: negative  
Remarks: Based on data from similar materials |
| **Effects on foetal development** | Test Type: Embryo-foetal development  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative |

<table>
<thead>
<tr>
<th><strong>2-Methyl-1-propanol:</strong></th>
</tr>
</thead>
</table>
| **Effects on fertility** | Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: inhalation (vapour)  
Method: OPPTS 870.3800  
Result: negative |
| **Effects on foetal development** | Test Type: Embryo-foetal development  
Species: Rat  
Application Route: inhalation (vapour)  
Method: OECD Test Guideline 414  
Result: negative |

<table>
<thead>
<tr>
<th><strong>deltamethrin (ISO):</strong></th>
</tr>
</thead>
</table>
| **Effects on fertility** | Test Type: Three-generation reproduction toxicity study  
Species: Rat  
Application Route: oral (feed)  
Early Embryonic Development: NOAEL: 50 mg/kg body weight  
Symptoms: No effects on fertility, Embryo-foetal toxicity  
Remarks: Significant toxicity observed in testing  
Test Type: Two-generation reproduction toxicity study  
Species: Rat |
Application Route: Oral
Early Embryonic Development: LOAEL: 84 - 149 mg/kg body weight
Symptoms: No effects on fertility, Embryo-foetal toxicity

Test Type: Fertility
Species: Rat, male
Application Route: Oral
Fertility: LOAEL: 1 mg/kg body weight
Symptoms: Effects on fertility
Target Organs: Testes

Effects on foetal development:

Test Type: Development
Species: Mouse
Application Route: oral (gavage)
Developmental Toxicity: LOAEL: 1 mg/kg body weight
Result: Skeletal malformations
Remarks: Maternal toxicity observed.

Test Type: Development
Species: Rat, female
Developmental Toxicity: NOAEL: 10 mg/kg body weight
Symptoms: No effects on foetal development

Test Type: Development
Species: Rabbit, female
Application Route: oral (gavage)
Developmental Toxicity: NOAEL: 16 mg/kg body weight
Symptoms: No effects on foetal development

Reproductive toxicity - Assessment:

Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

STOT - single exposure
May cause respiratory irritation.
May cause drowsiness or dizziness.

Components:

Hydrocarbons, C9, aromatics:
Assessment: May cause drowsiness or dizziness.

Assessment: May cause respiratory irritation.

2-Methoxy-1-methylethyl acetate:
Assessment: May cause drowsiness or dizziness.

2-Methyl-1-propanol:
Assessment: May cause respiratory irritation.
May cause drowsiness or dizziness.
deltamethrin (ISO):
Assessment : May cause respiratory irritation.

STOT - repeated exposure
May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.
May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

Components:

deltamethrin (ISO):
Exposure routes : Ingestion
Target Organs : Central nervous system, Immune system
Assessment : Causes damage to organs through prolonged or repeated exposure.

Exposure routes : inhalation (dust/mist/fume)
Target Organs : Central nervous system
Assessment : Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity

Components:

Hydrocarbons, C9, aromatics:
Species : Rat, female
NOAEL : 900 mg/m3
Application Route : inhalation (vapour)
Exposure time : 12 Months
Remarks : Based on data from similar materials

2-Methoxy-1-methylethyl acetate:
Species : Rat
NOAEL : > 1,000 mg/kg
Application Route : Ingestion
Exposure time : 41 - 45 Days
Method : OECD Test Guideline 422

Species : Mouse
NOAEL : 1.62 mg/l
Application Route : inhalation (vapour)
Exposure time : 2 yr
Remarks : Based on data from similar materials

Species : Rabbit
NOAEL : > 1,838 mg/kg
Application Route : Skin contact
Exposure time : 90 Days
Remarks : Based on data from similar materials

2-Methyl-1-propanol:
### SAFETY DATA SHEET

**Deltamethrin (5%) Formulation**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>2021/08/18</td>
<td>2333289-00012</td>
<td>2021/04/09</td>
<td>2017/12/12</td>
</tr>
</tbody>
</table>

#### Species

- **Rat**  
- **NOAEL**: > 1,450 mg/kg  
- **Application Route**: Ingestion  
- **Exposure time**: 90 Days  
- **Method**: OECD Test Guideline 408

#### Deltamethrin (ISO):

- **Species**: Rat, male and female  
- **NOAEL**: 1 mg/kg  
- **LOAEL**: 2.5 mg/kg  
- **Application Route**: Oral  
- **Exposure time**: 13 Weeks  
- **Target Organs**: Nervous system  
- **Symptoms**: hyperexcitability

- **Species**: Rat  
  - **LOAEL**: 3 mg/m3  
  - **Application Route**: inhalation (dust/mist/fume)  
  - **Exposure time**: 2 wk / 5 d/wk / 6 h/d  
  - **Symptoms**: Local irritation, respiratory tract irritation

- **Species**: Dog  
  - **NOAEL**: 0.1 mg/kg  
  - **LOAEL**: 1 mg/kg  
  - **Application Route**: Oral  
  - **Exposure time**: 13 Weeks  
  - **Target Organs**: Nervous system  
  - **Symptoms**: Dilatation of the pupil, Vomiting, Tremors, Diarrhoea, Salivation

- **Species**: Rat  
  - **NOAEL**: 14 mg/kg  
  - **LOAEL**: 54 mg/kg  
  - **Application Route**: Oral  
  - **Exposure time**: 91 d  
  - **Target Organs**: Nervous system

- **Species**: Mouse  
  - **LOAEL**: 6 mg/kg  
  - **Application Route**: Oral  
  - **Exposure time**: 12 Weeks  
  - **Target Organs**: Immune system  
  - **Symptoms**: immune system effects

**Aspiration toxicity**  
May be fatal if swallowed and enters airways.

**Product:**  
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.
Components:

**Hydrocarbons, C9, aromatics:**
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.

**2-Methyl-1-propanol:**
The substance or mixture causes concern owing to the assumption that it causes a human aspiration toxicity hazard.

Experience with human exposure

Components:

**Deltamethrin (ISO):**

Inhalation : Symptoms: respiratory tract irritation, Dizziness, Sweating, Headache, Nausea, Vomiting, anorexia, Fatigue, tingling, Palpitation, Blurred vision, muscle twitching

Skin contact : Symptoms: Skin irritation, Erythema, pruritis, Headache, Nausea, Vomiting, Dizziness, tingling, Sweating, muscle twitching, Blurred vision, Fatigue, anorexia, Allergic reactions

Ingestion : Symptoms: muscle pain, Small pupils

12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

**Hydrocarbons, C9, aromatics:**

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 9.2 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 3.2 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): 7.9 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201

NOELR (Pseudokirchneriella subcapitata (green algae)): 0.22 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
Toxicity to microorganisms: EC50: > 99 mg/l  
Exposure time: 10 min

2-Methoxy-1-methylethyl acetate:

Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 - 180 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): > 500 mg/l  
Exposure time: 48 h

Toxicity to algae/aquatic plants: ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1,000 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (algae)): > 1,000 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC (Daphnia magna (Water flea)): >= 100 mg/l  
Exposure time: 21 d  
Method: OECD Test Guideline 211

Toxicity to microorganisms: EC10: > 1,000 mg/l  
Exposure time: 0.5 h

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

Toxicity to fish: LC50: > 1 - < 10 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants: ErC50 (Pseudokirchneriella subcapitata (green algae)): > 10 - 100 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

NOEC (Pseudokirchneriella subcapitata (green algae)): > 0.1 - 1 mg/l  
Exposure time: 96 h  
Remarks: Based on data from similar materials

Toxicity to fish (Chronic toxicity): NOEC (Oncorhynchus mykiss (rainbow trout)): > 0.1 - 1 mg/l  
Exposure time: 72 d  
Remarks: Based on data from similar materials

Toxicity to daphnia and other: NOEC (Daphnia magna (Water flea)): > 1 mg/l
### aquatic invertebrates (Chronic toxicity)

Exposure time: 21 d  
Remarks: Based on data from similar materials

### 2-Methyl-1-propanol:

<p>| | |</p>
<table>
<thead>
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| Toxicity to fish         | LC50 (Pimephales promelas (fathead minnow)): 1,430 mg/l  
                           | Exposure time: 96 h                                                                       |
|                          | LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00039 mg/l  
                           | Exposure time: 96 h                                                                       |
| Toxicity to daphnia and other aquatic invertebrates | EC50 (Daphnia pulex (Water flea)): 1,100 mg/l  
                           | Exposure time: 48 h                                                                       |
|                          | NOEC (Pseudokirchneriella subcapitata (green algae)): 117 mg/l  
                           | Exposure time: 72 h                                                                       |
|                          | Method: OECD Test Guideline 201                                                            |
| Toxicity to algae/aquatic plants | ErC50 (Pseudokirchneriella subcapitata (green algae)): 1,799 mg/l  
                          | Exposure time: 72 h                                                                       |
|                          | Method: OECD Test Guideline 201                                                            |
|                          | NOEC (Pseudokirchneriella subcapitata (green algae)): 117 mg/l  
                          | Exposure time: 72 h                                                                       |
|                          | Method: OECD Test Guideline 201                                                            |
|                          | NOEC (Daphnia magna (Water flea)): 20 mg/l  
                          | Exposure time: 21 d                                                                       |

### deltamethrin (ISO):

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</table>
| Toxicity to fish         | LC50 (Cyprinodon variegatus (sheepshead minnow)): 0.00048 mg/l  
                           | Exposure time: 96 h                                                                       |
|                          | LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00039 mg/l  
                           | Exposure time: 96 h                                                                       |
|                          | EC50 (Mysidopsis bahia (opossum shrimp)): 0.0037 µg/l  
                           | Exposure time: 48 h                                                                       |
|                          | EC50 (Daphnia magna (Water flea)): 0.0035 mg/l  
                           | Exposure time: 48 h                                                                       |
|                          | LC50 (Gammarus fasciatus (freshwater shrimp)): 0.0003 µg/l  
                           | Exposure time: 96 h                                                                       |
|                          | NOEC (Pseudokirchneriella subcapitata (green algae)): > 9.1 mg/l  
                           | Exposure time: 72 h                                                                       |
|                          | Method: OECD Test Guideline 201                                                            |
|                          | Remarks: No toxicity at the limit of solubility                                           |
|                          | NOEC (Pimephales promelas (fathead minnow)): 0.000022 mg/l  
                           | Exposure time: 36 d                                                                       |
|                          | NOEC (Pimephales promelas (fathead minnow)): 0.000017 mg/l  
                           |                                                                                           |

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### M-Factor (Acute aquatic toxicity)

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</tbody>
</table>
Exposure time: 260 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC (Daphnia magna (Water flea)): 0.0041 µg/l
- Exposure time: 21 d
- M-Factor (Chronic aquatic toxicity): 1,000,000

**Persistence and degradability**

**Components:**

**Hydrocarbons, C9, aromatics:**
- Biodegradability: Result: Readily biodegradable.  
  Biodegradation: 78 %  
  Exposure time: 28 d  
  Method: OECD Test Guideline 301F

**2-Methoxy-1-methylethyl acetate:**
- Biodegradability: Result: Readily biodegradable.  
  Biodegradation: 90 %  
  Exposure time: 28 d  
  Method: OECD Test Guideline 301F

**Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:**
- Biodegradability: Result: Readily biodegradable.  
  Biodegradation: 100 %  
  Exposure time: 28 d  
  Method: OECD Test Guideline 301B

**2-Methyl-1-propanol:**
- Biodegradability: Result: Readily biodegradable.  
  Biodegradation: 70 - 80 %  
  Exposure time: 28 d  
  Method: OECD Test Guideline 301D

**deltamethrin (ISO):**
- Stability in water: Hydrolysis: 0 %(30 d)

**Bioaccumulative potential**

**Components:**

**Hydrocarbons, C9, aromatics:**
- Partition coefficient: n-octanol/water: log Pow: 3.7 - 4.5

**2-Methoxy-1-methylethyl acetate:**
- Partition coefficient: n-octanol/water: log Pow: 1.2

**Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:**
- Partition coefficient: n-octanol/water: log Pow: 2.89
**SAFETY DATA SHEET**

**Deltamethrin (5%) Formulation**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.0</td>
<td>2021/08/18</td>
<td>2333289-00012</td>
<td>2021/04/09</td>
<td>2017/12/12</td>
</tr>
</tbody>
</table>

- **Octanol/water**
- **2-Methyl-1-propanol:** Partition coefficient: \( n \text{-octanol/water} \) : \( \log \text{Pow} \) 1
- **deltamethrin (ISO):**
  - **Bioaccumulation:** Species: *Lepomis macrochirus* (Bluegill sunfish) Bioconcentration factor (BCF): 1,800
  - **Partition coefficient: \( n \text{-octanol/water} \)** : \( \log \text{Pow} \) 4.6
- **Mobility in soil**

**Components:**

- **deltamethrin (ISO):**
  - **Distribution among environmental compartments:** \( \log \text{Koc} \) : 7.2
- **Hazardous to the ozone layer**
  - Not applicable
- **Other adverse effects**
  - No data available

### 13. DISPOSAL CONSIDERATIONS

**Disposal methods**
- Waste from residues: Dispose of in accordance with local regulations.
- 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.

### 14. TRANSPORT INFORMATION

**International Regulations**

**UNRTDG**
- **UN number:** UN 1993
- **Proper shipping name:** FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl acetate)
  - **Class:** 3
  - **Packing group:** III
  - **Labels:** 3

**IATA-DGR**
- **UN/ID No.:** UN 1993
- **Proper shipping name:** Flammable liquid, n.o.s. (Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl acetate)
SAFETY DATA SHEET

Deltamethrin (5%) Formulation

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. (Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl acetate, deltamethrin (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.

National Regulations
Refer to section 15 for specific national regulation.

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

Related Regulations
Fire Service Law
Group 4, Type 2 petroleum, Water soluble liquid, (2000 litre), Hazardous rank III

Chemical Substance Control Law
Not applicable for Specified Chemical Substance, Monitoring Chemical Substance and Priority Assessment Chemical Substance.

Industrial Safety and Health Law
Harmful Substances Prohibited from Manufacture
Not applicable

Harmful Substances Required Permission for Manufacture
Not applicable

Substances Prevented From Impairment of Health
Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity
Not applicable
Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity

Not applicable

### Substances Subject to be Notified Names

**Article 57-2 (Enforcement Order Table 9)**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum naphtha</td>
<td>330</td>
<td>&gt;=30 - &lt;40</td>
</tr>
<tr>
<td>Butanol</td>
<td>477</td>
<td>&gt;=1 - &lt;10</td>
</tr>
</tbody>
</table>

### Substances Subject to be Indicated Names

**Article 57 (Enforcement Order Article 18)**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum naphtha</td>
<td>330</td>
</tr>
<tr>
<td>Butanol</td>
<td>477</td>
</tr>
</tbody>
</table>

### Ordinance on Prevention of Hazards Due to Specified Chemical Substances

Not applicable

### Ordinance on Prevention of Lead Poisoning

Not applicable

### Ordinance on Prevention of Tetraalkyl Lead Poisoning

Not applicable

### Ordinance on Prevention of Organic Solvent Poisoning

Organic Solvents Class 2

### Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)

Inflammable Substance

### Poisonous and Deleterious Substances Control Law

Not applicable

### Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

Not applicable

### High Pressure Gas Safety Act

Not applicable

### Explosive Control Law

Not applicable

### Vessel Safety Law

Flammable liquids (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)

### Aviation Law

Flammable liquid (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)

### Marine Pollution and Sea Disaster Prevention etc Law

Bulk transportation: Noxious liquid substance (Category Z)

Pack transportation: Classified as marine pollutant
Narcotics and Psychotropics Control Act
Narcotic or Psychotropic Raw Material (Export / Import Permission)
Not applicable
Specific Narcotic or Psychotropic Raw Material (Export / Import permission)
Not applicable

Waste Disposal and Public Cleansing Law
Specially Controlled Industrial Waste

The components of this product are reported in the following inventories:
AICS : not determined
DSL : not determined
IECSC : not determined

16. OTHER INFORMATION

Further information

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
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
JP OEL ISHL : Japan. Administrative Control Levels

ACGIH / TWA : 8-hour, time-weighted average
JP OEL ISHL / ACL : Administrative Control level
JP OEL JSOH / OEL-M : Occupational Exposure Limit-Mean

AICL - 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; ICS0 - 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;
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