SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name: Deltamethrin Liquid Formulation

1.2 Relevant identified uses of the substance or mixture and uses advised against
Use of the Substance/Mixture: Veterinary product

1.3 Details of the supplier of the safety data sheet
Company: MSD
Kilsheelan
Clonmel Tipperary, IE
Telephone: 353-51-601000
E-mail address of person responsible for the SDS: EHSDATASTEWARD@msd.com

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)
Acute toxicity, Category 4: H302: Harmful if swallowed.
Serious eye damage, Category 1: H318: Causes serious eye damage.
Skin sensitisation, Category 1: H317: May cause an allergic skin reaction.
Reproductive toxicity, Category 2: H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Specific target organ toxicity - repeated exposure, Category 2: H373: May cause damage to organs through prolonged or repeated exposure.
Short-term (acute) aquatic hazard, Category 1: H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1: H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)
Hazard pictograms:

Signal word: Danger
Hazard statements: H302 Harmful if swallowed.
H317  May cause an allergic skin reaction.
H318  Causes serious eye damage.
H361fd  Suspected of damaging fertility. Suspected of damaging the unborn child.
H373  May cause damage to organs through prolonged or repeated exposure.
H410  Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:
P201  Obtain special instructions before use.
P273  Avoid release to the environment.
P280  Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
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.
P391  Collect spillage.

Hazardous components which must be listed on the label:
Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxy(poly(oxy-1,2-ethanediyl))
deltamethrin (ISO)

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: This substance/mixture contains components considered to have endocrine disrupting properties for environment, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxy(poly(oxy-1,2-ethanediyl))deltamethrin (ISO)</td>
<td>9002-93-1</td>
<td></td>
<td></td>
<td>Acute Tox. 4; H302 Eye Dam. 1; H318</td>
<td>&gt;= 50 - &lt; 70</td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

4.1 Description of 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.

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).

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

In case of skin contact: In case of contact, immediately flush skin with soap and plenty of water. Remove 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 immediately.

If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Risks: Harmful if swallowed. May cause an allergic skin reaction. Causes serious eye damage. Suspected of damaging fertility. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting: Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides
Nitrogen oxides (NOx)
Bromine compounds

5.3 Advice for firefighters

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

Specific extinguishing methods: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do...
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:
- Use personal protective equipment.
- Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

6.2 Environmental precautions

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.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up:
- Soak up with inert absorbent material.
- 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.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe 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.

Advice on safe handling:
- Do not get on skin or clothing.
- Do not breathe mist or vapours.
- Do not swallow.
- Do not get in eyes.
- Wash skin thoroughly after handling.
- Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure as-
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.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: Keep in properly labelled containers. Store locked up. Keep tightly closed. Store in accordance with the particular national regulations.

Advice on common storage: Do not store with the following product types:
- Strong oxidizing agents
- Organic peroxides
- Explosives
- Gases

7.3 Specific end use(s)

Specific use(s): No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

**Occupational Exposure Limits**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>TWA</td>
<td>15 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
</tbody>
</table>

Further information: DSEN, Skin

| Wipe limit        | 150 µg/100 cm² | Internal   |

8.2 Exposure controls

**Engineering measures**

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less 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.

**Personal protective equipment**

**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.

**Hand protection**
- **Material**: Chemical-resistant gloves
- **Remarks**: Consider double gloving.

**Skin and body protection**
- **Material**: 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.

**Respiratory protection**
- **Filter type**: Particulates type (P)
  - If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
  - Equipment should conform to NS EN 143

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

- **Physical state**: liquid
- **Colour**: colourless
- **Odour**: odourless
- **Odour Threshold**: No data available
- **Melting point/freezing point**: No data available
- **Initial boiling point and boiling range**: 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
- **Flash point**: No data available
- **Auto-ignition temperature**: No data available
- **Decomposition temperature**: No data available
**Deltamethrin Liquid Formulation**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>pH</strong></td>
<td>3.4 - 4 (20 °C)</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td></td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>No data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td></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>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density</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>

### 9.2 Other information

- **Explosives**: Not explosive
- **Oxidizing properties**: The substance or mixture is not classified as oxidizing.
- **Evaporation rate**: No data available
- **Molecular weight**: Not applicable

### SECTION 10: Stability and reactivity

#### 10.1 Reactivity
Not classified as a reactivity hazard.

#### 10.2 Chemical stability
Stable under normal conditions.

#### 10.3 Possibility of hazardous reactions
**Hazardous reactions**: Can react with strong oxidizing agents.

#### 10.4 Conditions to avoid
**Conditions to avoid**: None known.

#### 10.5 Incompatible materials
**Materials to avoid**: Oxidizing agents

#### 10.6 Hazardous decomposition products
No hazardous decomposition products are known.
SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

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

Acute toxicity: Harmful if swallowed.

Product:
- Acute oral toxicity: Acute toxicity estimate: 956.51 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:

Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxy(poly(oxy-1,2-ethanediyl)):
- Acute oral toxicity: LD50 (Rat): 1.900 - 5.000 mg/kg
  Remarks: Based on data from similar materials

- Acute dermal toxicity: LD50 (Rabbit): > 3.000 mg/kg
  Remarks: Based on data from similar materials

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

- Acute toxicity (other routes of administration): LD50 (Rat): 2.5 mg/kg
  Application Route: Intravenous

- LD50 (Mouse): 10 mg/kg
  Application Route: Intraperitoneal
Skin corrosion/irritation
Not classified based on available information.

Components:
Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl):
Result: No skin irritation

deltamethrin (ISO):
Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Causes serious eye damage.

Components:
Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl):
Result: Irreversible effects on the eye

deltamethrin (ISO):
Species: Rabbit
Result: Moderate eye irritation

Respiratory or skin sensitisation

Skin sensitisation
May cause an allergic skin reaction.

Respiratory sensitisation
Not classified based on available information.

Components:
deltamethrin (ISO):
Test Type: Maximisation Test
Exposure routes: Dermal
Species: Guinea pig
Result: negative

Test Type: Human repeat insult patch test (HRIPT)
Exposure routes: Dermal
Species: Humans
Result: positive

Germ cell mutagenicity
Not classified based on available information.

Components:
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:

deltamethrin (ISO):

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse, male and female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>oral (feed)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>104 weeks</td>
</tr>
<tr>
<td>NOAEL</td>
<td>8 mg/kg body weight</td>
</tr>
<tr>
<td>LOAEL</td>
<td>4 mg/kg body weight</td>
</tr>
<tr>
<td>Result</td>
<td>positive</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Lymph nodes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat, male and female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>oral (feed)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>2 Years</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Dog, male and female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>oral (feed)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>2 Years</td>
</tr>
<tr>
<td>NOAEL</td>
<td>1 mg/kg body weight</td>
</tr>
</tbody>
</table>
### Reproductive toxicity
Suspected of damaging fertility. Suspected of damaging the unborn child.

**Components:**

**Deltamethrin (ISO):**

<table>
<thead>
<tr>
<th>Effects on fertility</th>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Early Embryonic Development</th>
<th>NOAEL</th>
<th>Symptoms</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Three-generation reproduction toxicity study</td>
<td>Rat</td>
<td>oral (feed)</td>
<td>NOAEL: 50 mg/kg body weight</td>
<td>No effects on fertility, Embryo-foetal toxicity</td>
<td>Significant toxicity observed in testing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Two-generation reproduction toxicity study</td>
<td>Rat</td>
<td>Oral</td>
<td>LOAEL: 84 - 149 mg/kg body weight</td>
<td>No effects on fertility, Embryo-foetal toxicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fertility</td>
<td>Rat, male</td>
<td>Oral</td>
<td>LOAEL: 1 mg/kg body weight</td>
<td>Effects on fertility</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Development</td>
<td>Mouse</td>
<td>oral (gavage)</td>
<td>NOAEL: 1 mg/kg body weight</td>
<td>Maternal toxicity observed.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Development</td>
<td>Rat, female</td>
<td>Oral</td>
<td>NOAEL: 10 mg/kg body weight</td>
<td>No effects on foetal development</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Development</td>
<td>Rabbit, female</td>
<td>oral (gavage)</td>
<td>NOAEL: 16 mg/kg body weight</td>
<td>No effects on foetal development</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**STOT - single exposure**
Not classified based on available information.
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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Components:

deltamethrin (ISO):

Assessment: May cause respiratory irritation.

STOT - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

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:

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
Deltamethrin Liquid Formulation

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
Not classified based on available information.

11.2 Information on other hazards

Endocrine disrupting properties

Product:
Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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

SECTION 12: Ecological information

12.1 Toxicity

Components:

Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl):

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 4 - 8.9 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)): 18 - 26 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials

Toxicity to microorganisms : IC50 : 5.000 mg/l
deltamethrin (ISO):

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

Toxicity to daphnia and other aquatic invertebrates

- 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

Toxicity to algae/aquatic plants

- EC50 (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

M-Factor (Acute aquatic toxicity): 1.000.000

Toxicity to fish (Chronic toxicity)

- NOEC: 0,000022 mg/l
  Exposure time: 36 d
  Species: Pimephales promelas (fathead minnow)
- NOEC: 0,000017 mg/l
  Exposure time: 260 d
  Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

- NOEC: 0,0041 µg/l
  Exposure time: 21 d
  Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity): 1.000.000

12.2 Persistence and degradability

Components:

Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxy(poly(oxy-1,2-ethanediyl):

Biodegradability

- Biodegradation: > 60 %
  Exposure time: 28 d
  Method: OECD Test Guideline 301B

Result: Not readily biodegradable.
Biodegradation: 36 %
Exposure time: 28 d  
Method: Closed Bottle test  

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

### 12.3 Bioaccumulative potential  

**Components:**  
**Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl):**  
Partition coefficient: n-octanol/water : log Pow: 2,7  

**deltamethrin (ISO):**  
Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)  
Bioconcentration factor (BCF): 1.800  
Partition coefficient: n-octanol/water : log Pow: 4,6  

### 12.4 Mobility in soil  

**Components:**  
**deltamethrin (ISO):**  
Distribution among environmental compartments : log Koc: 7,2  

### 12.5 Results of PBT and vPvB assessment  

**Product:**  
Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.  

### 12.6 Endocrine disrupting properties  

**Product:**  
Assessment : This substance/mixture contains components considered to have endocrine disrupting properties for environment, according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.  

**Components:**  
**Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl):**  
Assessment : The substance is considered to have endocrine disrupting properties according to REACH Article 57(f) for the environment.
Deltamethrin Liquid Formulation

12.7 Other adverse effects
No data available

### SECTION 13: Disposal considerations

#### 13.1 Waste treatment methods

<table>
<thead>
<tr>
<th></th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product</strong></td>
<td>Dispose of in accordance with local regulations.</td>
</tr>
<tr>
<td></td>
<td>According to the European Waste Catalogue, Waste Codes</td>
</tr>
<tr>
<td></td>
<td>are not product specific, but application specific.</td>
</tr>
<tr>
<td></td>
<td>Waste codes should be assigned by the user, preferably in</td>
</tr>
<tr>
<td></td>
<td>discussion with the waste disposal authorities.</td>
</tr>
<tr>
<td><strong>Contaminated packaging</strong></td>
<td>Empty containers should be taken to an approved waste handling site for recycling or disposal.</td>
</tr>
<tr>
<td></td>
<td>If not otherwise specified: Dispose of as unused product.</td>
</tr>
</tbody>
</table>

### SECTION 14: Transport information

#### 14.1 UN number or ID number

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>UN 3082</td>
</tr>
<tr>
<td>ADR</td>
<td>UN 3082</td>
</tr>
<tr>
<td>RID</td>
<td>UN 3082</td>
</tr>
<tr>
<td>IMDG</td>
<td>UN 3082</td>
</tr>
<tr>
<td>IATA</td>
<td>UN 3082</td>
</tr>
</tbody>
</table>

#### 14.2 UN proper shipping name

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.</td>
</tr>
<tr>
<td></td>
<td>(deltamethrin (ISO), Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl))</td>
</tr>
<tr>
<td>ADR</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.</td>
</tr>
<tr>
<td></td>
<td>(deltamethrin (ISO), Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl))</td>
</tr>
<tr>
<td>RID</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.</td>
</tr>
<tr>
<td></td>
<td>(deltamethrin (ISO), Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl))</td>
</tr>
<tr>
<td>IMDG</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.</td>
</tr>
<tr>
<td></td>
<td>(deltamethrin (ISO), Alpha-(4-(1,1,3,3-Tetramethylbutyl)phenyl)-omega-hydroxypoly(oxy-1,2-ethanediyl))</td>
</tr>
<tr>
<td>IATA</td>
<td>Environmentally hazardous substance, liquid, n.o.s.</td>
</tr>
</tbody>
</table>
Deltamethrin Liquid Formulation

14.3 Transport hazard class(es)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>9</td>
</tr>
<tr>
<td>ADR</td>
<td>9</td>
</tr>
<tr>
<td>RID</td>
<td>9</td>
</tr>
<tr>
<td>IMDG</td>
<td>9</td>
</tr>
<tr>
<td>IATA</td>
<td>9</td>
</tr>
</tbody>
</table>

14.4 Packing group

**ADN**
- **Packing group**: III
- **Classification Code**: M6
- **Hazard Identification Number**: 90
- **Labels**: 9

**ADR**
- **Packing group**: III
- **Classification Code**: M6
- **Hazard Identification Number**: 90
- **Labels**: 9
- **Tunnel restriction code**: (-)

**RID**
- **Packing group**: III
- **Classification Code**: M6
- **Hazard Identification Number**: 90
- **Labels**: 9

**IMDG**
- **Packing group**: III
- **Labels**: 9
- **EmS Code**: F-A, S-F

**IATA (Cargo)**
- **Packing instruction (cargo aircraft)**: 964
- **Packing instruction (LQ)**: Y964
- **Packing group**: III
- **Labels**: Miscellaneous

**IATA (Passenger)**
- **Packing instruction (passenger aircraft)**: 964
- **Packing instruction (LQ)**: Y964
- **Packing group**: III
- **Labels**: Miscellaneous

14.5 Environmental hazards

**ADN**
- Environmentally hazardous: yes
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Deltamethrin Liquid Formulation

Version 2.6
Revision Date: 27.08.2021
SDS Number: 1596219-00012
Date of last issue: 09.04.2021
Date of first issue: 25.04.2017

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

IATA (Passenger)
Environmentally hazardous : yes

IATA (Cargo)
Environmentally hazardous : yes

14.6 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 var-
iations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments
Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mix-
ture

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:
Number on list 3
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Alpha-(4-(1,1,3,3-
Tetramethylbutyl)phenyl)-omega-hydroxy(poly(oxy-1,2-ethanediyl))

REACH - List of substances subject to authorisation (Annex XIV) : Alpha-(4-(1,1,3,3-
Tetramethylbutyl)phenyl)-omega-hydroxy(poly(oxy-1,2-ethanediyl))

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable
Regulation (EU) 2019/1021 on persistent organic pollu-
tants (recast) : Not applicable
Regulation (EC) No 649/2012 of the European Parlia-
ment and the Council concerning the export and import of dangerous chemicals : Not applicable

E1 ENVIROMENTAL HAZARDS
Quantity 1 100 t Quantity 2 200 t

Other regulations:
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.
Young people under the age of 18 are not allowed to use or be exposed to the product professionally. Young people above the age of 15 are, however, except from this rule if the product is a necessary part of their education.

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

- **AICS**: not determined
- **DSL**: not determined
- **IECSC**: not determined

### 15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

### SECTION 16: Other information

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

**Full text of H-Statements**

- **H301**: Toxic if swallowed.
- **H302**: Harmful if swallowed.
- **H317**: May cause an allergic skin reaction.
- **H318**: Causes serious eye damage.
- **H319**: Causes serious eye irritation.
- **H331**: Toxic if inhaled.
- **H335**: May cause respiratory irritation.
- **H361fd**: Suspected of damaging fertility. Suspected of damaging the unborn child.
- **H372**: Causes damage to organs through prolonged or repeated exposure if inhaled.
- **H372**: Causes damage to organs through prolonged or repeated exposure if swallowed.
- **H400**: Very toxic to aquatic life.
- **H410**: Very toxic to aquatic life with long lasting effects.
- **H411**: Toxic to aquatic life with long lasting effects.

**Full text of other abbreviations**

- **Acute Tox.**: Acute toxicity
- **Aquatic Acute**: Short-term (acute) aquatic hazard
- **Aquatic Chronic**: Long-term (chronic) aquatic hazard
- **Eye Dam.**: Serious eye damage
- **Eye Irrit.**: Eye irritation
- **Repr**: Reproductive toxicity
- **Skin Sens.**: Skin sensitisation
- **STOT RE**: Specific target organ toxicity - repeated exposure
- **STOT SE**: Specific target organ toxicity - single exposure

**ADN** - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; **ADR** - European Agreement concerning the International Carriage of Dangerous Goods by Road; **AIIC** - Australian Inventory of Industrial Chemicals; **ASTM** - American Society for the Testing of Materials; **bw** - Body weight; **CLP** - Classification Labelling Packaging Regulation; **CMR** - Carcinogen, Mutagen or Reproductive Toxicant; **DIN** -
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Deltamethrin Liquid Formulation

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Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Registration (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of very high concern; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information
Sources of key data used to compile the Safety Data Sheet:

Classification of the mixture:

<table>
<thead>
<tr>
<th>Classification of the mixture</th>
<th>Classification procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 4</td>
<td>H302  Calculation method</td>
</tr>
<tr>
<td>Eye Dam. 1</td>
<td>H318  Calculation method</td>
</tr>
<tr>
<td>Skin Sens. 1</td>
<td>H317  Calculation method</td>
</tr>
<tr>
<td>Repr. 2</td>
<td>H361fd Calculation method</td>
</tr>
<tr>
<td>STOT RE 2</td>
<td>H373  Calculation method</td>
</tr>
<tr>
<td>Aquatic Acute 1</td>
<td>H400  Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
<td>H410  Calculation method</td>
</tr>
</tbody>
</table>

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.

NO / EN