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

1.1 Product identifier
Trade name: Deltamethrin (5%) 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
Kilsheean
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)
- Flammable liquids, Category 3
- Acute toxicity, Category 4
- Skin irritation, Category 2
- Serious eye damage, Category 1
- Skin sensitisation, Category 1
- Reproductive toxicity, Category 2
- Specific target organ toxicity - single exposure, Category 3
- Specific target organ toxicity - single exposure, Category 3
- Specific target organ toxicity - repeated exposure, Category 2
- Aspiration hazard, Category 1
- Short-term (acute) aquatic hazard, Category 1
- Long-term (chronic) aquatic hazard, Category 1

H226: Flammable liquid and vapour.
H302: Harmful if swallowed.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H317: May cause an allergic skin reaction.
H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.
H373: May cause damage to organs through prolonged or repeated exposure.
H304: May be fatal if swallowed and enters airways.
H400: Very toxic to aquatic life.
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:

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 through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
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.
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.
P391 Collect spillage.

Hazardous components which must be listed on the label:

- Hydrocarbons, C9, aromatics
- Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts
- 2-Methyl-1-propanol
- 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: 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.
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.

Vapours may form explosive mixture with air.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No.</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrocarbons, C9, aromatics</td>
<td>Not Assigned</td>
<td>Flam. Liq. 3; H226</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Asp. Tox. 1; H304</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aquatic Chronic 2; H411</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>EUH066</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2-65-6 203-603-9 607-195-00-7</td>
<td>Flam. Liq. 3; H226</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
<td></td>
</tr>
<tr>
<td>2-Methoxy-1-methylethyl acetate</td>
<td>108-65-6</td>
<td>Sky Irrit. 2; H315</td>
<td>&gt;= 3 - &lt; 10</td>
</tr>
<tr>
<td></td>
<td>203-603-9</td>
<td>Eye Dam. 1; H318</td>
<td></td>
</tr>
<tr>
<td></td>
<td>607-195-00-7</td>
<td>Aquatic Chronic 3; H412</td>
<td></td>
</tr>
<tr>
<td>Benzenesulfonic acid, C10-13-</td>
<td>Not Assigned</td>
<td>Skin Irrit. 2; H315</td>
<td>&gt;= 3 - &lt; 10</td>
</tr>
<tr>
<td>alkyl derivs., calcium salts</td>
<td>271-529-4</td>
<td>Eye Dam. 1; H318</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aquatic Chronic 3; H412</td>
<td></td>
</tr>
<tr>
<td>2-Methyl-1-propanol</td>
<td>78-83-1</td>
<td>Flam. Liq. 3; H226</td>
<td>&gt;= 3 - &lt; 10</td>
</tr>
<tr>
<td></td>
<td>201-148-0</td>
<td>Skin Irrit. 2; H315</td>
<td></td>
</tr>
<tr>
<td></td>
<td>603-108-00-1</td>
<td>Eye Dam. 1; H318</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STOT SE 3; H335</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
<td></td>
</tr>
<tr>
<td>deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>Acute Tox. 3; H301</td>
<td>&gt;= 3 - &lt; 10</td>
</tr>
<tr>
<td></td>
<td>258-256-6</td>
<td>Acute Tox. 3; H331</td>
<td></td>
</tr>
<tr>
<td></td>
<td>607-319-00-X</td>
<td>Eye Irrit. 2; H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Skin Sens. 1A; H317</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Repr. 2; H361fd</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STOT SE 3; H335</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STOT RE 1; H372</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Central nervous system, Immune system)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STOT RE 1; H372</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Central nervous system)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aquatic Acute 1; H400</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aquatic Chronic 1; H410</td>
<td></td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Deltamethrin (5%) Formulation

M-Factor (Acute aquatic toxicity): 1,000,000
M-Factor (Chronic aquatic toxicity): 1,000,000

For explanation of abbreviations see section 16.

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 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 immediately.

If swallowed: If swallowed, DO NOT induce vomiting. If vomiting occurs have person lean forward. Call a physician or poison control centre immediately. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Risks: 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.
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Deltamethrin (5%) Formulation

Version: 5.0
Revision Date: 18.08.2021
SDS Number: 2334776-00013
Date of last issue: 09.04.2021
Date of first issue: 12.12.2017

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:
- High volume water jet

5.2 Special hazards arising from the substance or mixture
Specific hazards during firefighting:
- Do not use a solid water stream as it may scatter and spread fire.
- Flash back possible over considerable distance.
- Vapours may form explosive mixtures with air.
- Exposure to combustion products may be a hazard to health.

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

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 so.
- Evacuate area.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Personal precautions:
- Remove all sources of ignition.
- 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:
- 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 diking 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.
- Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling:
- Do not get on skin or clothing.
- Do not breathe mist or vapours.
- Do not swallow.
- Do not get in eyes.
- Wash skin thoroughly after handling.
- Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.
- Non-sparking tools should be used.
- Keep container tightly closed.
- 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.

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. Keep in a cool, well-ventilated place. Store in
accordance with the particular national regulations. Keep
away from heat and sources of ignition.

Advice on common storage: Do not store with the following product types:
Strong oxidizing agents
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

7.3 Specific end use(s)
Specific use(s): No data available

SECTION 8: Exposure controls/personal protection

8.1 Control: 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>2-Methoxy-1-methylethyl acetate</td>
<td>108-65-6</td>
<td>STEL</td>
<td>100 ppm 550 mg/m³</td>
<td>2000/39/EC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information: Identifies the possibility of significant uptake through the skin, Indicative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>50 ppm 275 mg/m³</td>
<td>2000/39/EC</td>
</tr>
<tr>
<td>Further information: Identifies the possibility of significant uptake through the skin, Indicative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Deltamethrin (5%) Formulation

**Version**: 5.0  
**Revision Date**: 18.08.2021  
**SDS Number**: 2334776-00013  
**Date of last issue**: 09.04.2021  
**Date of first issue**: 12.12.2017

**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methyl-1-propanol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>310 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>55 mg/m³</td>
</tr>
<tr>
<td>Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts</td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>1.7 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>85 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>89 mg/kg bw/day</td>
</tr>
<tr>
<td>2-Methoxy-1-methylethyl acetate</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>275 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>796 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>33 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>320 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>36 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>550 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>33 mg/m³</td>
</tr>
</tbody>
</table>

**Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methyl-1-propanol</td>
<td>Fresh water</td>
<td>0.4 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.04 mg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>11 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>10 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>1.56 mg/kg dry weight (d.w.)</td>
</tr>
</tbody>
</table>

---

Further information: Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body.
### 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.

Use explosion-proof electrical, ventilating and lighting equipment.

#### 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. Take note that the product is flammable, which may impact the selection of hand protection.

**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, dis-
Respiratory protection: If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection. Equipment should conform to I.S. EN 14387 Filter type: Combined particulates and organic vapour type (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>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>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>3 - 5</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>completely miscible</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>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>0.963 - 0.967 g/cm³</td>
</tr>
</tbody>
</table>
Deltamethrin (5%) Formulation

Relative vapour density : No data available
Particle characteristics
  Particle size : Not applicable

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 : No data available

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 : Flammable liquid and vapour.
  Vapours may form explosive mixture with air.
  Can react with strong oxidizing agents.

10.4 Conditions to avoid
Conditions to avoid : Heat, flames and sparks.

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: 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

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

2-Methyl-1-propanol:
Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

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

Serious eye damage/eye irritation
Causes serious eye damage.

Components:

Hydrocarbons, C9, aromatics:
Deltamethrin (5%) Formulation

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

### 2-Methoxy-1-methylethyl acetate:

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

### Benzencesulfonic acid, C10-13-alkyl derivs., calcium salts:

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

### 2-Methyl-1-propanol:

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

### Deltamethrin (ISO):

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</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:

#### Hydrocarbons, C9, aromatics:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Exposure routes</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximisation Test</td>
<td>Skin contact</td>
<td>Guinea pig</td>
<td>OECD Test Guideline 406</td>
<td>negative</td>
</tr>
</tbody>
</table>

#### 2-Methoxy-1-methylethyl acetate:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Exposure routes</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximisation Test</td>
<td>Skin contact</td>
<td>Guinea pig</td>
<td>OECD Test Guideline 406</td>
<td>negative</td>
</tr>
</tbody>
</table>

#### Benzencesulfonic acid, C10-13-alkyl derivs., calcium salts:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Exposure routes</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnusson-Kligman-Test</td>
<td>Skin contact</td>
<td>Guinea pig</td>
<td>OECD Test Guideline 406</td>
<td></td>
</tr>
</tbody>
</table>
Deltamethrin (5%) Formulation

Remarks: Based on data from similar materials

2-Methyl-1-propanol:
- **Test Type**: Maximisation Test
- **Exposure routes**: Skin contact
- **Species**: Guinea pig
- **Result**: negative
- **Remarks**: Based on data from similar materials

Deltamethrin (ISO):
- **Test Type**: Maximisation Test
- **Exposure routes**: Dermal
- **Species**: Guinea pig
- **Result**: negative

Germ cell mutagenicity
- Not classified based on available information.

Components:

**Hydrocarbons, C9, aromatics:**
- **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

Germ cell mutagenicity: Assessment
- Classified based on benzene content < 0.1% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note P)

**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

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
Carcinogenicity
Not classified based on available information.

Components:

Hydrocarbons, C9, aromatics:
Carcinogenicity - Assessment: Classified based on benzene content < 0.1% (Regulation (EC) 1272/2008, Annex VI, Part 3, Note P)

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:

Hydrocarbons, C9, aromatics:
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)
2-Methoxy-1-methylethyl acetate:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-generation reproduction toxicity study</td>
<td>Rat</td>
<td>inhalation (vapour)</td>
<td>OECD Test Guideline 416</td>
<td>negative</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

Effects on fertility

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-generation reproduction toxicity study</td>
<td>Rat</td>
<td>inhalation (vapour)</td>
<td>OPPTS 870.3800</td>
<td>negative</td>
<td></td>
</tr>
</tbody>
</table>

Effects on foetal development

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embryo-foetal development</td>
<td>Rat</td>
<td>inhalation (vapour)</td>
<td>OECD Test Guideline 414</td>
<td>negative</td>
<td></td>
</tr>
</tbody>
</table>

2-Methyl-1-propanol:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-generation reproduction toxicity study</td>
<td>Rat</td>
<td>inhalation (vapour)</td>
<td>OPPTS 870.3800</td>
<td>negative</td>
<td></td>
</tr>
</tbody>
</table>

Effects on fertility

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-generation reproduction toxicity study</td>
<td>Rat</td>
<td>inhalation (vapour)</td>
<td>OECD Test Guideline 414</td>
<td>negative</td>
<td></td>
</tr>
</tbody>
</table>

Effects on foetal development

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embryo-foetal development</td>
<td>Rat</td>
<td>inhalation (vapour)</td>
<td>OECD Test Guideline 414</td>
<td>negative</td>
<td></td>
</tr>
</tbody>
</table>

Deltamethrin (ISO):

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three-generation reproduction toxicity study</td>
<td>Rat</td>
<td>oral (feed)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Effects on fertility

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-generation reproduction toxicity study</td>
<td>Rat</td>
<td>oral (feed)</td>
<td></td>
<td>negative</td>
<td></td>
</tr>
</tbody>
</table>

Early Embryonic Development: NOAEL: 50 mg/kg body weight
Symptoms: No effects on fertility, Embryo-foetal toxicity
Remarks: Significant toxicity observed in testing

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-generation reproduction toxicity study</td>
<td>Rat</td>
<td>Oral</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Early Embryonic Development: LOAEL: 84 - 149 mg/kg body weight
Symptoms: No effects on fertility, Embryo-foetal toxicity

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertility</td>
<td>Rat, male</td>
<td>Oral</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fertility: LOAEL: 1 mg/kg body weight
Symptoms: Effects on fertility
Target Organs: Testes

Effects on foetal development

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Method</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Deltamethrin (5%) Formulation

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 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:**

**Hydrocarbons, C9, aromatics:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat, female</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>900 mg/m3</td>
</tr>
<tr>
<td>Application Route</td>
<td>inhalation (vapour)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>12 Months</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**2-Methoxy-1-methylethyl acetate:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>&gt; 1,000 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Exposure time</td>
<td>41 - 45 Days</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 422</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>1.62 mg/l</td>
</tr>
<tr>
<td>Application Route</td>
<td>inhalation (vapour)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>2 yr</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>&gt; 1,838 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Exposure time</td>
<td>90 Days</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**2-Methyl-1-propanol:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>&gt; 1,450 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Exposure time</td>
<td>90 Days</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 408</td>
</tr>
</tbody>
</table>

**deltamethrin (ISO):**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat, male and female</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>1 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>2.5 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>13 Weeks</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Nervous system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>hyperexcitability</td>
</tr>
</tbody>
</table>
Deltamethrin (5%) Formulation

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAEL</td>
<td>3 mg/m³</td>
</tr>
<tr>
<td>Application Route</td>
<td>Inhalation (dust/mist/fume)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>2 wk / 5 d/wk / 6 h/d</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Local irritation, respiratory tract irritation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Dog</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>0.1 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>1 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>13 Weeks</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Nervous system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Dilatation of the pupil, Vomiting, Tremors, Diarrhoea, Salivation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>14 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>54 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>91 d</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Nervous system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAEL</td>
<td>6 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>12 Weeks</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Immune system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Immune system effects</td>
</tr>
</tbody>
</table>

**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.

**11.2 Information on other hazards**

**Endocrine disrupting properties**

**Product:**
Deltamethrin (5%) Formulation

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:

- **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
Deltamethrin (5%) Formulation

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 microorganisms

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

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

NOEC: >= 100 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

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: > 0.1 - 1 mg/l
Exposure time: 72 d
Species: Oncorhynchus mykiss (rainbow trout)
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

NOEC: > 1 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Remarks: Based on data from similar materials
2-Methyl-1-propanol:

Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 1,430 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

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

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

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
Deltamethrin (5%) Formulation

12.2 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)

12.3 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
Deltamethrin (5%) Formulation

**Components:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Partition coefficient: n-octanol/water</th>
<th>Bioaccumulation</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts</td>
<td>: log Pow: 2.89</td>
<td>Species: Lepomis macrochirus (Bluegill sunfish)</td>
<td></td>
</tr>
<tr>
<td>2-Methyl-1-propanol</td>
<td>: log Pow: 1</td>
<td>Bioconcentration factor (BCF): 1,800</td>
<td></td>
</tr>
<tr>
<td>Deltamethrin (ISO)</td>
<td>: log Pow: 4.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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:**

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.

**12.7 Other adverse effects**

No data available

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

**Product:**

Dispose of in accordance with local regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

**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.

### SECTION 14: Transport information

#### 14.1 UN number or ID number

<table>
<thead>
<tr>
<th>Transport Agency</th>
<th>UN Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>UN 1993</td>
</tr>
<tr>
<td>ADR</td>
<td>UN 1993</td>
</tr>
<tr>
<td>RID</td>
<td>UN 1993</td>
</tr>
<tr>
<td>IMDG</td>
<td>UN 1993</td>
</tr>
<tr>
<td>IATA</td>
<td>UN 1993</td>
</tr>
</tbody>
</table>

#### 14.2 UN proper shipping name

<table>
<thead>
<tr>
<th>Transport Agency</th>
<th>Proper Shipping Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl acetate)</td>
</tr>
<tr>
<td>ADR</td>
<td>FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl acetate)</td>
</tr>
<tr>
<td>RID</td>
<td>FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl acetate)</td>
</tr>
<tr>
<td>IMDG</td>
<td>FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl acetate, deltamethrin (ISO))</td>
</tr>
<tr>
<td>IATA</td>
<td>Flammable liquid, n.o.s. (Hydrocarbons, C9, aromatics, 2-Methoxy-1-methylethyl acetate)</td>
</tr>
</tbody>
</table>

#### 14.3 Transport hazard class(es)

<table>
<thead>
<tr>
<th>Transport Agency</th>
<th>Hazard Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>3</td>
</tr>
<tr>
<td>ADR</td>
<td>3</td>
</tr>
<tr>
<td>RID</td>
<td>3</td>
</tr>
<tr>
<td>IMDG</td>
<td>3</td>
</tr>
<tr>
<td>IATA</td>
<td>3</td>
</tr>
</tbody>
</table>

#### 14.4 Packing group

<table>
<thead>
<tr>
<th>Transport Agency</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>III</td>
</tr>
<tr>
<td>Classification Code</td>
<td>F1</td>
</tr>
<tr>
<td>Hazard Identification Number</td>
<td>30</td>
</tr>
<tr>
<td>Labels</td>
<td>3</td>
</tr>
</tbody>
</table>
14.5 Environmental hazards

ADN
Environmentally hazardous : yes

ADR
Environmentally hazardous : yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : 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 variations 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 mixture

- 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: Not applicable
- REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).
  - Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: Not applicable
  - Regulation (EU) 2019/1021 on persistent organic pollutants (recast): Not applicable
  - Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals: Not applicable
- REACH - List of substances subject to authorisation (Annex XIV)

<table>
<thead>
<tr>
<th>E1</th>
<th>ENVIRONMENTAL HAZARDS</th>
<th>Quantity 1</th>
<th>Quantity 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>100 t</td>
<td>200 t</td>
</tr>
<tr>
<td>P5c</td>
<td>FLAMMABLE LIQUIDS</td>
<td>5,000 t</td>
<td>50,000 t</td>
</tr>
<tr>
<td>34</td>
<td>Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams),(d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)</td>
<td>2,500 t</td>
<td>25,000 t</td>
</tr>
</tbody>
</table>

Other regulations:
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.
Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

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

Date of last issue: 09.04.2021
Date of first issue: 12.12.2017
Deltamethrin (5%) Formulation

**SAFETY DATA SHEET**
according to Regulation (EC) No. 1907/2006

**Deltamethrin (5%) Formulation**

**Version** 5.0  
**Revision Date:** 18.08.2021  
**SDS Number:** 2334776-00013  
**Date of last issue:** 09.04.2021  
**Date of first issue:** 12.12.2017

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### 15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

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### 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.

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#### Full text of H-statements

- **H226**: Flammable liquid and vapour.
- **H301**: Toxic 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.
- **H319**: Causes serious eye irritation.
- **H331**: Toxic if inhaled.
- **H335**: May cause respiratory irritation.
- **H336**: May cause drowsiness or dizziness.
- **H361fd**: Suspected of damaging fertility. Suspected of damaging the unborn child.
- **H372**: Causes damage to organs through prolonged or repeated exposure if inhaled.
- **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.
- **H412**: Harmful to aquatic life with long lasting effects.
- **EUH066**: Repeated exposure may cause skin dryness or cracking.

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#### Full text of other abbreviations

- **Acute Tox.**: Acute toxicity
- **Aquatic Acute**: Short-term (acute) aquatic hazard
- **Aquatic Chronic**: Long-term (chronic) aquatic hazard
- **Asp. Tox.**: Aspiration hazard
- **Eye Dam.**: Serious eye damage
- **Eye Irrit.**: Eye irritation
- **Flam. Liq.**: Flammable liquids
- **Repr.**: Reproductive toxicity
- **Skin Irrit.**: Skin irritation
- **Skin Sens.**: Skin sensitisation
- **STOT RE**: Specific target organ toxicity - repeated exposure
- **STOT SE**: Specific target organ toxicity - single exposure
- **IE OEL**: Ireland. List of Chemical Agents and Occupational Exposure Limit Values - Schedule 1
- **2000/39/EC / TWA**: Limit Value - eight hours
- **2000/39/EC / STEL**: Short term exposure limit
- **IE OEL / OELV - 8 hrs (TWA)**: Occupational exposure limit value (8-hour reference period)
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; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - 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; 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; IEC - International Electrotechnical Commission; 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 - Regulation (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; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture: Calculation procedure:
Flam. Liq. 3 H226 Based on product data or assessment
Acute Tox. 4 H302 Calculation method
Skin Irrit. 2 H315 Calculation method
Eye Dam. 1 H318 Calculation method
Skin Sens. 1 H317 Calculation method
Repr. 2 H361fd Calculation method
STOT SE 3 H335 Calculation method
STOT SE 3 H336 Calculation method
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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Revision Date: 12.12.2017

STOT RE 2  H373  Calculation method
Asp. Tox. 1  H304  Based on product data or assessment
Aquatic Acute 1  H400  Calculation method
Aquatic Chronic 1  H410  Calculation method

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

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.

IE / EN