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

Deltamethrin Pour-On Formulation

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

1.1 Product identifier
Trade name : Deltamethrin Pour-On 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)
Skin sensitisation, Category 1 : H317: May cause an allergic skin reaction.
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 : Warning
Hazard statements : H317 May cause an allergic skin reaction.
                  H410 Very toxic to aquatic life with long lasting effects.
Precautionary statements : Prevention:
                          P272 Contaminated work clothing should not be allowed out of the workplace.
### SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

### Deltamethrin Pour-On Formulation

**Version** 3.7  **Revision Date:** 27.08.2021  **SDS Number:** 657791-00016  **Date of last issue:** 09.04.2021  **Date of first issue:** 02.05.2016

P273  Avoid release to the environment.
P280  Wear protective gloves.

**Response:**
P333 + P313  If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364  Take off contaminated clothing and wash it before reuse.
P391  Collect spillage.

Hazardous components which must be listed on the label:
deltamethrin (ISO)
Formaldehyde

#### 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.

### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

**Components**

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Registration number</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>258-256-6</td>
<td>607-319-00-X</td>
<td></td>
<td>Acute Tox. 3; H301 Acute Tox. 3; H331 Eye Irrit. 2; H319</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Skin Sens. 1A; H317 Repr. 2; H361fd</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3; H335 STOT RE 1; H372</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(Central nervous system, Immune system)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>STOT RE 1; H372 (Central nervous system)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 1; H400</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&gt;= 0,25 - &lt; 1</td>
</tr>
</tbody>
</table>
Deltamethrin Pour-On Formulation

Aquatic Chronic 1; H410

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

Formaldehyde

50-00-0
200-001-8
605-001-00-5
01-2119488953-20

Flam. Gas 1B; H221
Acute Tox. 3; H301
Acute Tox. 2; H330
Acute Tox. 3; H311
Skin Corr. 1B; H314
Eye Dam. 1; H318
Skin Sens. 1A; H317
Mut. 2; H341
Carc. 1B; H350
STOT SE 3; H335

Specific concentration limit
Skin Corr. 1B; H314
>= 25 %
Skin Irrit. 2; H315
5 - < 25 %
Eye Irrit. 2; H319
5 - < 25 %
STOT SE 3; H335
>= 5 %
Skin Sens. 1A; H317
>= 0,2 %

Acute toxicity estimate

Acute oral toxicity: 100 mg/kg
Acute inhalation toxicity (gas): 100 ppm
Acute dermal toxicity: 270 mg/kg

< 0,1

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 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: Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.

If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

Risks: May cause an allergic skin reaction.

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

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: 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: Use only with adequate ventilation.
Advice on safe handling: Do not get on skin or clothing. Avoid breathing mist or vapours. Do not swallow. Avoid contact with eyes. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.

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 in accordance with the particular national regulations.

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

7.3 Specific end use(s)

Specific use(s): No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<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>Propylene glycol</td>
<td>57-55-6</td>
<td>TWA</td>
<td>25 ppm 79 mg/m³</td>
<td>FOR-2011-12-06-1358</td>
</tr>
<tr>
<td>deltamethrin (ISO)</td>
<td>52918-63-5</td>
<td>TWA</td>
<td>15 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Further information: DSEN, Skin</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>150 µg/100 cm²</td>
<td>Internal</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>TWA</td>
<td>0.5 ppm 0.6 mg/m³</td>
<td>FOR-2011-12-06-1358</td>
</tr>
</tbody>
</table>
Further information: Substances considered to be carcinogenic, Substances considered to evoke allergies when coming into touch with the eyes or airways or evoking allergies after coming into contact with the skin

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>1 ppm</td>
</tr>
<tr>
<td></td>
<td>1,2 mg/m³</td>
</tr>
<tr>
<td>FOR-2011-12-06-1358</td>
<td></td>
</tr>
</tbody>
</table>

Further information: Substances considered to be carcinogenic, Substances considered to evoke allergies when coming into touch with the eyes or airways or evoking allergies after coming into contact with the skin

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>0,3 ppm</td>
</tr>
<tr>
<td></td>
<td>0,37 mg/m³</td>
</tr>
<tr>
<td>2004/37/EC</td>
<td></td>
</tr>
</tbody>
</table>

Further information: Dermal sensitisation, Carcinogens or mutagens

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEL</td>
<td>0,6 ppm</td>
</tr>
<tr>
<td></td>
<td>0,74 mg/m³</td>
</tr>
<tr>
<td>2004/37/EC</td>
<td></td>
</tr>
</tbody>
</table>

Further information: Dermal sensitisation, Carcinogens or mutagens

**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>Propylene glycol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>168 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>10 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>50 mg/m³</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>9 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>0,375 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>240 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>0,75 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3,2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>102 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>4,1 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term local effects</td>
<td>0,037 mg/cm²</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>0,1 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term local effects</td>
<td>0,012 mg/cm²</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>Propylene glycol</td>
<td>Fresh water</td>
<td>260 mg/l</td>
</tr>
<tr>
<td></td>
<td>Freshwater - intermittent</td>
<td>183 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>26 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>20000 mg/l</td>
</tr>
</tbody>
</table>
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
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
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

Filter type: Particulates type (P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
Physical state: Aqueous solution, suspension
Deltamethrin Pour-On Formulation

Colour : white
Odour : No data available
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
pH : No data available
Viscosity : No data available
Viscosity, kinematic : No data available
Solubility(ies)
Water solubility : completely miscible
Partition coefficient: n-octanol/water : No data available
Vapour pressure : No data available
Relative density : No data available
Density : No data available
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 : 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
Not classified based on available information.

Product:
- Acute oral toxicity: Acute toxicity estimate: > 2.000 mg/kg
  Method: Calculation method
- Acute inhalation toxicity: Acute toxicity estimate: > 5 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
  Method: Calculation method

Components:
deltamethrin (ISO):
- Acute oral toxicity: LD50 (Rat): 66,7 mg/kg
  LD50 (Rat): 9 - 139 mg/kg
  LD50 (Mouse): 19 - 34 mg/kg
Deltamethrin Pour-On Formulation

Acute inhalation toxicity: LC50 (Rat): 0.8 mg/l
   Exposure time: 2 h
   Test atmosphere: dust/mist

Acute dermal toxicity: LD50 (Rabbit): 2000 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

Formaldehyde:
Acute oral toxicity: Acute toxicity estimate: 100 mg/kg
   Method: Expert judgement

   Acute inhalation toxicity: Acute toxicity estimate: 100 ppm
   Exposure time: 4 h
   Test atmosphere: gas
   Method: Expert judgement

Acute dermal toxicity: LD50 (Rabbit): 270 mg/kg
   Acute toxicity estimate: 270 mg/kg
   Method: Calculation method

Skin corrosion/irritation
Not classified based on available information.

Components:

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

Formaldehyde:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Corrosive after 3 minutes to 1 hour of exposure

Serious eye damage/eye irritation
Not classified based on available information.

Components:

Deltamethrin (ISO):
Species: Rabbit
Result: Moderate eye irritation
Formaldehyde:
Species: Rabbit
Result: Irreversible effects on the eye

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

Formaldehyde:
Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Method: OECD Test Guideline 429
Result: positive
Assessment: Probability or evidence of high skin sensitisation rate in humans

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
Deltamethrin Pour-On Formulation

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.7</td>
<td>27.08.2021</td>
<td>657791-00016</td>
<td>09.04.2021</td>
<td>02.05.2016</td>
</tr>
</tbody>
</table>

- **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**: positive

- **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

**Formaldehyde**:

- **Genotoxicity in vitro**
  **Test Type**: Bacterial reverse mutation assay (AMES)  
  **Result**: positive

- **Test Type**: Chromosome aberration test in vitro  
  **Result**: positive

- **Genotoxicity in vivo**
  **Test Type**: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
  **Species**: Rat  
  **Application Route**: Inhalation  
  **Result**: positive

- **Germ cell mutagenicity - Assessment**: Positive result(s) from in vivo mammalian somatic cell mutagenicity tests.

**Carcinogenicity**

Not classified based on available information.

**Components**:

**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
**Deltamethrin Pour-On Formulation**

**Result:** negative

**Species:** Dog, male and female

**Application Route:** oral (feed)

**Exposure time:** 2 Years

**NOAEL:** 1 mg/kg body weight

**Result:** negative

**Formaldehyde:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>Inhalation (gas)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>28 Months</td>
</tr>
</tbody>
</table>

**Result:** positive

**Carcinogenicity - Assessment:** Sufficient evidence of carcinogenicity in animal experiments

**Reproductive toxicity**

Not classified based on available information.

**Components:**

**Deltamethrin (ISO):**

**Effects on fertility**

Test Type: Three-generation reproduction toxicity study

- Species: Rat
- Application Route: Oral (feed)
- Early Embryonic Development: NOAEL: 50 mg/kg body weight
- Symptoms: No effects on fertility, Embryo-foetal toxicity
- Remarks: Significant toxicity observed in testing

Test Type: Two-generation reproduction toxicity study

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

Test Type: Fertility

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

**Effects on foetal development**

Test Type: Development

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

Test Type: Development

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

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

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

Formaldehyde:
Effects on foetal development: Test Type: Embryo-foetal development
Species: Rat
Application Route: inhalation (gas)
Result: negative

STOT - single exposure
Not classified based on available information.

Components:
deltamethrin (ISO):
Assessment: May cause respiratory irritation.

Formaldehyde:
Assessment: May cause respiratory irritation.

STOT - repeated exposure
Not classified based on available information.

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.

Formaldehyde:
Exposure routes: inhalation (gas)
Assessment: The substance or mixture is not classified as specific target organ toxicant, 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
  - **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

**Formaldehyde:**
- **Species:** Rat
  - **NOAEL:** 6 ppm
  - **LOAEL:** 10 ppm
  - **Application Route:** inhalation (gas)
  - **Exposure time:** 28 Days

**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:

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 (Mysisopsis 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 tox-): 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

Formaldehyde:

- Toxicity to fish:
  - LC50: 6,7 mg/l
  - Exposure time: 96 h
  - Remarks: Based on data from similar materials
- Toxicity to algae/aquatic plants:
  - EC50 (Desmodesmus subspicatus (green algae)): 4,89 mg/l
  - Exposure time: 72 h
  - Method: OECD Test Guideline 201
- Toxicity to microorganisms:
  - EC50: 34,1 mg/l
  - Exposure time: 120 h

Toxicity to fish (Chronic toxicity):

- NOEC: >= 48 mg/l
  - Exposure time: 28 d
  - Species: Oryzias latipes (Orange-red killifish)
- NOEC: >= 6,4 mg/l
  - Exposure time: 21 d
  - Species: Daphnia magna (Water flea)
  - Method: OECD Test Guideline 211

12.2 Persistence and degradability

Components:

deltamethrin (ISO):

Stability in water:

- Hydrolysis: 0 % (30 d)

Formaldehyde:

- Biodegradability:
  - Result: Readily biodegradable.
  - Biodegradation: 91 %
  - Exposure time: 14 d
Deltamethrin Pour-On Formulation

12.3 Bioaccumulative potential

Components:
- **deltamethrin (ISO):**
  - Bioaccumulation: Species: Lepomis macrochirus (Bluegill sunfish)
  - Bioconcentration factor (BCF): 1.800
  - Partition coefficient: n-octanol/water: log Pow: 4.6

Formaldehyde:
- Partition coefficient: n-octanol/water: log Pow: 0.35

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: 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.
Contaminated packaging:

Empty containers should be taken to an approved waste handling site for recycling or disposal. If not otherwise specified: Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number or ID number

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<tr>
<th>ADN</th>
<th>UN 3082</th>
</tr>
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<tr>
<td>ADR</td>
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<tr>
<td>RID</td>
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<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>ADN</th>
<th>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (deltamethrin (ISO))</th>
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<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (deltamethrin (ISO))</td>
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<td>IMDG</td>
<td>ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (deltamethrin (ISO))</td>
</tr>
<tr>
<td>IATA</td>
<td>Environmentally hazardous substance, liquid, n.o.s. (deltamethrin (ISO))</td>
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14.3 Transport hazard class(es)

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<td>IMDG</td>
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<td>IATA</td>
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14.4 Packing group

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<td></td>
<td>Hazard Identification Number: 90</td>
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<td></td>
<td>Labels: 9</td>
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</tbody>
</table>

ADR
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| 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

**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 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
Formaldehyde (Number on list 72, 28)

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).
REACH - List of substances subject to authorisation (Annex XIV).
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.
Regulation (EU) 2019/1021 on persistent organic pollutants (recast).

<table>
<thead>
<tr>
<th>E1</th>
<th>ENVIRONMENTAL HAZARDS</th>
<th>Quantity 1</th>
<th>Quantity 2</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>100 t</td>
<td>200 t</td>
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</table>

Other regulations:
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
H221: Flammable gas.
H301: Toxic if swallowed.
H311: Toxic in contact with skin.
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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Revision Date: 27.08.2021
SDS Number: 657791-00016
Date of last issue: 09.04.2021
Date of first issue: 02.05.2016

H314 : Causes severe skin burns and eye damage.
H317 : May cause an allergic skin reaction.
H318 : Causes serious eye damage.
H319 : Causes serious eye irritation.
H330 : Fatal if inhaled.
H331 : Toxic if inhaled.
H335 : May cause respiratory irritation.
H361fd : Suspected of causing genetic defects.
H372 : Causes damage to organs through prolonged or repeated exposure if inhaled.
H373 : 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.

Full text of other abbreviations

Acute Tox. : Acute toxicity
Aquatic Acute : Short-term (acute) aquatic hazard
Aquatic Chronic : Long-term (chronic) aquatic hazard
Carc. : Carcinogenicity
Eye Dam. : Serious eye damage
Eye Irrit. : Eye irritation
Flam. Gas : Flammable gases
Muta. : Germ cell mutagenicity
Repr. : Reproductive toxicity
Skin Corr. : Skin corrosion
Skin Sens. : Skin sensitisation
STOT RE: Specific target organ toxicity - repeated exposure
STOT SE: Specific target organ toxicity - single exposure
2004/37/EC: Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work

FOR-2011-12-06-1358 : Norway. Occupational Exposure limits
2004/37/EC / STEL : Short term exposure limit
2004/37/EC / TWA : Long term exposure limit
FOR-2011-12-06-1358 / TWA : Long term exposure limit
FOR-2011-12-06-1358 / T : Ceiling

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; 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

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according to Regulation (EC) No. 1907/2006

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- 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 - 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; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture: Classification procedure:

Skin Sens. 1 H317 Calculation method
Aquatic Acute 1 H400 Calculation method
Aquatic Chronic 1 H410 Calculation method

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