SECTION 1. IDENTIFICATION

Product name: Lambda-Cyhalothrin / Decamethylcyclopentasiloxane Formulation

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

Recommended use of the chemical and restrictions on use
Recommended use: Veterinary product
Restrictions on use: Not applicable

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Acute toxicity (Inhalation): Category 4
Acute toxicity (Dermal): Category 4
Eye irritation: Category 2B
Specific target organ toxicity - single exposure: Category 1 (Nervous system)

GHS label elements
Hazard pictograms:

Signal Word: Danger

Hazard Statements:
H312 + H332 Harmful in contact with skin or if inhaled.
H320 Causes eye irritation.
H370 Causes damage to organs (Nervous system).

Precautionary Statements:
Prevention:
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves and clothing.
Response:
P302 + P352 + P312 IF ON SKIN: Wash with plenty of soap and water. Call a doctor if you feel unwell.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307 + P311 IF exposed: Call a doctor.
P337 + P313 If eye irritation persists: Get medical attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Storage:
P405 Store locked up.

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

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn oil</td>
<td>8001-30-7</td>
<td>&gt;= 90 - &lt;= 100</td>
</tr>
<tr>
<td>Decamethylcyclopentasiloxane</td>
<td>541-02-6</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td>lambda-cyhalothrin (ISO)</td>
<td>91465-08-6</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
</tbody>
</table>

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice : In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

In case of skin contact : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.
In case of eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention.

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

Most important symptoms and effects, both acute and delayed: Harmful in contact with skin or if inhaled. Causes eye irritation. Causes damage to organs.

Protection of first-aiders: First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).

Notes to physician: Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

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

Unsuitable extinguishing media: None known.

Specific hazards during firefighting: Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides
Nitrogen oxides (NOx)
Chlorine compounds
Fluorine compounds
Silicon oxides
Formaldehyde

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.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

Environmental precautions: Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g., by containment or
Method and materials for containment and cleaning up: Soak up with inert absorbent material.
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Technical measures: See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation: If sufficient ventilation is unavailable, use with local exhaust ventilation.

Advice on safe handling: Do not get on skin or clothing.
Do not breathe mist or vapors.
Do not swallow.
Do not get in eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.
Keep container tightly closed.
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the environment.
Do not breathe decomposition products.

Conditions for safe storage: Keep in properly labeled containers.
Store locked up.
Keep tightly closed.
Keep in a cool, well-ventilated place.
Store in accordance with the particular national regulations.

Materials to avoid: Do not store with the following product types:
Strong oxidizing agents
Self-reactive substances and mixtures
Organic peroxides
Explosives
Gases
SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corn oil</td>
<td>8001-30-7</td>
<td>TWA (mist - total)</td>
<td>10 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (mist - respirable)</td>
<td>5 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td>Decamethylcyclopentasiloxane</td>
<td>541-02-6</td>
<td>TWA</td>
<td>10 ppm</td>
<td>US WEEL</td>
</tr>
<tr>
<td>lambda-cyhalothrin (ISO)</td>
<td>91465-08-6</td>
<td>TWA</td>
<td>5 µg/m³ (OEB 4)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information: Skin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wipe limit 50 µg/100 cm²</td>
<td>Internal</td>
</tr>
</tbody>
</table>

Occupational exposure limits of decomposition products

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formaldehyde</td>
<td>50-00-0</td>
<td>TWA</td>
<td>0.1 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>0.3 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.016 ppm</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>0.1 ppm</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL</td>
<td>0.75 ppm</td>
<td>OSHA CARC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>2 ppm</td>
<td>OSHA CARC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.016 ppm (Formaldehyde)</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>0.1 ppm (Formaldehyde)</td>
<td>NIOSH REL</td>
</tr>
</tbody>
</table>

Engineering measures: All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment. Essentially no open handling permitted. Use closed processing systems or containment technologies. If handled in a laboratory, use a properly designed biosafety cabinet, fume hood, or other containment device if the potential exists for aerosolization. If this potential does not exist, handle over lined trays or benchtops.

Personal protective equipment

Respiratory protection: General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled
release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

**Hand protection**

**Material**

Chemical-resistant gloves

**Remarks**

Consider double gloving.

**Eye protection**

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

**Skin and body protection**

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

**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.
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.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

liquid

**Color**

gold

**Odor**

oily

**Odor Threshold**

No data available

**pH**

No data available

**Melting point/freezing point**

No data available

**Initial boiling point and boiling range**

No data available

**Flash point**

> 199.9 °F / > 93.3 °C
Method: Tag closed cup

**Evaporation rate**

No data available
Flammability (solid, gas) : Not applicable
Flammability (liquids) : No data available
Upper explosion limit / Upper flammability limit : No data available
Lower explosion limit / Lower flammability limit : No data available
Vapor pressure : No data available
Relative vapor density : No data available
Relative density : No data available
Density : 0.924 - 0.974 g/cm³ (68 °F / 20 °C)
Solubility(ies)
Water solubility : insoluble
Partition coefficient: n-octanol/water : No data available
Autoignition temperature : No data available
Decomposition temperature : No data available
Viscosity
Viscosity, kinematic : 61.69 - 73.9 mm²/s
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.
Molecular weight : Not applicable
Particle size : Not applicable

SECTION 10. STABILITY AND REACTIVITY
Reactivity : Not classified as a reactivity hazard.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reactions
Vapors may form explosive mixture with air. Can react with strong oxidizing agents. Hazardous decomposition products will be formed at elevated temperatures.
Conditions to avoid : None known.
Incompatible materials : Oxidizing agents
Hazardous decomposition products
Thermal decomposition : Formaldehyde

SECTION 11. TOXICOLOGICAL INFORMATION

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

Acute toxicity
Harmful in contact with skin or if inhaled.

Product:
Acute oral toxicity : LD50 (Rat): > 9,500 mg/kg
Acute inhalation toxicity : LC50 (Rat): > 4.1 mg/l
Remarks: No mortality observed at this dose.

Acute dermal toxicity : LD50 (Rabbit): > 1,900 mg/kg

Components:

Corn oil:
Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Decamethylcyclopentasiloxane:
Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity : LC50 (Rat): 8.67 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist
   Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Lambda-cyhalothrin (ISO):
Acute oral toxicity : LD50 (Rat): 56 - 79 mg/kg
   LD50 (Mouse): 20 mg/kg
Acute inhalation toxicity : LC50 (Rat): 0.06 mg/l
   Exposure time: 4 h
   Test atmosphere: dust/mist
Lambda-Cyhalothrin / Decamethylcyclopentasiloxane Formulation

Acute dermal toxicity: LD50 (Rat): 632 - 696 mg/kg
Acute toxicity (other routes of administration): LD50 (Rat): 250 - 750 mg/kg
Application Route: Intraperitoneal

Skin corrosion/irritation
Not classified based on available information.

Product:
Species: Rabbit
Result: Mild skin irritation

Components:
Corn oil:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation
Remarks: Based on data from similar materials

Decamethylcyclopentasiloxane:
Species: Rabbit
Result: No skin irritation

Lambda-cyhalothrin (ISO):
Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Causes eye irritation.

Product:
Species: Rabbit
Result: Mild eye irritation

Components:
Corn oil:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
Remarks: Based on data from similar materials

Decamethylcyclopentasiloxane:
Species: Rabbit
Result: No eye irritation
Lambda-Cyhalothrin / Decamethylcyclopentasiloxane Formulation

Species: Rabbit
Result: Mild eye irritation

Respiratory or skin sensitization

Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Product:
Species: Guinea pig
Result: Not a skin sensitizer.

Components:

Corn oil:
Test Type: Human repeat insult patch test (HRIPT)
Routes of exposure: Skin contact
Result: negative

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

lambda-cyhalothrin (ISO):
Test Type: Magnusson-Kligman-Test
Routes of exposure: Dermal
Species: Guinea pig
Result: Not a skin sensitizer.

Germ cell mutagenicity
Not classified based on available information.

Components:

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

Decamethylcyclopentasiloxane:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative
Lambda-Cyhalothrin / Decamethylcyclopentasiloxane 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>7.0</td>
<td>09/30/2023</td>
<td>1078734-00018</td>
<td>04/04/2023</td>
<td>11/18/2016</td>
</tr>
</tbody>
</table>

### Genotoxicity in vitro

- **Test Type:** Chromosome aberration test in vitro  
  **Method:** OECD Test Guideline 473  
  **Result:** negative

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

#### lambda-cyhalothrin (ISO):

<table>
<thead>
<tr>
<th>Genotoxicity in vivo</th>
</tr>
</thead>
</table>
| : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
  **Species:** Rat  
  **Application Route:** inhalation (vapor)  
  **Method:** OECD Test Guideline 474  
  **Result:** negative

- **Test Type:** Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo  
  **Species:** Rat  
  **Application Route:** Inhalation  
  **Method:** OECD Test Guideline 486  
  **Result:** negative

### Genotoxicity in vivo

- **Test Type:** Micronucleus test  
  **Species:** Mouse  
  **Cell type:** Bone marrow  
  **Application Route:** Intraperitoneal  
  **Result:** negative

### Carcinogenicity

Not classified based on available information.

### Components:

#### lambda-cyhalothrin (ISO):

<table>
<thead>
<tr>
<th>Species</th>
<th>Application Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mouse</td>
<td>oral (feed)</td>
</tr>
</tbody>
</table>
### Lambda-Cyhalothrin / Decamethylcyclopentasiloxane Formulation

<table>
<thead>
<tr>
<th>Exposure time</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Years</td>
<td>negative</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Result</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>oral (feed)</td>
<td>2 Years</td>
<td>negative</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**IARC**
No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA**
No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

**NTP**
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### Reproductive toxicity
Not classified based on available information.

**Components:**

**Decamethylcyclopentasiloxane:**

**Effects on fertility**
- Test Type: Two-generation reproduction toxicity study
- Species: Rat
- Method: OPPTS 870.3800
- Result: negative

**Effects on fetal development**
- Test Type: Two-generation reproduction toxicity study
- Species: Rat
- Method: OPPTS 870.3800
- Result: negative

**lambda-cyhalothrin (ISO):**

**Effects on fertility**
- Test Type: Three-generation study
- Species: Rat
- Application Route: oral (feed)
- General Toxicity Parent: NOAEL: 2 mg/kg body weight
- General Toxicity F1: LOAEL: 6.7 mg/kg body weight
- Symptoms: Reduced offspring weight gain.
- Result: No effects on fertility.
- Remarks: Based on data from similar materials

**Effects on fetal development**
- Test Type: Development
- Species: Rat
- Application Route: Oral
- General Toxicity Maternal: NOAEL: 10 mg/kg body weight
Developmental Toxicity: LOAEL: 15 mg/kg body weight
Result: No effects on fetal development., Reduced maternal body weight gain., Reduced fetal weight.
Remarks: Based on data from similar materials

Test Type: Development
Species: Rabbit
Application Route: Oral
General Toxicity Maternal: NOAEL: 10 mg/kg body weight
Developmental Toxicity: NOAEL: 30 mg/kg body weight
Result: No effects on fetal development., Reduced maternal body weight gain., Reduced fetal weight.
Remarks: Based on data from similar materials

STOT-single exposure
Causes damage to organs (Nervous system).

Components:

lambda-cyhalothrin (ISO):
Target Organs : Nervous system
Assessment : Causes damage to organs.

Decamethylcyclopentasiloxane:
Species : Rat
NOAEL : > 1,000 mg/kg
LOAEL : > 1,000 mg/kg
Application Route : Ingestion
Method : OECD Test Guideline 408

Symptoms : reduced body weight gain, reduced food consumption
Species : Rat  
NOAEL : 10 mg/kg  
LOAEL : 50 mg/kg  
Application Route : Dermal  
Exposure time : 21 d  
Target Organs : Nervous system

Species : Rat  
NOAEL : 0.08 mg/kg  
LOAEL : 0.9 mg/kg  
Application Route : Inhalation  
Exposure time : 21 d  
Target Organs : Nervous system

Species : Dog  
NOAEL : 0.1 mg/kg  
LOAEL : 0.5 mg/kg  
Application Route : Oral  
Exposure time : 1 y  
Target Organs : Nervous system  
Symptoms : Gastrointestinal disturbance, Vomiting, Convulsions, ataxia, Liver effects

Aspiration toxicity  
Not classified based on available information.

Experience with human exposure

Product:  
Skin contact : Symptoms: May cause, Local irritation  
Eye contact : Symptoms: irritating

Components:  
lambda-cyhalothrin (ISO):  
Inhalation : Symptoms: Cough, Local irritation, sneezing  
Skin contact : Symptoms: Skin irritation, tingling, superficial burning sensation, Local irritation  
Remarks: Can be absorbed through skin.

Eye contact : Symptoms: Eye irritation  
Ingestion : Symptoms: Gastrointestinal disturbance

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:  
Corn oil:  
Toxicity to fish : LL50 (Danio rerio (zebra fish)): > 100 mg/l  
Exposure time: 96 h
### Lambda-Cyhalothrin / Decamethylcyclopentasiloxane Formulation

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<thead>
<tr>
<th>Version</th>
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</tbody>
</table>

#### Toxicity to daphnia and other aquatic invertebrates

**Method:** ISO 7346/1
**Remarks:** Based on data from similar materials

**Toxicity to daphnia and other aquatic invertebrates:**
**EL50 (Daphnia magna (Water flea)):** > 100 mg/l
**Exposure time:** 48 h
**Test substance:** Water Accommodated Fraction
**Remarks:** Based on data from similar materials

#### Toxicity to algae/aquatic plants

**Toxicity to algae/aquatic plants:**
**EL50 (Desmodesmus subspicatus (green algae)):** > 100 mg/l
**Exposure time:** 72 h
**Test substance:** Water Accommodated Fraction
**Remarks:** Based on data from similar materials

#### Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):**
**NOELR (Daphnia magna (Water flea)):** > 1 mg/l
**Exposure time:** 21 d
**Test substance:** Water Accommodated Fraction
**Method:** OECD Test Guideline 211
**Remarks:** Based on data from similar materials

### Decamethylcyclopentasiloxane

| Toxicity to fish | LC50 (Oncorhynchus mykiss (rainbow trout)):  > 16 µg/l
|------------------|------------------------------------------------------------------------
| Exposure time    | 96 h                                                                     |
| Remarks          | No toxicity at the limit of solubility.                                  |

#### Toxicity to daphnia and other aquatic invertebrates

**Toxicity to daphnia and other aquatic invertebrates:**
**EC50 (Daphnia magna (Water flea)):** > 2.9 µg/l
**Exposure time:** 48 h
**Method:** OECD Test Guideline 202
**Remarks:** No toxicity at the limit of solubility.

#### Toxicity to algae/aquatic plants

**Toxicity to algae/aquatic plants:**
**ErC50 (Pseudokirchneriella subcapitata (green algae)):** > 12 µg/l
**Exposure time:** 96 h
**Method:** OECD Test Guideline 201
**Remarks:** No toxicity at the limit of solubility.

**EC10 (Pseudokirchneriella subcapitata (green algae)):** > 12 µg/l
**Exposure time:** 96 h
**Method:** OECD Test Guideline 201
**Remarks:** No toxicity at the limit of solubility.

#### Toxicity to fish (Chronic toxicity)

**Toxicity to fish (Chronic toxicity):**
**NOEC (Oncorhynchus mykiss (rainbow trout)):** 14 µg/l
**Exposure time:** 90 d
**Method:** OECD Test Guideline 210
**Remarks:** No toxicity at the limit of solubility.

#### Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

**Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):**
**NOEC (Daphnia magna (Water flea)):** 15 µg/l
**Exposure time:** 21 d
**Method:** OECD Test Guideline 211
**Remarks:** No toxicity at the limit of solubility.
SAFETY DATA SHEET 
according to the OSHA Hazard Communication Standard 

Lambda-Cyhalothrin / Decamethylcyclopenta-siloxane Formulation

Toxicity to microorganisms: EC50: > 2,000 mg/l 
Exposure time: 3 h 
Method: 88/302/EC

Exposure time: 3 h 
Method: OECD Test Guideline 203 
Remarks: Based on data from similar materials

Exposure time: 96 h 
Method: OECD Test Guideline 203 
Remarks: Based on data from similar materials

Exposure time: 96 h 
Method: OECD Test Guideline 203 
Remarks: Based on data from similar materials

Exposure time: 96 h 
Method: OECD Test Guideline 203 
Remarks: Based on data from similar materials

Exposure time: 48 h 
Method: OECD Test Guideline 202 
Remarks: Based on data from similar materials

Exposure time: 32 d 
Method: OECD Test Guideline 210 
Remarks: Based on data from similar materials

Exposure time: 21 d 
Method: OECD Test Guideline 211 
Remarks: Based on data from similar materials

Persistence and degradability

Components:

Corn oil:

Biodegradability: Result: Readily biodegradable. 
Remarks: Based on data from similar materials

Decamethylcyclopentasiloxane:

Biodegradability: Result: Not readily biodegradable. 
Biodegradation: 0.14 % 
Exposure time: 28 d 
Method: OECD Test Guideline 310

Bioaccumulative potential

Components:

Corn oil:
Partition coefficient: n-octanol/water : log Pow: > 4
Method: OECD Test Guideline 117

Decamethylcyclopentasiloxane:
Bioaccumulation : Species: Pimephales promelas (fathead minnow)
Bioconcentration factor (BCF): 7,060 - 13,300
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water : log Pow: 8.023

lambda-cyhalothrin (ISO):
Bioaccumulation : Bioconcentration factor (BCF): 2,240
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water : log Pow: 7.0 (68 °F / 20 °C)

Mobility in soil

Components:
lambda-cyhalothrin (ISO):
Distribution among environmental compartments : log Koc: 5.5

Other adverse effects
No data available

**SECTION 13. DISPOSAL CONSIDERATIONS**

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

International Regulations

**UNRTDG**
UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (lambda-cyhalothrin (ISO))
Class : 9
Packing group : III
Labels : 9
Environmentally hazardous : yes

IATA-DGR
Lambda-Cyhalothrin / Decamethylcyclopenta-siloxane Formulation

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s. (lambda-cyhalothrin (ISO))
Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964
Environmentally hazardous : yes

IMDG-Code
UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (lambda-cyhalothrin (ISO))
Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

49 CFR
UN/ID/NA number : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s. (lambda-cyhalothrin (ISO))
Class : 9
Packing group : III
Labels : CLASS 9
ERG Code : 171
Marine pollutant : yes(lambda-cyhalothrin (ISO))
Remarks : Above applies only to containers over 119 gallons or 450 liters. Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity
This material does not contain any components with a CERCLA RQ.
SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

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SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity
This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards
- Acute toxicity (any route of exposure)
- Specific target organ toxicity (single or repeated exposure)
- Serious eye damage or eye irritation

SARA 313
- This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Pennsylvania Right To Know
- Corn oil 8001-30-7
- Decamethylcyclopentasiloxane 541-02-6

California Prop. 65
WARNING: This product can expose you to chemicals including Formaldehyde, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Permissible Exposure Limits for Chemical Contaminants
- Corn oil 8001-30-7

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

SECTION 16. OTHER INFORMATION

Further information
SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

Lambda-Cyhalothrin / Decamethylcyclopenta-siloxane Formulation

Version: 7.0  Revision Date: 09/30/2023  SDS Number: 1078734-00018  Date of last issue: 04/04/2023
Date of first issue: 11/18/2016

NFPA 704:

Flammability 1
Health 1
Instability 0
Special hazard

HMIS® IV:

HEALTH / 4
FLAMMABILITY 1
PHYSICAL HAZARD 0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the """" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL : USA. NIOSH Recommended Exposure Limits
OSHA CARC : OSHA Specifically Regulated Chemicals/Carcinogens
US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)
ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit
NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / C : Ceiling value not be exceeded at any time.
OSHA CARC / PEL : Permissible exposure limit (PEL)
OSHA CARC / STEL : Excursion limit
US WEEL / TWA : 8-hr TWA

AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Oth-
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generated by: Merck

Lambda-Cyhalothrin / Decamethylcyclopenta-siloxane Formulation

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

Revision Date: 09/30/2023

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.

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