

## Lambda-Cyhalothrin / Piperonyl Butoxide Formulation

Version 4.10      Revision Date: 04/04/2023      SDS Number: 1366473-00018      Date of last issue: 10/01/2022  
Date of first issue: 03/01/2017

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### SECTION 1. IDENTIFICATION

Product name : Lambda-Cyhalothrin / Piperonyl Butoxide 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


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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity (Oral) : Category 4  
Skin irritation : Category 2  
Eye irritation : Category 2B  
Specific target organ toxicity : Category 1 (Nervous system)  
- single exposure

#### GHS label elements

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H302 Harmful if swallowed.  
H315 + H320 Causes skin and 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.  
P280 Wear protective gloves.  
**Response:**  
P301 + P312 + P330 IF SWALLOWED: Call a doctor if you feel

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unwell. Rinse mouth.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
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.  
P332 + P313 If skin irritation occurs: Get medical attention.  
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

Chemical name	CAS-No.	Concentration (% w/w)
Corn oil	8001-30-7	>= 90 - <= 100
2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether	51-03-6	>= 5 - < 10
lambda-cyhalothrin (ISO)	91465-08-6	>= 1 - < 5

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.  
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.

If swallowed : If swallowed, DO NOT induce vomiting unless directed to do

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		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 if swallowed. Causes skin and 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.

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### SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO <sub>2</sub> ) Dry chemical
Unsuitable extinguishing media	:	None known.
Specific hazards during fire fighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Nitrogen oxides (NO <sub>x</sub> ) Chlorine compounds Fluorine compounds
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.

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### 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 oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up	:	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

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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 : Use only with adequate 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  
Do not eat, drink or smoke when using this product.  
Take care to prevent spills, waste and minimize release to the environment.
- Conditions for safe storage : Keep in properly labeled containers.  
Store locked up.  
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

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Corn oil	8001-30-7	TWA (mist - total)	10 mg/m <sup>3</sup>	NIOSH REL
		TWA (mist - respirable)	5 mg/m <sup>3</sup>	NIOSH REL
2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether	51-03-6	TWA	4 mg/m <sup>3</sup> (OEB 1)	Internal
lambda-cyhalothrin (ISO)	91465-08-6	TWA	5 µg/m <sup>3</sup> (OEB 4)	Internal
Further information: Skin				
		Wipe limit	50 µg/100 cm <sup>2</sup>	Internal

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**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.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance : liquid

Color : clear, light yellow

Odor : mild, oily

Odor Threshold : No data available

pH : 6.16

Melting point/freezing point : No data available

Initial boiling point and boiling range : No data available

Flash point : 221.9 °F / 105.5 °C

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Flammability (liquids) : Not applicable

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 : 0.9326

Density : No data available

Solubility(ies)  
Water solubility : No data available

Partition coefficient: n-octanol/water : No data available

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity  
Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

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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 : Can react with strong oxidizing agents.  
Conditions to avoid : None known.  
Incompatible materials : Oxidizing agents  
Hazardous decomposition products : No hazardous decomposition products are known.

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Information on likely routes of exposure

Inhalation  
Skin contact  
Ingestion  
Eye contact

#### Acute toxicity

Harmful if swallowed.

#### **Product:**

Acute oral toxicity : LD50 (Rat): 2,000 mg/kg  
TDL<sub>0</sub> (Rat): 300 mg/kg  
Remarks: No mortality observed at this dose.

Acute inhalation toxicity : Acute toxicity estimate: 6 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method

Acute dermal toxicity : LD50 (Rat): > 2,000 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

##### **2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 423

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Acute inhalation toxicity : LC50 (Rat): > 5.2 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Method: OECD Test Guideline 402

**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

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**

Causes skin irritation.

**Product:**

Species : Rabbit  
Result : irritating

**Components:****Corn oil:**

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

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

Species : Rabbit  
Method : OECD Test Guideline 404  
Result : No skin irritation

Assessment : Repeated exposure may cause skin dryness or cracking.

**lambda-cyhalothrin (ISO):**

Species : Rabbit  
Result : No skin irritation

**Serious eye damage/eye irritation**

Causes eye irritation.



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**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

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

Species : Rabbit  
Result : Irritation to eyes, reversing within 21 days  
Method : OECD Test Guideline 405

**lambda-cyhalothrin (ISO):**

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:**

Test Type : Local lymph node assay (LLNA)  
Routes of exposure : Dermal  
Assessment : Does not cause skin sensitization.  
Result : negative

Test Type : Magnusson-Kligman-Test  
Routes of exposure : Dermal  
Result : Not a skin sensitizer.

**Components:****Corn oil:**

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

**2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

Test Type : Maximization Test  
Routes of exposure : Skin contact  
Species : Guinea pig

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Method : OECD Test Guideline 406  
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

#### 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:

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

#### lambda-cyhalothrin (ISO):

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

Test Type: Chromosomal aberration  
Test system: Human lymphocytes  
Result: negative

Test Type: unscheduled DNA synthesis assay  
Test system: rat hepatocytes  
Result: negative

Test Type: In vitro mammalian cell gene mutation test  
Test system: mouse lymphoma cells  
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:

#### 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:

Species : Rat

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Application Route : Ingestion  
 Exposure time : 107 weeks  
 Method : OECD Test Guideline 451  
 Result : negative

### lambda-cyhalothrin (ISO):

Species : Mouse  
 Application Route : oral (feed)  
 Exposure time : 2 Years  
 Result : negative  
 Remarks : Based on data from similar materials

Species : Rat  
 Application Route : oral (feed)  
 Exposure time : 2 Years  
 Result : negative  
 Remarks : Based on data from similar materials

**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:

#### 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
 Species: Rat  
 Application Route: Ingestion  
 Result: negative

Effects on fetal development : Test Type: Embryo-fetal development  
 Species: Rat  
 Application Route: Ingestion  
 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

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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:

#### **2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

Assessment : May cause respiratory irritation.

#### **lambda-cyhalothrin (ISO):**

Target Organs : Nervous system  
Assessment : Causes damage to organs.

### STOT-repeated exposure

Not classified based on available information.

### Repeated dose toxicity

#### Components:

#### **Corn oil:**

Species : Rat  
NOAEL : > 300 mg/kg  
Application Route : Ingestion  
Exposure time : 28 Days  
Remarks : Based on data from similar materials

#### **2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

Species : Rat  
NOAEL : 1,323 mg/kg  
Application Route : Ingestion  
Exposure time : 7 Weeks

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### lambda-cyhalothrin (ISO):

Species	: Dog
NOAEL	: 2.5 mg/kg
LOAEL	: 12.5 mg/kg
Application Route	: oral (feed)
Exposure time	: 90 d
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

#### 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

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

#### Corn oil:

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- Toxicity to fish : LL50 (Danio rerio (zebra fish)): > 100 mg/l  
Exposure time: 96 h  
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  
Method: Directive 67/548/EEC, Annex V, C.2.  
Remarks: Based on data from similar materials
- Toxicity to algae/aquatic plants : EL50 (Desmodesmus subspicatus (green algae)): > 100 mg/l  
Exposure time: 72 h  
Test substance: Water Accommodated Fraction  
Method: Directive 67/548/EEC, Annex V, C.3.  
Remarks: Based on data from similar materials
- 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

### 2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:

- Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): 3.94 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.51 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 3.89 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- NOEC (Pseudokirchneriella subcapitata (green algae)): 0.824 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.18 mg/l  
Exposure time: 35 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.03 mg/l  
Exposure time: 21 d
- Toxicity to microorganisms : EC50: > 1,000 mg/l  
Exposure time: 3 h  
Method: OECD Test Guideline 209

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### lambda-cyhalothrin (ISO):

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.00019 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203  
Remarks: Based on data from similar materials
- LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.00021 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203  
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.00004 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202  
Remarks: Based on data from similar materials
- Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.000062 mg/l  
Exposure time: 32 d  
Method: OECD Test Guideline 210  
Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.0035 µg/l  
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

##### **2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

- Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

### Bioaccumulative potential

#### Components:

##### **Corn oil:**

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

##### **2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether:**

- Partition coefficient: n-octanol/water : log Pow: 5

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octanol/water

### 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.  
(2-(2-butoxyethoxy)ethyl 6-propylpiperonyl ether, lambda-cyhalothrin (ISO))

Class : 9

Packing group : III

Labels : 9

#### IATA-DGR

UN/ID No. : UN 3082

Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.  
(2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether, lambda-cyhalothrin (ISO))

Class : 9

Packing group : III

Labels : Miscellaneous

Packing instruction (cargo aircraft) : 964

Packing instruction (passenger aircraft) : 964



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Environmentally hazardous : yes

### IMDG-Code

UN number : UN 3082  
 Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.  
 (2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether, 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.  
 (2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether, lambda-cyhalothrin (ISO))  
 Class : 9  
 Packing group : III  
 Labels : CLASS 9  
 ERG Code : 171  
 Marine pollutant : yes(2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether, 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.

### 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)

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Skin corrosion or irritation  
 Serious eye damage or eye irritation

### SARA 313

: The following components are subject to reporting levels established by SARA Title III, Section 313:

2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether	51-03-6	>= 5 - < 10 %
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### US State Regulations

#### Pennsylvania Right To Know

Corn oil	8001-30-7
2-(2-Butoxyethoxy)ethyl 6-propylpiperonyl ether	51-03-6

#### California Permissible Exposure Limits for Chemical Contaminants

Corn oil	8001-30-7
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#### The ingredients of this product are reported in the following inventories:

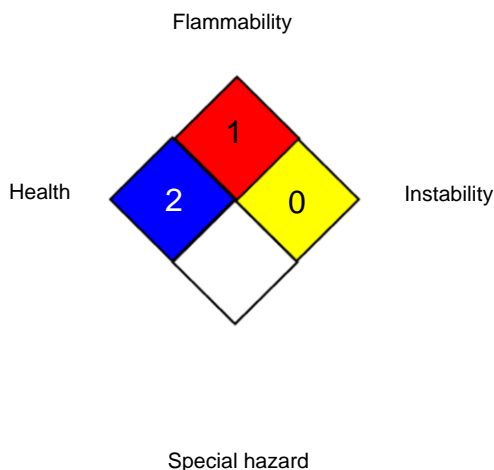
AICS	: not determined
DSL	: not determined
IECSC	: not determined

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## SECTION 16. OTHER INFORMATION

### Further information

## Lambda-Cyhalothrin / Piperonyl Butoxide Formulation

Version  
4.10Revision Date:  
04/04/2023SDS Number:  
1366473-00018Date of last issue: 10/01/2022  
Date of first issue: 03/01/2017**NFPA 704:****HMIS® IV:**

<b>HEALTH</b>	/	<b>4</b>
<b>FLAMMABILITY</b>		<b>1</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>

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**

NIOSH REL : USA. NIOSH Recommended Exposure Limits  
 NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek

AICC - 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; IECS - 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 Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amend-

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ments and Reauthorization Act; SDS - Safety Data Sheet; 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

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Revision Date : 04/04/2023

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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