SAFETY DATA SHEET
according to the Hazardous Products Regulations

Cypermethrin Liquid Formulation

Version 1.4  Revision Date: 09/30/2023  SDS Number: 10849847-00005  Date of last issue: 03/02/2023
Date of first issue: 09/12/2022

SECTION 1. IDENTIFICATION

Product name: Cypermethrin Liquid Formulation
Other means of identification: No data available

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 Hazardous Products Regulations
Skin sensitization: Sub-category 1A
Carcinogenicity: Category 1B
Reproductive toxicity: Category 2
Specific target organ toxicity - single exposure: Category 2 (Nervous system)

GHS label elements
Hazard pictograms:

Signal Word: Danger

Hazard Statements:
H317 May cause an allergic skin reaction.
H350 May cause cancer.
H361f Suspected of damaging fertility.
H371 May cause damage to organs (Nervous system).

Precautionary Statements:

Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.

P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:
P302 + P352 If ON SKIN: Wash with plenty of water.
P308 + P311 If exposed or concerned: Call a doctor.
P333 + P313 If skin irritation or rash occurs: 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

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components</td>
<td></td>
</tr>
<tr>
<td>Chemical name</td>
<td>Common Name/Synonym</td>
</tr>
<tr>
<td>Propylene glycol</td>
<td>1,2-Propanediol</td>
</tr>
<tr>
<td>Cypermethrin</td>
<td>No data available</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>Methyl aldehyde</td>
</tr>
</tbody>
</table>

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 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.
Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed:
May cause an allergic skin reaction.
May cause cancer.
Suspected of damaging fertility.
May cause 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 fire fighting:
Exposure to combustion products may be a hazard to health.

Hazardous combustion products:
- Carbon oxides
- Nitrogen oxides (NOx)

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 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 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.
Avoid contact with 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.
Conditions for safe storage : Keep in properly labeled containers.
Store locked up.
Keep tightly closed.
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>Propylene glycol</td>
<td>57-55-6</td>
<td>TWA (Vapour and aerosols)</td>
<td>50 ppm 155 mg/m³</td>
<td>CA ON OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (aerosol)</td>
<td>10 mg/m³</td>
<td>CA ON OEL</td>
</tr>
<tr>
<td>Cypermethrin</td>
<td>52315-07-8</td>
<td>TWA</td>
<td>50 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Further information: DSEN, Skin</td>
<td>Wipe limit 100 µg/100 cm²</td>
<td>Internal</td>
</tr>
</tbody>
</table>
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Cypermethrin Liquid Formulation

<table>
<thead>
<tr>
<th>Formaldehyde</th>
<th>50-00-0</th>
<th>TWA</th>
<th>0.75 ppm 0.9 mg/m³</th>
<th>CA AB OEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(c)</td>
<td>1 ppm 1.3 mg/m³</td>
<td>CA AB OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.1 ppm</td>
<td>CA BC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>0.3 ppm</td>
<td>CA BC OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>1 ppm</td>
<td>CA ON OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>1.5 ppm</td>
<td>CA ON OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>1.5 ppm</td>
<td>CA QC OEL</td>
</tr>
<tr>
<td></td>
<td></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>
</tbody>
</table>

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.
Laboratory operations do not require special containment.

Personal protective equipment
Respiratory protection:
If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

Filter type: Combined particulates and inorganic gas/vapor type

Hand protection Material: Chemical-resistant gloves

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.

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: suspension
Color: pink
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<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>1.4</td>
<td>09/30/2023</td>
<td>10849847-00005</td>
<td>03/02/2023</td>
<td>09/12/2022</td>
</tr>
</tbody>
</table>

- **Red**: No data available
- **Odor Threshold**: No data available
- **pH**: 3.0 - 6.0
- **Melting point/freezing point**: No data available
- **Initial boiling point and boiling range**: No data available
- **Flash point**: No data available
- **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**: 1.02
- **Density**: No data available
- **Solubility(ies)**
  - **Water solubility**: soluble
- **Partition coefficient: n-octanol/water**: Not applicable
- **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.
- **Molecular weight**: No data available
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
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: > 20000 ppm
Exposure time: 4 h
Test atmosphere: gas
Method: Calculation method

Acute dermal toxicity: Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Components:
Propylene glycol:
Acute oral toxicity: LD50 (Rat): 22,000 mg/kg

Acute inhalation toxicity: LC50 (Rat): > 44.9 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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

Cypermethrin:
Acute oral toxicity: LD50 (Rat, female): 367 mg/kg
LD50 (Rat, male): 891 mg/kg

Acute dermal toxicity: LD50 (Rat): > 4,800 mg/kg
LD50 (Rabbit): > 2,400 mg/kg

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

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

Acute dermal toxicity: LD50 (Rabbit): 270 mg/kg

**Skin corrosion/irritation**
Not classified based on available information.

**Components:**

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

**Cypermethrin:**
Species: Rabbit
Method: Draize Test
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:**

**Propylene glycol:**
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405
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</tr>
</tbody>
</table>

**Cypermethrin:**

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

**Formaldehyde:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rabbit</td>
<td>Irreversible effects on the eye</td>
</tr>
</tbody>
</table>

**Respiratory or skin sensitization**

**Skin sensitization**

May cause an allergic skin reaction.

**Respiratory sensitization**

Not classified based on available information.

**Components:**

**Propylene glycol:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Routes of exposure</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximization Test</td>
<td>Skin contact</td>
<td>Guinea pig</td>
<td>negative</td>
</tr>
</tbody>
</table>

**Cypermethrin:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnusson-Kligman-Test</td>
<td>Guinea pig</td>
<td>Did not cause sensitization on laboratory animals.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not a skin sensitizer.</td>
</tr>
</tbody>
</table>

**Formaldehyde:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Routes of exposure</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local lymph node assay (LLNA)</td>
<td>Skin contact</td>
<td>Mouse</td>
<td>OECD Test Guideline 429</td>
<td>positive</td>
</tr>
<tr>
<td>Assessment</td>
<td>Probability or evidence of high skin sensitization rate in humans</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Germ cell mutagenicity**

Not classified based on available information.

**Components:**

**Propylene glycol:**

| Genotoxicity in vitro | Test Type: Bacterial reverse mutation assay (AMES) | Result: negative | Test Type: Chromosome aberration test in vitro |
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Genotoxicity in vivo:
- Method: OECD Test Guideline 473
  - Result: negative
- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  - Species: Mouse
  - Application Route: Intraperitoneal injection
  - Result: negative

Cypermethrin:
- Genotoxicity in vitro:
  - Test Type: Chromosome aberration test in vitro
    - Test system: Human lymphocytes
    - Result: negative
  - Test Type: Microbial mutagenesis assay (Ames test)
    - Result: negative
  - Test Type: sister chromatid exchange assay
    - Test system: Human lymphocytes
    - Result: negative

Genotoxicity in vivo:
- Test Type: In vivo micronucleus test
  - Species: Rat
  - Application Route: Oral
  - Result: positive
  - Test Type: In vivo micronucleus test
    - Species: Rat
    - Application Route: Dermal
    - Result: positive
  - Test Type: In vivo micronucleus test
    - Species: Rat
    - Application Route: Intraperitoneal injection
    - Result: negative

Germ cell mutagenicity - Assessment:
- Weight of evidence does not support classification as a germ cell mutagen.

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
May cause cancer.

Components:

Propylene glycol:
Species: Rat
Application Route: Ingestion
Exposure time: 2 Years
Result: negative

Formaldehyde:
Species: Rat
Application Route: Inhalation (gas)
Exposure time: 28 Months
Result: positive

Carcinogenicity - Assessment: Sufficient evidence of carcinogenicity in animal experiments

Reproductive toxicity
Suspected of damaging fertility.

Components:

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

Effects on fetal development: Test Type: Embryo-fetal development
Species: Mouse
Application Route: Ingestion
Result: negative

Cyperpermethrin:
Effects on fertility: Test Type: Fertility
Species: Rat, male
Application Route: Oral
Fertility: LOAEL: 68 mg/kg body weight
Symptoms: Effects on fertility, male reproductive effects, Testicular effects

Test Type: Fertility
Species: Rat, male
Application Route: Oral
Fertility: NOAEL: 6.25 mg/kg body weight
Target Organs: Male reproductive organs, Testis
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Effects on fetal development:
- Test Type: Three-generation reproduction toxicity study
  - Species: Mouse
  - Application Route: Oral
  - General Toxicity Maternal: NOAEL: 5 mg/kg body weight
  - Symptoms: No effects on fetal development, No effect on reproduction capacity, Reduced body weight

- Test Type: Reproduction/Developmental toxicity screening test
  - Species: Rabbit
  - Application Route: Oral
  - Teratogenicity: NOAEL: 30 mg/kg body weight
  - Symptoms: No effects on fetal development.

- Test Type: Reproduction/Developmental toxicity screening test
  - Species: Rat
  - Application Route: Oral
  - Teratogenicity: NOAEL: 17.5 mg/kg body weight
  - Symptoms: No effects on fetal development.

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

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

STOT-single exposure:
May cause damage to organs (Nervous system).

Components:

Cypemethrin:
Target Organs: Nervous system
Assessment: May cause damage to organs.

Formaldehyde:
Assessment: May cause respiratory irritation.

STOT-repeated exposure:
Not classified based on available information.

Components:

Formaldehyde:
Routes of exposure: inhalation (gas)
Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
Repeated dose toxicity

Components:

Propylene glycol:
Species: Rat, male  
NOAEL: >= 1,700 mg/kg  
Application Route: Ingestion  
Exposure time: 2 y

Cypermethrin:
Species: Rat  
NOAEL: 5 mg/kg  
Application Route: Oral  
Exposure time: 3 Months  
Target Organs: Central nervous system  
Species: Rabbit  
NOAEL: 12.5 mg/kg  
Application Route: Oral  
Exposure time: 3 Months  
Target Organs: Central nervous system  
Species: Dog  
NOAEL: 1 mg/kg  
Application Route: Oral  
Exposure time: 1 y  
Symptoms: anxiety, central nervous system effects  
Species: Rabbit  
NOAEL: 20 mg/kg  
Application Route: Dermal  
Exposure time: 3 Weeks  
Target Organs: male reproductive organs  
Symptoms: reduced body weight gain, reduced food consumption

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.

Experience with human exposure

Components:

Cypermethrin:
General Information: Target Organs: Nervous system
Symptoms: muscle weakness, central nervous system effects
Remarks: Based on Human Evidence
The most common side effects are:
Remarks: paraesthesias

Further information

Components:

Cypermethrin:
Remarks: Dermal absorption possible

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Propylene glycol:
Toxicity to fish: LC50 (Onchorhynchus mykiss (rainbow trout)): 40,613 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Ceriodaphnia dubia (water flea)): 18,340 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants: ErC50 (Skeletonema costatum (marine diatom)): 19,300 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC (Ceriodaphnia dubia (water flea)): 13,020 mg/l
Exposure time: 7 d

Toxicity to microorganisms:
NOEC (Pseudomonas putida): > 20,000 mg/l
Exposure time: 18 h

Cypermethrin:
Toxicity to fish: EC50 (Onchorhynchus mykiss (rainbow trout)): 0.39 µg/l
Exposure time: 96 h

EC50 (Cyprinodon variegatus (sheepshead minnow)): 0.95 µg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): 0.0036 µg/l
Exposure time: 48 h

EC50 (Americamysis): 0.00475 µg/l
Exposure time: 48 h

Toxicity to fish (Chronic toxicity):
NOEC (Pimephales promelas (fathead minnow)): 0.14 µg/l
Exposure time: 30 d

Toxicity to daphnia and other: NOEC (Mysidopsis bahia (opossum shrimp)): 0.000781 µg/l
### Aquatic Invertebrates (Chronic Toxicity)
- Exposure time: 28 d

#### Formaldehyde:
- **Toxicity to fish**
  - LC50: 6.7 mg/l
  - Exposure time: 96 h
  - Remarks: Based on data from similar materials

- **Toxicity to daphnia and other aquatic invertebrates**
  - EC50 (Daphnia pulex (Water flea)): 5.8 mg/l
  - Exposure time: 48 h
  - Method: OECD Test Guideline 202

- **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 fish (Chronic toxicity)**
  - NOEC (Oryzias latipes (Orange-red killifish)): >= 48 mg/l
  - Exposure time: 28 d

- **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**
  - NOEC (Daphnia magna (Water flea)): >= 6.4 mg/l
  - Exposure time: 21 d
  - Method: OECD Test Guideline 211

- **Toxicity to microorganisms**
  - EC50: 34.1 mg/l
  - Exposure time: 120 h

### Persistence and Degradability

#### Components:
- **Propylene glycol:**
  - Biodegradability: Result: Readily biodegradable.
  - Biodegradation: 98.3 %
  - Exposure time: 28 d
  - Method: OECD Test Guideline 301F

- **Cypermethrin:**
  - Stability in water: Degradation half life (DT50): 17 d

- **Formaldehyde:**
  - Biodegradability: Result: Readily biodegradable.
  - Biodegradation: 91 %
  - Exposure time: 14 d
  - Method: OECD Test Guideline 301C
  - Remarks: Based on data from similar materials

### Bioaccumulative Potential

#### Components:
- **Propylene glycol:**
  - Partition coefficient: n- log Pow: -1.07
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**CYPHERMETHRIN:**
- Bioaccumulation: Bioconcentration factor (BCF): 488
- Partition coefficient: n-octanol/water
  - log Pow: 6.6

**FORMALDEHYDE:**
- Partition coefficient: n-octanol/water
  - log Pow: 0.35
  - Remarks: Calculation

**Mobility in soil**

**Components:**

**CYPHERMETHRIN:**
- Distribution among environmental compartments
  - log Koc: 5.58
- Stability in soil
  - 

**Other adverse effects**
No data available

### SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**
- Waste from residues
  - Do not dispose of waste into sewer.
  - Dispose of in accordance with local regulations.
- 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. (CYPHERMETHRIN)
- Class: 9
- Packing group: III
- Labels: 9
- Environmentally hazardous: yes

**IATA-DGR**
- UN/ID No.: UN 3082
- Proper shipping name: Environmentally hazardous substance, liquid, n.o.s. (CYPHERMETHRIN)
- Class: 9
- Packing group: III
**SAFETY DATA SHEET**
according to the Hazardous Products Regulations

**Cyperpermethrin Liquid 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>1.4</td>
<td>09/30/2023</td>
<td>10849847-00005</td>
<td>03/02/2023</td>
<td>09/12/2022</td>
</tr>
</tbody>
</table>

- **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. (Cypermethrin)
- **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**

**TDG**
- **UN number**: UN 3082
- **Proper shipping name**: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Cypermethrin)
- **Class**: 9
- **Packing group**: III
- **Labels**: 9
- **ERG Code**: 171
- **Marine pollutant**: yes(Cypermethrin)

**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**

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

**SECTION 16. OTHER INFORMATION**

Full text of other abbreviations
SAFETY DATA SHEET
according to the Hazardous Products Regulations

Cypermethrin Liquid Formulation

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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 Agen-

All abbreviations:
- ACGIH - American Conference of Governmental Industrial Hygienists
- CA BC OEL - Canada. British Columbia OEL
- CA ON OEL - Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
- CA QC OEL - Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
- ACGIH / TWA - 8-hour, time-weighted average
- ACGIH / STEL - Short-term exposure limit
- CA AB OEL / TWA - 8-hour Occupational exposure limit
- CA AB OEL / (c) - Ceiling occupational exposure limit
- CA BC OEL / TWA - 8-hour time weighted average
- CA BC OEL / STEL - Short-term exposure limit
- CA ON OEL / C - Ceiling Limit (C)
- CA ON OEL / TWA - Time-Weighted Average Limit (TWA)
- CA ON OEL / STEL - Short-Term Exposure Limit (STEL)
- CA QC OEL / C - Ceiling

Additional abbreviations:
- AIIIC - Australian Inventory of Industrial Chemicals
- ANTT - National Agency for Transport by Land of Brazil
- ASTM - American Society for the Testing of Materials
- bw - Body weight
- CMR - Carcinogen, Mutagen or Reproductive Toxicant
- DIN - Standard of the German Institute for Standardisation
- DSL - Domestic Substances List (Canada)
- ECx - Concentration 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
- 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 Canada
- IMSD - International Maritime Dangerous Goods
- 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
- MARPOL - International Convention for the Prevention of Pollution from Ships
- 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
- SADT - Self-Accelerating Decomposition Temperature
- SDS - Safety Data Sheet
- TCSI - Taiwan Chemical Substance Inventory
- TDG - Transportaton of Dangerous Goods
- 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
- WHMIS - Workplace Hazardous Materials Information System
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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