SAFETY DATA SHEET  
according to the Hazardous Products Regulations

Cypermethrin Formulation

SECTION 1. IDENTIFICATION

Product name: Cypermethrin 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

Reproductive toxicity: Category 2

Specific target organ toxicity - single exposure: Category 2 (Nervous system)

GHS label elements

Hazard pictograms:

Signal Word: Warning

Hazard Statements:  
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.  
P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:  
P308 + P311 IF exposed or concerned: Call a doctor.

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

<table>
<thead>
<tr>
<th>Components</th>
<th>Chemical name</th>
<th>Common Name/Synonym</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cypermethrin</td>
<td>No data available</td>
<td>52315-07-8</td>
<td></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:** 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)
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Unsuitable extinguishing media: Dry chemical
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: Use only with adequate ventilation.
Advice on safe handling: Do not breathe mist or vapors. Do not swallow. Avoid contact with eyes.
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Avoid prolonged or repeated contact with skin.
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
  - 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>
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<tbody>
<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></td>
<td>Wipe limit</td>
<td>100 µg/100 cm²</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 organic vapor type
- Hand protection: 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.
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**: yellow
- **Odor**: characteristic
- **Odor Threshold**: No data available
- **pH**: No data available
- **Melting point/freezing point**: -30 °C
- **Initial boiling point and boiling range**: 210 °C
- **Flash point**: 208 °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**: 0.92 - 0.94
- **Density**: No data available
- **Solubility(ies)**: 
  - **Water solubility**: insoluble
- **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
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
Not classified based on available information.

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

Components:
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
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LD50 (Rabbit): > 2,400 mg/kg

Skin corrosion/irritation
Not classified based on available information.

Components:

Cypermethrin:
Species: Rabbit
Method: Draize Test
Result: No skin irritation

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

Components:

Cypermethrin:
Species: Rabbit
Result: No eye irritation
Method: Draize Test

Respiratory or skin sensitization

Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Components:

Cypermethrin:
Test Type: Magnusson-Kligman-Test
Species: Guinea pig
Assessment: Did not cause sensitization on laboratory animals.
Result: Not a skin sensitizer.

Germ cell mutagenicity
Not classified based on available information.

Components:

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
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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.

Carcinogenicity
Not classified based on available information.

Reproductive toxicity
Suspected of damaging fertility.

Components:

Cypermethrin:
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

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
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<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue: 03/02/2023</th>
<th>Date of first issue: 07/15/2020</th>
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<td>1.11</td>
<td>09/30/2023</td>
<td>6116888-00012</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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.

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

**Components:**

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

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

**Repeated dose toxicity**

**Components:**

**Cypermethrin:**

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


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:

Cypermethrin:
Toxicity to fish:
EC50 (Oncorhynchus 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 aquatic invertebrates (Chronic toxicity):
NOEC (Mysidopsis bahia (opossum shrimp)): 0.000781 µg/l
Exposure time: 28 d

Persistence and degradability

Components:

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

Bioaccumulative potential

Components:

Cypermethrin:
Bioaccumulation : Bioconcentration factor (BCF): 488
Partition coefficient: n-octanol/water : log Pow: 6.6

Mobility in soil

Components:

Cypermethrin:
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. (Cypermethrin)
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. (Cypermethrin)
Class : 9
Packing group : III
Labels : Miscellaneous
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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
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Sources of key data used to compile the Material Safety Data Sheet:

Revision Date: 09/30/2023
Date format: mm/dd/yyyy

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.

CA / Z8