SAFETY DATA SHEET
according to the Hazardous Products Regulations

Abamectin (0.6%) Liquid Formulation

SECTION 1. IDENTIFICATION

Product name : Abamectin (0.6%) 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
Acute toxicity (Inhalation) : Category 4
Eye irritation : Category 2A
Skin sensitization : Category 1
Reproductive toxicity : Category 2
Specific target organ toxicity - repeated exposure : Category 2 (Central nervous system)

GHS label elements
Hazard pictograms : 

Signal Word : Warning

Hazard Statements : H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure.

Precautionary Statements : Prevention:
P201 Obtain special instructions before use.
SAFETY DATA SHEET
according to the Hazardous Products Regulations

Abamectin (0.6%) Liquid Formulation

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.
P271 Use only outdoors or in a well-ventilated area.
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.
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.
P308 + P313 IF exposed or concerned: Get medical attention.
P333 + P313 IF skin irritation or rash 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

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Components</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common Name/Synonym</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyalkylene oxide derivative of a synthetic alcohol</td>
<td>No data available</td>
<td>103818-93-5</td>
<td>37.5</td>
</tr>
<tr>
<td>Propylene glycol</td>
<td>1,2-Propanediol</td>
<td>57-55-6</td>
<td>18.75</td>
</tr>
<tr>
<td>abamectin (combination of avermectin B1a and avermectin B1b) (ISO)</td>
<td>No data available</td>
<td>71751-41-2</td>
<td>0.6</td>
</tr>
<tr>
<td>1-[(1,3-Bis(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]-1,3-urea, N-[1,3-bis(hydroxymethyl)2,5-dioxo-4-imidazolidinyl]-</td>
<td>Urea, N-[1,3-bis(hydroxymethyl)2,5-dioxo-4-imidazolidinyl]-</td>
<td>78491-02-8</td>
<td>0.2</td>
</tr>
</tbody>
</table>
Abamectin (0.6%) Liquid Formulation

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 soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention.

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.

Most important symptoms and effects, both acute and delayed: May cause an allergic skin reaction. Causes serious eye irritation. Harmful if inhaled. Suspected of damaging fertility. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure.

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: Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides
SAFETY DATA SHEET
according to the Hazardous Products Regulations

Abamectin (0.6%) 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>1.2</td>
<td>09/30/2023</td>
<td>10853001-00003</td>
<td>04/04/2023</td>
<td>09/15/2022</td>
</tr>
</tbody>
</table>

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/PERSOINAL 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.
- Take care to prevent spills, waste and minimize release to the environment.
SAFETY DATA SHEET
according to the Hazardous Products Regulations

Abamectin (0.6%) Liquid Formulation

Version 1.2  Revision Date: 09/30/2023  SDS Number: 10853001-00003  Date of last issue: 04/04/2023  Date of first issue: 09/15/2022

Conditions for safe storage:
- Keep in properly labeled containers.
- 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
  - 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>abamectin (combination of avermectin B1a and avermectin B1b) (ISO)</td>
<td>71751-41-2</td>
<td>TWA (aerosol)</td>
<td>10 mg/m³</td>
<td>CA ON OEL</td>
</tr>
</tbody>
</table>

Engineering measures:
- Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., dripless quick connections).
- All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.
- Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).
- Minimize open handling.

Personal protective equipment

Respiratory protection:
- If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
  
  Filter type: Particulates 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
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. 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: liquid
Color: clear
  dark blue
Odor: No data available
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: 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
Abamectin (0.6%) Liquid Formulation

Relative vapor density : No data available
Relative density : No data available
Density : No data available
Solubility(ies)
  Water solubility : No data available
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 reac-
tions : 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 inhaled.

Product:
Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Abamectin (0.6%) Liquid Formulation

Method: Calculation method

Acute inhalation toxicity: Acute toxicity estimate: 11 mg/l
Exposure time: 4 h
Test atmosphere: vapor
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

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

Acute oral toxicity: LD50 (Rat): 24 mg/kg

LD50 (Mouse): 10 mg/kg
LDLo (Monkey): 24 mg/kg
Symptoms: Dilatation of the pupil

Acute inhalation toxicity: LC50 (Rat): 0.023 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg

1-[1,3-Bis(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]-1,3-bis(hydroxymethyl)urea:

Acute oral toxicity: LD50 (Rat): > 2,000 mg/kg
Method: OPPTS 870.1100

Acute inhalation toxicity: LC50 (Rat, male): 490 ppm
Exposure time: 4 h
Test atmosphere: gas
Remarks: Value is for a gas formed in contact with water

Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg
Method: OPPTS 870.1200
Assessment: The substance or mixture has no acute dermal toxicity
Skin corrosion/irritation
Not classified based on available information.

Components:
Polyalkylene oxide derivative of a synthetic alcohol:
Species: reconstructed human epidermis (RhE)
Method: OECD Test Guideline 439
Result: No skin irritation

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

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
Species: Rabbit
Result: No skin irritation

1-[1,3-Bis(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]-1,3-bis(hydroxymethyl)urea:
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

Serious eye damage/eye irritation
Causes serious eye irritation.

Components:
Polyalkylene oxide derivative of a synthetic alcohol:
Species: Bovine cornea
Method: OECD Test Guideline 437
Result: Irritation to eyes, reversing within 21 days

Propylene glycol:
Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
Species: Rabbit
Result: Mild eye irritation

1-[1,3-Bis(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]-1,3-bis(hydroxymethyl)urea:
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days
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>

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Routes of exposure</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximization Test</td>
<td>Skin contact</td>
<td>Not a skin sensitizer</td>
</tr>
</tbody>
</table>

**1-[1,3-Bis(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]-1,3-bis(hydroxymethyl)urea:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Routes of exposure</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human repeat insult patch test (HRIPT)</td>
<td>Skin contact</td>
<td>positive</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

Genotoxicity in vivo:

- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  - Species: Mouse
  - Application Route: Intraperitoneal injection
  - Result: negative

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

Genotoxicity in vitro:

- Test Type: Bacterial reverse mutation assay (AMES)
  - Result: negative

- Test Type: In vitro mammalian cell gene mutation test
Abamectin (0.6%) Liquid Formulation

Test system: Chinese hamster lung cells
Result: negative

Test Type: Alkaline elution assay
Result: negative

Genotoxicity in vivo:
Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

1-[1,3-Bis(hydroxymethyl)-2,5-dioxooimidazolidin-4-yl]-1,3-bis(hydroxymethyl)urea:

Genotoxicity in vitro:
Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: positive

Test Type: Chromosome aberration test in vitro
Result: negative

Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
Result: negative

Genotoxicity in vivo:
Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Result: negative

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

Carcinogenicity
Not classified based on available information.

Components:

Propylene glycol:
Species: Rat
Application Route: Ingestion
Exposure time: 2 Years
Result: negative
<table>
<thead>
<tr>
<th>SAFETY DATA SHEET for Abamectin (0.6%) Liquid Formulation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abamectin (0.6%) Liquid Formulation</strong></td>
</tr>
<tr>
<td><strong>Version</strong> 1.2</td>
</tr>
</tbody>
</table>

| **abamectin (combination of avermectin B1a and avermectin B1b) (ISO):** |
| **Species**     | Rat                      |
| **Application Route** | Oral                   |
| **Exposure time**     | 105 weeks               |
| **Result**           | negative                |

| **Species**     | Mouse                   |
| **Application Route** | Oral                |
| **Exposure time**     | 93 weeks                |
| **Result**           | negative                |

**Reproductive toxicity**
Suspected of damaging fertility. Suspected of damaging the unborn child.

**Components:**

**Propylene glycol:**

<table>
<thead>
<tr>
<th><strong>Effects on fertility</strong></th>
<th>Test Type: Two-generation reproduction toxicity study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Fertility</td>
<td>Species: Mouse</td>
</tr>
<tr>
<td>Application Route: Oral</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Result: negative</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Effects on fetal development</strong></th>
<th>Test Type: Embryo-fetal development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Ingestion</td>
<td>Species: Mouse</td>
</tr>
<tr>
<td>Result: negative</td>
<td></td>
</tr>
</tbody>
</table>

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

<table>
<thead>
<tr>
<th><strong>Effects on fertility</strong></th>
<th>Test Type: Fertility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Fertility</td>
<td>Species: Rat, male</td>
</tr>
<tr>
<td>Application Route: Oral</td>
<td></td>
</tr>
<tr>
<td>Result: Effects on fertility</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Type: Two-generation reproduction toxicity study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species: Rat</td>
</tr>
<tr>
<td>Application Route: Oral</td>
</tr>
<tr>
<td>Early Embryonic Development: NOAEL: 0.12 mg/kg body weight</td>
</tr>
<tr>
<td>Result: Fetotoxicity.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Effects on fetal development</strong></th>
<th>Test Type: Embryo-fetal development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Ingestion</td>
<td>Species: Mouse</td>
</tr>
<tr>
<td>Application Route: Oral</td>
<td>General Toxicity Maternal: NOAEL: 0.05 mg/kg body weight</td>
</tr>
<tr>
<td>Developmental Toxicity: NOAEL: 0.2 mg/kg body weight</td>
<td>Remarks: Adverse developmental effects were observed</td>
</tr>
<tr>
<td>Result: Cleft palate</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Type: Embryo-fetal development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species: Rabbit</td>
</tr>
<tr>
<td>Application Route: Oral</td>
</tr>
<tr>
<td>Developmental Toxicity: LOAEL: 2 mg/kg body weight</td>
</tr>
<tr>
<td>Result: Cleft palate, Teratogenic effects, Reduced embryonic</td>
</tr>
</tbody>
</table>
Abamectin (0.6%) Liquid Formulation

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

**Remarks:** Adverse developmental effects were observed

- **Test Type:** Development
- **Species:** Rat
- **Application Route:** Oral
- **Developmental Toxicity:** LOAEL: 1.6 mg/kg body weight
- **Result:** Teratogenic effects.

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

**1-[1,3-Bis(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]-1,3-bis(hydroxymethyl)urea:**

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

- **Test Type:** Embryo-fetal development
  - **Species:** Rat
  - **Application Route:** Skin contact
  - **Result:** negative

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

**STOT-repeated exposure**
May cause damage to organs (Central nervous system) through prolonged or repeated exposure.

**Components:**

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

- **Routes of exposure:** Ingestion
- **Target Organs:** Central nervous system
- **Assessment:** Causes damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity**

**Components:**

**Propylene glycol:**

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

**abamectin (combination of avermectin B1a and avermectin B1b) (ISO):**

- **Species:** Rat
- **NOAEL:** 1.5 mg/kg
Abamectin (0.6%) Liquid Formulation

Section 1. Application Route

Application Route: Oral
Exposure time: 24 Months
Target Organs: Central nervous system
Symptoms: Tremors, ataxia

Species: Mouse
NOAEL: 4.0 mg/kg
Application Route: Oral
Exposure time: 24 Months
Target Organs: Central nervous system
Symptoms: Tremors, ataxia

Species: Dog
NOAEL: 0.25 mg/kg
LOAEL: 0.5 mg/kg
Application Route: Oral
Exposure time: 53 Weeks
Target Organs: Central nervous system
Symptoms: Tremors, weight loss
Remarks: mortality observed

Species: Monkey
NOAEL: 1.0 mg/kg
Application Route: Oral
Exposure time: 14 Weeks
Target Organs: Central nervous system

1-[1,3-Bis(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]-1,3-bis(hydroxymethyl)urea:

Species: Rat
NOAEL: 200 mg/kg
Application Route: Ingestion
Exposure time: 92 Days

Aspiration toxicity
Not classified based on available information.

Experience with human exposure

Components:
abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
Ingestion: Symptoms: May cause, Tremors, Diarrhea, central nervous system effects, Salivation, tearing

Section 12. Ecological Information

Ecotoxicity

Components:
Polyalkylene oxide derivative of a synthetic alcohol:
Toxicity to fish: LC50 > 1 - 10 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia magna (Water flea)): 3.2 mg/l
  Exposure time: 48 h
  Method: OECD Test Guideline 202

Propylene glycol:
- Toxicity to fish: LC50 (Oncorhynchus 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

Abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
- Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 3.2 µg/l
  Exposure time: 96 h

  LC50 (Lepomis macrochirus (Bluegill sunfish)): 9.6 µg/l
  Exposure time: 96 h

  LC50 (Ictalurus punctatus (channel catfish)): 24 µg/l
  Exposure time: 96 h

  LC50 (Cyprinus carpio (Carp)): 42 µg/l
  Exposure time: 96 h

  LC50 (Cyprinodon variegatus (sheepshead minnow)): 15 µg/l
  Exposure time: 96 h

- Toxicity to daphnia and other aquatic invertebrates: EC50 (Americamysis): 0.022 µg/l
  Exposure time: 96 h

  EC50 (Daphnia magna (Water flea)): 0.34 µg/l
  Exposure time: 48 h

- Toxicity to algae/aquatic plants: EC50 (Pseudokirchneriella subcapitata (green algae)): 100 mg/l
  Exposure time: 72 h

- Toxicity to fish (Chronic toxicity): NOEC (Pimephales promelas (fathead minnow)): 0.52 µg/l
  Exposure time: 32 d
SAFETY DATA SHEET
according to the Hazardous Products Regulations

Abamectin (0.6%) Liquid Formulation

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC (Daphnia magna (Water flea)): 0.03 µg/l
  Exposure time: 21 d
- NOEC (Mysidopsis bahia (opossum shrimp)): 0.0035 µg/l
  Exposure time: 28 d

Toxicity to microorganisms:
- EC50: > 1,000 mg/l
  Exposure time: 3 h
  Test Type: Respiration inhibition

1-[1,3-Bis(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]-1,3-bis(hydroxymethyl)urea:
Toxicity to fish:
- LC50 (Lepomis macrochirus (Bluegill sunfish)): > 67 mg/l
  Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia magna (Water flea)): 58 mg/l
  Exposure time: 48 h

Toxicity to algae/aquatic plants:
- ErC50 (Pseudokirchneriella subcapitata (green algae)): 5.78 mg/l
  Exposure time: 72 h
- NOEC (Pseudokirchneriella subcapitata (green algae)): 1.6 mg/l
  Exposure time: 72 h

Toxicity to microorganisms:
- EC50 (activated sludge): 567 mg/l
  Exposure time: 3 h
  Method: OECD Test Guideline 209

Persistence and degradability

Components:
Polyalkylene oxide derivative of a synthetic alcohol:
Biodegradability: Result: Readily biodegradable.
Remarks: Based on data from similar materials

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

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
Stability in water: Hydrolysis: 50 %(< 12 h)

1-[1,3-Bis(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]-1,3-bis(hydroxymethyl)urea:
Biodegradability: Result: Not readily biodegradable.
Biodegradation: 24 %
Exposure time: 28 d  

Bioaccumulative potential

Components:

Propylene glycol:
Partition coefficient: n-octanol/water: log Pow: -1.07  

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
Bioaccumulation: Bioconcentration factor (BCF): 52
Partition coefficient: n-octanol/water: log Pow: 4

1-[1,3-Bis(hydroxymethyl)-2,5-dioxoimidazolidin-4-yl]-1,3-bis(hydroxymethyl)urea:
Partition coefficient: n-octanol/water: log Pow: < 0.9  
Method: OECD Test Guideline 117

Mobility in soil

Components:

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):
Distribution among environmental compartments: log Koc: > 3.6

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.  
(abamectin (combination of avermectin B1a and avermectin B1b) (ISO))
Class: 9
Abamectin (0.6%) Liquid Formulation

Packing group: III
Labels: 9
Environmentally hazardous: no

IATA-DGR
UN/ID No.: UN 3082
Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
(abamectin (combination of avermectin B1a and avermectin B1b) (ISO))
Class: 9
Packing group: III
Labels: Miscellaneous
Packing instruction (cargo aircraft): 964
Packing instruction (passenger aircraft): 964

IMDG-Code
UN number: UN 3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(abamectin (combination of avermectin B1a and avermectin B1b) (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

TDG
UN number: UN 3082
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(abamectin (combination of avermectin B1a and avermectin B1b) (ISO))
Class: 9
Packing group: III
Labels: 9
ERG Code: 171
Marine pollutant: yes(abamectin (combination of avermectin B1a and avermectin B1b) (ISO))

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:
Abamectin (0.6%) Liquid Formulation

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

CA ON OEL : Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.

CA ON OEL / TWA : Time-Weighted Average Limit (TWA)

AICS - 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; 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; 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 Chemicals in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation 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


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.

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