SAFETY DATA SHEET

Enilconazole Liquid Formulation

Version: 8.0   Revision Date: 2021/08/27   SDS Number: 906761-00014   Date of last issue: 2021/04/09
   Date of first issue: 2016/09/22

1. PRODUCT AND COMPANY IDENTIFICATION

Chemical product name: Enilconazole Liquid Formulation
Suppliers company name, address and phone number
Company name of supplier: MSD
Address: Kumagaya, Saitama Prefecture, Xicheng 810 MSD Co., Ltd.
Menuma factory
Telephone: 048-588-8411
E-mail address: EHSDATASTEWARD@msd.com
Emergency telephone number: +1-908-423-6000

Recommended use of the chemical and restrictions on use
Recommended use: Veterinary product

2. HAZARDS IDENTIFICATION

GHS classification of chemical product
Flammable liquids: Category 3
Acute toxicity (Oral): Category 3
Acute toxicity (Inhalation): Category 4
Serious eye damage/eye irritation: Category 2A
Carcinogenicity: Category 2
Specific target organ toxicity - repeated exposure: Category 2 (Liver)
Short-term (acute) aquatic hazard: Category 2
Long-term (chronic) aquatic hazard: Category 1

GHS label elements
Hazard pictograms:  
Signal word: Danger
Hazard statements: H226 Flammable liquid and vapour.
H301 Toxic if swallowed.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H351 Suspected of causing cancer.
H373 May cause damage to organs (Liver) through prolonged or repeated exposure.
H401 Toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

**Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**
P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ 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 advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P391 Collect spillage.

**Storage:**
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

**Disposal:**
P501 Dispose of contents/ container to an approved waste disposal plant.
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Other hazards which do not result in classification
Important symptoms and outlines of the emergency assumed: Vapours may form explosive mixture with air.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

<table>
<thead>
<tr>
<th>Components</th>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
<th>ENCS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium bis(2-ethylhexyl)sulfosuccinate</td>
<td>577-11-7</td>
<td>&gt;= 30 - &lt; 40</td>
<td>2-1623, 2-1620</td>
<td></td>
</tr>
<tr>
<td>1-[(2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole</td>
<td>35554-44-0</td>
<td>&gt;= 10 - &lt; 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzyl alcohol</td>
<td>100-51-6</td>
<td>&gt;= 1 - &lt; 10</td>
<td>3-1011</td>
<td></td>
</tr>
<tr>
<td>Ethanol#</td>
<td>64-17-5</td>
<td>&gt;= 1 - &lt; 10</td>
<td>2-202</td>
<td></td>
</tr>
</tbody>
</table>

# Voluntarily-disclosed non-hazardous substance

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.

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. Call a physician or poison control centre immediately. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Gastrointestinal disturbance
Toxic if swallowed. Causes serious eye irritation. Harmful if inhaled. Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure.
5. FIREFIGHTING MEASURES

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.

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>Unsafe extinguishing media</th>
<th>Specific hazards during firefighting</th>
<th>Hazardous combustion products</th>
<th>Specific extinguishing methods</th>
<th>Special protective equipment for firefighters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water spray</td>
<td>High volume water jet</td>
<td>Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapours may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.</td>
<td>Carbon oxides</td>
<td>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.</td>
<td>In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.</td>
</tr>
<tr>
<td>Alcohol-resistant foam</td>
<td></td>
<td></td>
<td>Sulphur oxides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon dioxide (CO2)</td>
<td></td>
<td></td>
<td>Metal oxides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dry chemical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Remove all sources of ignition. 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: Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absor-
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.

7. HANDLING AND STORAGE

Handling

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

Local/Total ventilation: If sufficient ventilation is unavailable, use with local exhaust ventilation. Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling: Do not breathe mist or vapours. Do not swallow. Do not get in eyes. 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. Non-sparking tools should be used. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Do not eat, drink or smoke when using this product. Take care to prevent spills, waste and minimize release to the environment.

Avoidance of contact: Oxidizing agents

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.

Storage


Materials to avoid: Do not store with the following product types:
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Threshold limit value and permissible exposure limits for each component in the work environment

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type</th>
<th>Control parameters / Reference concentration / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole</td>
<td>35554-44-0</td>
<td>TWA</td>
<td>0.3 mg/m³ (OEL)</td>
<td>Internal</td>
</tr>
<tr>
<td>Benzyl alcohol</td>
<td>100-51-6</td>
<td>OEL-C</td>
<td>25 mg/m³</td>
<td>JP OEL JSOH</td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>STEL</td>
<td>1.000 ppm</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

Further information: Skin sensitizing agent; Group 2 substances which probably induce allergic reactions in humans.

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.
Laboratory operations do not require special containment.
Use explosion-proof electrical, ventilating and lighting equipment.

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 vapour type
Hand protection: Chemical-resistant gloves
Remarks: Take note that the product is flammable, which may impact the selection of hand protection.
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.
9. PHYSICAL AND CHEMICAL PROPERTIES

- **Physical state**: liquid
- **Colour**: light yellow
- **Odour**: musty
- **Odour Threshold**: No data available
- **Melting point/freezing point**: No data available
- **Boiling point, initial boiling point and boiling range**: No data available
- **Flammability (solid, gas)**: Not applicable
- **Flammability (liquids)**: Not applicable
- **Lower explosion limit and upper explosion limit / flammability limit**
  - **Upper explosion limit / Upper flammability limit**: No data available
  - **Lower explosion limit / Lower flammability limit**: No data available
- **Flash point**: 45 °C
- **Decomposition temperature**: No data available
- **pH**: 9.5
- **Evaporation rate**: No data available
- **Auto-ignition temperature**: No data available
- **Viscosity**
  - **Viscosity, kinematic**: No data available
- **Solubility(ies)**
  - **Water solubility**: soluble
- **Partition coefficient: n-octanol/water**: No data available
- **Vapour pressure**: No data available
- **Density and / or relative density**
  - **Relative density**: 1.094
  - **Relative vapour density**: No data available
- **Explosive properties**: Not explosive
## 10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>Not classified as a reactivity hazard.</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Flammable liquid and vapour. Vapours may form explosive mixture with air. Can react with strong oxidizing agents.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>Heat, flames and sparks.</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>Oxidizing agents Acids</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>No hazardous decomposition products are known.</td>
</tr>
</tbody>
</table>

## 11. TOXICOLOGICAL INFORMATION

<table>
<thead>
<tr>
<th>Route of Exposure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhalation</td>
<td>Acute oral toxicity: LD50 (Rat): 192 - 309 mg/kg</td>
</tr>
<tr>
<td>Skin contact</td>
<td>Acute inhalation toxicity: LC50 (Rat): 3.1 mg/l Exposure time: 4 h Test atmosphere: dust/mist</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Acute dermal toxicity: LD50 (Rabbit): &gt; 900 mg/kg</td>
</tr>
<tr>
<td>Eye contact</td>
<td></td>
</tr>
</tbody>
</table>

### Acute toxicity

Toxic if swallowed. Harmful if inhaled.

### Components

#### Sodium bis(2-ethylhexyl)sulfosuccinate:
- **Acute oral toxicity**: LD50 (Rat): 3,080 mg/kg
- **Acute dermal toxicity**: LD50 (Rabbit): > 5,000 mg/kg

#### 1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
- **Acute oral toxicity**: LD50 (Rat): 227 mg/kg
  - Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI
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LD50 (Mouse): 390 - 620 mg/kg
LD50 (Dog): > 640 mg/kg

Acute inhalation toxicity: LC50 (Rat): 1.84 - 2.88 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute dermal toxicity: LD50 (Rat): 4,200 - 4,800 mg/kg
LD50 (Rabbit): 4,200 mg/kg

Acute toxicity (other routes of administration): LD50 (Rat): 155 mg/kg
Application Route: Intraperitoneal

Benzyl alcohol:
Acute oral toxicity: LD50 (Rat): 1,620 mg/kg

Acute inhalation toxicity: LC50 (Rat): > 4.178 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Ethanol:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity: LC50 (Rat): 124.7 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Skin corrosion/irritation
Not classified based on available information.

Product:
Species: Rabbit
Result: Mild skin irritation

Components:
Sodium bis(2-ethylhexyl)sulfosuccinate:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
Species: Rabbit
Result: Mild skin irritation
Benzyl alcohol:
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

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

Serious eye damage/eye irritation
Causes serious eye irritation.

Product:
Species: Rabbit
Result: Moderate eye irritation

Components:
Sodium bis(2-ethylhexyl)sulfosuccinate:
Species: Rabbit
Result: Irreversible effects on the eye
Method: OECD Test Guideline 405

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
Species: Rabbit
Result: Irreversible effects on the eye
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Species: Rabbit
Result: Moderate eye irritation
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

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

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

Respiratory or skin sensitisation
Skin sensitisation
Not classified based on available information.
Respiratory sensitisation
Not classified based on available information.

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

**Components:**

**Sodium bis(2-ethylhexyl)sulfosuccinate:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Exposure routes</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human repeat insult patch test (HRIPT)</td>
<td>Skin contact</td>
<td>Humans</td>
<td>negative</td>
</tr>
</tbody>
</table>

**1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Exposure routes</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximisation Test</td>
<td>Dermal</td>
<td>Guinea pig</td>
<td>equivocal</td>
</tr>
<tr>
<td>Dermal</td>
<td>Humans</td>
<td>Not a skin sensitizer.</td>
<td></td>
</tr>
</tbody>
</table>

**Benzyl alcohol:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Exposure routes</th>
<th>Species</th>
<th>Method</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximisation Test</td>
<td>Skin contact</td>
<td>Guinea pig</td>
<td>OECD Test Guideline 406</td>
<td>negative</td>
</tr>
</tbody>
</table>

**Ethanol:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Exposure routes</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local lymph node assay (LLNA)</td>
<td>Skin contact</td>
<td>Mouse</td>
<td>negative</td>
</tr>
</tbody>
</table>

**Germ cell mutagenicity**
Not classified based on available information.

**Components:**

**Sodium bis(2-ethylhexyl)sulfosuccinate:**

<table>
<thead>
<tr>
<th>Genotoxicity in vitro</th>
<th>Test Type: Bacterial reverse mutation assay (AMES)</th>
<th>Method: OECD Test Guideline 471</th>
<th>Result: negative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test Type: Chromosome aberration test in vitro</td>
<td>Method: OECD Test Guideline 473</td>
<td>Result: equivocal</td>
</tr>
</tbody>
</table>
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Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:

Genotoxicity in vitro:
- Test Type: Bacterial reverse mutation assay (AMES)
  Result: negative
- Test Type: Chromosomal aberration
  Test system: Human lymphocytes
  Result: negative
- Test Type: gene mutation test
  Test system: Chinese hamster fibroblasts
  Result: negative
- Test Type: unscheduled DNA synthesis assay
  Test system: rat hepatocytes
  Result: negative

Genotoxicity in vivo:
- Test Type: Micronucleus test
  Species: Rat
  Application Route: Oral
  Result: negative
- Test Type: Micronucleus test
  Species: Mouse
  Application Route: Oral
  Result: negative
- Test Type: Rodent dominant lethal test (germ cell) (in vivo)
  Species: Mouse
  Result: negative

Benzyl alcohol:

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

Ethanol:

Genotoxicity in vitro:
- Test Type: In vitro mammalian cell gene mutation test
  Result: negative
- Test Type: Bacterial reverse mutation assay (AMES)
  Result: negative

Genotoxicity in vivo:
- Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Carcinogenicity
Suspected of causing cancer.

Components:

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>2 Years</td>
</tr>
<tr>
<td>NOAEL</td>
<td>40 mg/kg body weight</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>2 Years</td>
</tr>
<tr>
<td>LOAEL</td>
<td>33 mg/kg body weight</td>
</tr>
<tr>
<td>Result</td>
<td>positive</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Liver</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>oral (feed)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>23 Months</td>
</tr>
<tr>
<td>NOAEL</td>
<td>8 mg/kg body weight</td>
</tr>
<tr>
<td>LOAEL</td>
<td>105 mg/kg body weight</td>
</tr>
<tr>
<td>Result</td>
<td>positive</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Liver</td>
</tr>
<tr>
<td>Remarks</td>
<td>Limited evidence of carcinogenicity in animal studies</td>
</tr>
</tbody>
</table>

Carcinogenicity - Assessment:

Benzyl alcohol:

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Exposure time</td>
<td>103 weeks</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 451</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

Reproductive toxicity
Not classified based on available information.

Components:

Sodium bis(2-ethylhexyl)sulfosuccinate:

<table>
<thead>
<tr>
<th>Effects on fertility</th>
<th>Test Type: Three-generation reproduction toxicity study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species</td>
<td>Rat</td>
</tr>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Effects on foetal development</th>
<th>Test Type: Embryo-foetal development</th>
</tr>
</thead>
</table>
1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:

**Effects on fertility**
- Test Type: Multi-generation study
- Species: Rat
- Application Route: Oral
- General Toxicity - Parent: NOAEL: 20 mg/kg body weight
- Result: Maternal toxicity observed., Embryotoxic effects and adverse effects on the offspring were detected.
- Remarks: Not classified due to data which are conclusive although insufficient for classification.

**Effects on foetal development**
- Test Type: Development
- Species: Rat
- Application Route: Oral
- Developmental Toxicity: LOAEL: 80 mg/kg body weight
- Result: Reduced foetal weight, Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses
- Remarks: The effects were seen only at maternally toxic doses.

Benzyl alcohol:

**Effects on fertility**
- Test Type: Fertility/early embryonic development
- Species: Rat
- Application Route: Ingestion
- Result: negative
- Remarks: Based on data from similar materials

Ethanol:

**Effects on fertility**
- Test Type: Two-generation reproduction toxicity study
- Species: Mouse
- Application Route: Ingestion
- Result: negative
STOT - single exposure
Not classified based on available information.

STOT - repeated exposure
May cause damage to organs (Liver) through prolonged or repeated exposure.

Components:

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
<table>
<thead>
<tr>
<th>Target Organs</th>
<th>Liver</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>May cause damage to organs through prolonged or repeated exposure.</td>
</tr>
</tbody>
</table>

Repeated dose toxicity

Product:

Species: Rabbit
NOAEL: 1 mg/kg
Application Route: Dermal
Exposure time: 21 d
Symptoms: No adverse effects

Components:

Sodium bis(2-ethylhexyl)sulfosuccinate:
<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>750 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Exposure time</td>
<td>90 Days</td>
</tr>
</tbody>
</table>

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>5 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>20 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>3 - 24 Months</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Liver</td>
</tr>
<tr>
<td>Symptoms</td>
<td>decrease in appetite</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Dog</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>2.5 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>20 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>12 Months</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Salivation, Vomiting</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>12 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>140 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>3 Months</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Liver</td>
</tr>
</tbody>
</table>
**SAFETY DATA SHEET**

Enilconazole Liquid Formulation

**Benzyl alcohol:**
- **Species**: Rat
- **NOAEL**: 1.072 mg/l
- **Application Route**: inhalation (dust/mist/fume)
- **Exposure time**: 28 Days
- **Method**: OECD Test Guideline 412

**Ethanol:**
- **Species**: Rat
- **NOAEL**: 1,280 mg/kg
- **LOAEL**: 3,156 mg/kg
- **Application Route**: Ingestion
- **Exposure time**: 90 Days

**Aspiration toxicity**
Not classified based on available information.

**Experience with human exposure**

**Product:**
- **Inhalation**: Remarks: May cause respiratory tract irritation.
- **Skin contact**: Remarks: May irritate skin.
- **Eye contact**: Remarks: May irritate eyes.
- **Ingestion**: Symptoms: Gastrointestinal disturbance, central nervous system effects

**Components:**

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
- **Skin contact**: Symptoms: pruritis, skin rash, Skin irritation
- **Eye contact**: Symptoms: Eye irritation
- **Ingestion**: Symptoms: Nausea

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Components:**

**Sodium bis(2-ethylhexyl)sulfosuccinate:**
- **Toxicity to fish**: LC50 (Danio rerio (zebra fish)): 49 mg/l
  - Exposure time: 96 h
- **Toxicity to daphnia and other aquatic invertebrates**: EC50 (Daphnia magna (Water flea)): 6.6 mg/l
  - Exposure time: 48 h
Toxicity to algae/aquatic plants:
- **ErC50** (Desmodesmus subspicatus (green algae)): 82.5 mg/l
  Exposure time: 72 h
- **EC10** (Desmodesmus subspicatus (green algae)): 22 mg/l
  Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- **EC10** (Daphnia magna (Water flea)): 9 mg/l
  Exposure time: 21 d
  Method: OECD Test Guideline 211

Toxicity to microorganisms:
- **EC50** (Pseudomonas putida): 164 mg/l
  Exposure time: 16 h

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:

Toxicity to fish:
- **LC50** (Oncorhynchus mykiss (rainbow trout)): 1.48 mg/l
  Exposure time: 96 h
  Method: OECD Test Guideline 203
- **LC50** (Lepomis macrochirus (Bluegill sunfish)): 3.99 mg/l
  Exposure time: 96 h
  Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates:
- **EC50** (Daphnia magna (Water flea)): 3.54 mg/l
  Exposure time: 48 h
  Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants:
- **EC50** (Pseudokirchneriella subcapitata (green algae)): 1.2 mg/l
  Exposure time: 72 h
  Method: OECD Test Guideline 201
- **NOEC** (Pseudokirchneriella subcapitata (green algae)): 0.457 mg/l
  Exposure time: 72 h
  Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- **NOEC** (Daphnia magna (Water flea)): < 0.007 mg/l
  Exposure time: 21 d
  Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity):
- 10

**Benzyl alcohol:**

Toxicity to fish:
- **LC50** (Pimephales promelas (fathead minnow)): 460 mg/l
  Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
- **EC50** (Daphnia magna (Water flea)): 230 mg/l
  Exposure time: 48 h
  Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants:
- **EC50** (Pseudokirchneriella subcapitata (green algae)): 770 mg/l
  Exposure time: 72 h
  Method: OECD Test Guideline 201
NOEC (Pseudokirchneriella subcapitata (green algae)): 310 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

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

NOEC (Daphnia magna (Water flea)): 51 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211

Ethanol:

Toxicity to fish:

LC50 (Pimephales promelas (fathead minnow)): > 1,000 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:

EC50 (Ceriodaphnia (water flea)): > 1,000 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants:

ErC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l
Exposure time: 72 h

EC10 (Chlorella vulgaris (Fresh water algae)): 11.5 mg/l
Exposure time: 72 h

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

NOEC (Daphnia magna (Water flea)): 9.6 mg/l
Exposure time: 9 d

Toxicity to microorganisms:

EC50 (Pseudomonas putida): 6,500 mg/l
Exposure time: 16 h

Persistence and degradability

Components:

Sodium bis(2-ethylhexyl)sulfosuccinate:

Biodegradability:
Result: Readily biodegradable.
Biodegradation: 91.2 %
Exposure time: 28 d

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:

Biodegradability:
Result: not rapidly degradable
Biodegradation: 50 %
Exposure time: 166 d

Benzyl alcohol:

Biodegradability:
Result: Readily biodegradable.
Biodegradation: 92 - 96 %
Exposure time: 14 d

Ethanol:

Biodegradability:
Result: Readily biodegradable.
Biodegradation: 84 %
Exposure time: 20 d
SAFETY DATA SHEET

Enilconazole Liquid Formulation

Bioaccumulative potential

Components:

Sodium bis(2-ethylhexyl)sulfosuccinate:
Partition coefficient: n-octanol/water: log Pow: 1.998
Remarks: Calculation

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
Partition coefficient: n-octanol/water: log Pow: 3.82

Benzyl alcohol:
Partition coefficient: n-octanol/water: log Pow: 1.05

Ethanol:
Partition coefficient: n-octanol/water: log Pow: -0.35

Mobility in soil

Components:

1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
Distribution among environmental compartments: log Koc: 3.82

Hazardous to the ozone layer
Not applicable

Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues: Dispose of in accordance with local regulations.
Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal.
Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death. If not otherwise specified: Dispose of as unused product.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number: UN 1992
Proper shipping name: FLAMMABLE LIQUID, TOXIC, N.O.S. (Ethanol, 1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-
SAFETY DATA SHEET

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Class: 3
Subsidiary risk: 6.1
Packing group: III
Labels: 3 (6.1)

IATA-DGR
UN/ID No.: UN 1992
Proper shipping name: Flammable liquid, toxic, n.o.s. (Ethanol, 1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole)

IMDG-Code
UN number: UN 1992
Proper shipping name: FLAMMABLE LIQUID, TOXIC, N.O.S. (Ethanol, 1-[2-(allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole)

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

National Regulations
Refer to section 15 for specific national regulation.

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.

15. REGULATORY INFORMATION

Related Regulations
Fire Service Law
Group 4, Type 2 petroleum, Water soluble liquid, (2000 litre), Hazardous rank III

Chemical Substance Control Law
Priority Assessment Chemical Substance

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium 1,4-bis[(2-ethylhexyl)oxy]-1,4-dioxobutane-2-sulfonate</td>
<td>213</td>
</tr>
</tbody>
</table>
Industrial Safety and Health Law

Harmful Substances Prohibited from Manufacture
Not applicable

Harmful Substances Required Permission for Manufacture
Not applicable

Substances Prevented From Impairment of Health
Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity
Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity
Not applicable

Substances Subject to be Notified Names

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzyl alcohol</td>
<td>530 2</td>
<td>&gt;=1 - &lt;10</td>
</tr>
<tr>
<td>Ethanol</td>
<td>61</td>
<td>&gt;=1 - &lt;10</td>
</tr>
</tbody>
</table>

Substances Subject to be Indicated Names

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>benzyl alcohol</td>
<td>530 2</td>
</tr>
<tr>
<td>Ethanol</td>
<td>61</td>
</tr>
</tbody>
</table>

Ordinance on Prevention of Hazards Due to Specified Chemical Substances
Not applicable

Ordinance on Prevention of Lead Poisoning
Not applicable

Ordinance on Prevention of Tetraalkyl Lead Poisoning
Not applicable

Ordinance on Prevention of Organic Solvent Poisoning
Not applicable

Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)
Inflammable Substance

Poisonous and Deleterious Substances Control Law
Not applicable

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof
Not applicable

High Pressure Gas Safety Act
Not applicable
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Explosive Control Law
Not applicable

Vessel Safety Law
Flammable liquids (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)

Aviation Law
Flammable liquid (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)

Marine Pollution and Sea Disaster Prevention etc Law
Bulk transportation : Noxious liquid substance (Category Z)
Pack transportation : Classified as marine pollutant

Narcotics and Psychotropics Control Act
Narcotic or Psychotropic Raw Material (Export / Import Permission)
Not applicable
Specific Narcotic or Psychotropic Raw Material (Export / Import permission)
Not applicable

Waste Disposal and Public Cleansing Law
Specially Controlled Industrial Waste

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

16. OTHER INFORMATION

Further information

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format : yyyy/mm/dd

Full text of other abbreviations
ACGIH : USA. ACGIH Threshold Limit Values (TLV)

ACGIH / STEL : Short-term exposure limit
JP OEL JSOH / OEL-C : Occupational Exposure Limit-Ceiling

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
SAFETY DATA SHEET

Enilconazole Liquid Formulation

Version 8.0  Revision Date: 2021/08/27  SDS Number: 906761-00014  Date of last issue: 2021/04/09

Date of first issue: 2016/09/22

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 Civil Aviation Organization; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECLI - 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

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.

JP / EN