Section 1: Identification

Product name : Enilconazole Liquid Formulation

Manufacturer or supplier’s details

Company : MSD
Address : 33 Whakatiki Street - Private Bag 908
 Upper Hutt - New Zealand
Telephone : 908-740-4000
Emergency telephone number : 1-908-423-6000
E-mail address : EHSDATASTEWARD@msd.com
Telefax : 908-735-1496

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

Section 2: Hazard identification

GHS Classification

Flammable liquids : Flam. Liq.3
Acute toxicity (Oral) : Acute Tox.3
Acute toxicity (Inhalation) : Acute Tox.4
Serious eye damage/eye irritation : 2A
Carcinogenicity : Carc.2
Specific target organ toxicity - repeated exposure : STOT RE2 (Liver)

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.
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/sparks/open flames/hot surfaces.
- No smoking.
- P233 Keep container tightly closed.
- P241 Use explosion-proof electrical/ventilating/lighting equipment.
- P242 Use only non-sparking tools.
- P243 Take precautionary measures against static discharge.
- 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.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P281 Use personal protective equipment as required.

**Response:**
- P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.
- P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340 + P312 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician 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.

**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.

Other hazards which do not result in classification
Vapours may form explosive mixture with air.

**Section 3: Composition/information on ingredients**

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

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


Unsuitable extinguishing media: High volume water jet.

Specific hazards during fire-fighting: 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.

Hazardous combustion products:
- Carbon oxides
- Sulphur oxides
- Metal oxides

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 firefighters:
- In the event of fire, wear self-contained breathing apparatus.
- Use personal protective equipment.

Hazchem Code:
- 3W

Section 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:
- Remove all sources of ignition.
- Use personal protective equipment.
- Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions:
- Discharge into the environment must be avoided.
- 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 absorbent.
- Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.
- Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

Section 7: Handling and storage

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

Local/Total ventilation:
- If sufficient ventilation is unavailable, use with local exhaust ventilation.
If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.

Advice on safe handling:
- Do not breathe vapours or spray mist.
- Do not swallow.
- Do not get in eyes.
- Avoid prolonged or repeated contact with skin.
- 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 and sources of ignition.
- Take precautionary measures against static discharges.
- Take care to prevent spills, waste and minimize release to the environment.

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.

Conditions for safe storage:
- Keep in properly labelled containers.
- Store locked up.
- Keep tightly closed.
- Keep in a cool, well-ventilated place.
- Store in accordance with the particular national regulations.
- Keep away from heat and sources of ignition.

Materials to avoid:
- Do not store with the following product types:
  - Self-reactive substances and mixtures
  - Organic peroxides
  - Oxidizing agents
  - Flammable gases
  - Pyrophoric liquids
  - Pyrophoric solids
  - Self-heating substances and mixtures
  - Poisonous gases
  - Explosives

---

**Section 8: Exposure controls/personal protection**

**Components 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>1-[2-(Allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole</td>
<td>35554-44-0</td>
<td>TWA</td>
<td>0.3 mg/m³ (OEB 2)</td>
<td>Internal</td>
</tr>
</tbody>
</table>

Further information: Skin
## 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 vapour type

**Hand protection**

- **Material**: 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.

## Section 9: Physical and chemical properties

**Appearance**

- liquid

**Colour**

- light yellow

**Odour**

- musty

**Odour Threshold**

- No data available

**pH**

- 9.5

**Melting point/freezing point**

- No data available

**Initial boiling point and boiling range**

- No data available

**Flash point**

- 45 °C

**Evaporation rate**

- No data available

**Flammability (solid, gas)**

- Not applicable
Enilconazole Liquid Formulation

### Section 1: Identification

**Product identifier:** Enilconazole Liquid Formulation

**SDS Number:** 906765-00010

**Version:** 3.7

**Revision Date:** 09/13/2019

**Date of last issue:** 24.04.2019

**Date of first issue:** 22.09.2016

### Section 2: Hazards identification

#### Flammability (liquids): Not applicable

#### Upper explosion limit / Upper flammability limit: No data available

#### Lower explosion limit / Lower flammability limit: No data available

#### Vapour pressure: No data available

#### Relative vapour density: No data available

#### Relative density: 1.094

#### Solubility(ies)

- **Water solubility:** soluble

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

#### Auto-ignition 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: No data available

### Section 3: Physical / chemical properties

- **Molecular weight:** No data available

### Section 4: Stability and reactivity

#### Reactivity: Not classified as a reactivity hazard.

#### Chemical stability: Stable under normal conditions.

#### Possibility of hazardous reactions:

- Flammable liquid and vapour.
- Vapours may form explosive mixture with air.
- Can react with strong oxidizing agents.

#### Conditions to avoid: Heat, flames and sparks.

#### Incompatible materials:

- Oxidizing agents
- Acids

#### Hazardous decomposition products: No hazardous decomposition products are known.

### Section 5: First-aid measures

#### Inhalation:

- Remove to fresh air. If not breathing, give artificial respiration. If breathing is not restored spontaneously, ventilate at a sustained rate.

#### Skin contact:

- Remove contaminated clothing and shoes. Wash affected area with soap and water. Take off contaminated clothing and wash before reuse. Take off immediately if irritation or redness persist.

#### Ingestion:

- If swallowed, induce vomiting. If not vomiting, give 200 ml of water or milk. Do not induce vomiting if the person is unconscious. Give artificial respiration if necessary. Take off immediately if irritation or redness persist.

### Section 6: Fire-fighting measures

- **Extinguishing media:** Ordinary water

### Section 7: Handling and storage

- **Precautions to be taken when using:** Wear appropriate protective clothing and equipment. Avoid contact with skin, eyes, and clothing. Do not breathe dust. Do not get near ignition sources. Keep container tightly closed.

- **Fire-fighting procedures:** Use dry chemical or alcohol-resistant foam. Do not use water if pool fire is present.

- **Special hazards:** Flammable liquid and vapour. Vapours may form explosive mixture with air. Can react with strong oxidizing agents.

### Section 8: Exposure controls / personal protection

- **Respiratory protection:** Use a NIOSH-approved N95 or higher respiratory protection equipment during handling of this product.

- **Eye protection:** Wear appropriate eye protection.

- **Skin protection:** Wear appropriate protective clothing.

- **Hand protection:** Wear appropriate protective gloves.

### Section 9: Physical / chemical stability

- **Stability:** Stable under normal conditions.

### Section 10: Stability and reactivity

#### Reactivity:

- **Not classified as a reactivity hazard.**

#### Chemical stability:

- **Stable under normal conditions.**

#### Possibility of hazardous reactions:

- Flammable liquid and vapour.
- Vapours may form explosive mixture with air.
- Can react with strong oxidizing agents.

#### Conditions to avoid:

- Heat, flames and sparks.

#### Incompatible materials:

- Oxidizing agents
- Acids

#### Hazardous decomposition products:

- No hazardous decomposition products are known.

### Section 11: Toxicological information

#### Exposure routes:

- **Inhalation:**
  - Remove to fresh air. If not breathing, give artificial respiration. If breathing is not restored spontaneously, ventilate at a sustained rate.

- **Skin contact:**
  - Remove contaminated clothing and shoes. Wash affected area with soap and water. Take off contaminated clothing and wash before reuse. Take off immediately if irritation or redness persist.

- **Ingestion:**
  - If swallowed, induce vomiting. If not vomiting, give 200 ml of water or milk. Do not induce vomiting if the person is unconscious. Give artificial respiration if necessary. Take off immediately if irritation or redness persist.
Eye contact

**Acute toxicity**
Toxic if swallowed.
Harmful if inhaled.

**Product:**
- **Acute oral toxicity**: LD50 (Rat): 192 - 309 mg/kg
- **Acute inhalation toxicity**: LC50 (Rat): 3.1 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
- **Acute dermal toxicity**: LD50 (Rabbit): > 900 mg/kg

**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
  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:**
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Enilconazole Liquid Formulation

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
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Enilconazole Liquid Formulation

Version 3.7 Revision Date: 09/13/2019 SDS Number: 906765-00010 Date of last issue: 24.04.2019
Date of first issue: 22.09.2016

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:
Test Type: Human repeat insult patch test (HRIPT)
Exposure routes: Skin contact
Species: Humans
Result: negative

1-[2-(Allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
Test Type: Maximisation Test
Exposure routes: Dermal
Species: Guinea pig
Result: equivocal

Dermal
Humans
Not a skin sensitizer.
Enilconazole Liquid Formulation

<table>
<thead>
<tr>
<th>Component</th>
<th>Genotoxicity in vitro</th>
<th>Genotoxicity in vivo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzyl alcohol:</td>
<td>Test Type: Maximisation Test</td>
<td>Result: negative</td>
</tr>
<tr>
<td>Exposure routes:</td>
<td>Skin contact</td>
<td></td>
</tr>
<tr>
<td>Species:</td>
<td>Guinea pig</td>
<td></td>
</tr>
<tr>
<td>Method:</td>
<td>OECD Test Guideline 406</td>
<td></td>
</tr>
<tr>
<td>Ethanol:</td>
<td>Test Type: Local lymph node assay (LLNA)</td>
<td>Result: negative</td>
</tr>
<tr>
<td>Exposure routes:</td>
<td>Skin contact</td>
<td></td>
</tr>
<tr>
<td>Species:</td>
<td>Mouse</td>
<td></td>
</tr>
<tr>
<td>Chronic toxicity</td>
<td>Germ cell mutagenicity</td>
<td>Not classified based on available information.</td>
</tr>
</tbody>
</table>

Components:

Sodium bis(2-ethylhexyl)sulfosuccinate:

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

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

<table>
<thead>
<tr>
<th>Genotoxicity in vitro</th>
<th>Test Type: Bacterial reverse mutation assay (AMES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result:</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: Chromosomal aberration</td>
<td>Result: negative</td>
</tr>
<tr>
<td>Test system:</td>
<td>Human lymphocytes</td>
</tr>
<tr>
<td>Test Type: gene mutation test</td>
<td>Result: negative</td>
</tr>
<tr>
<td>Test system:</td>
<td>Chinese hamster fibroblasts</td>
</tr>
<tr>
<td>Test Type: unscheduled DNA synthesis assay</td>
<td>Result: negative</td>
</tr>
<tr>
<td>Test system:</td>
<td>Rat hepatocytes</td>
</tr>
<tr>
<td>Genotoxicity in vivo</td>
<td>Test Type: Micronucleus test</td>
</tr>
<tr>
<td>Species:</td>
<td>Rat</td>
</tr>
<tr>
<td>Application Route:</td>
<td>Oral</td>
</tr>
</tbody>
</table>
### 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)
  - Species: Mouse
  - Application Route: Ingestion
  - Result: equivocal

### Carcinogenicity

Suspected of causing cancer.

### Components:

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Species</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>NOAEL</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rat</td>
<td>Oral</td>
<td>2 Years</td>
<td>40 mg/kg body weight</td>
<td>negative</td>
</tr>
<tr>
<td></td>
<td>Mouse</td>
<td>Oral</td>
<td>2 Years</td>
<td>33 mg/kg body weight</td>
<td>positive</td>
</tr>
</tbody>
</table>

Target Organs: Liver

Species: Mouse
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<table>
<thead>
<tr>
<th>Application Route</th>
<th>oral (feed)</th>
</tr>
</thead>
<tbody>
<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>Based on harmonised classification in EU regulation 1272/2008, Annex VI</td>
</tr>
</tbody>
</table>

Carcinogenicity - Assessment: Limited evidence of carcinogenicity in animal studies

**Benzyl alcohol:**

- **Species:** Mouse
- **Application Route:** Ingestion
- **Exposure time:** 103 weeks
- **Method:** OECD Test Guideline 451
- **Result:** negative

**Reproductive toxicity**

Not classified based on available information.

**Components:**

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

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

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

**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.
### Developmental Toxicity

**LOAEL**: 10 mg/kg body weight

**Result**: Maternal toxicity observed., No teratogenic effects, Postimplantation loss.

**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

**Effects on foetal development**

- **Test Type**: Embryo-foetal development
- **Species**: Mouse
- **Application Route**: Ingestion
- **Result**: negative

#### 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:**

- **Target Organs**: Liver
- **Assessment**: May cause damage to organs through prolonged or repeated exposure.

### 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:**
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<table>
<thead>
<tr>
<th>Species</th>
<th>NOAEL</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>750 mg/kg</td>
<td>Ingestion</td>
<td>90 Days</td>
<td></td>
</tr>
</tbody>
</table>

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

<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 - 24 Months</td>
<td>Liver</td>
<td>decrease in appetite</td>
</tr>
<tr>
<td>Dog</td>
<td>2.5 mg/kg</td>
<td>Oral</td>
<td>12 Months</td>
<td>Salivation, Vomiting</td>
<td></td>
</tr>
<tr>
<td>Mouse</td>
<td>12 mg/kg</td>
<td>Oral</td>
<td>3 Months</td>
<td>Liver</td>
<td></td>
</tr>
</tbody>
</table>

Benzyl alcohol:

<table>
<thead>
<tr>
<th>Species</th>
<th>NOAEL</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>1.072 mg/l</td>
<td>inhalation (dust/mist/fume)</td>
<td>28 Days</td>
<td>OECD Test Guideline 412</td>
<td>May cause respiratory tract irritation.</td>
</tr>
</tbody>
</table>

Ethanol:

<table>
<thead>
<tr>
<th>Species</th>
<th>NOAEL</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rat</td>
<td>1,280 mg/kg</td>
<td>Ingestion</td>
<td>90 Days</td>
<td>May irritate skin.</td>
</tr>
</tbody>
</table>

Aspiration toxicity
Not classified based on available information.

Experience with human exposure

Product:

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>Skin contact</th>
<th>Eye contact</th>
<th>Ingestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remarks: May cause respiratory tract irritation.</td>
<td>Remarks: May irritate skin.</td>
<td>Remarks: May irritate eyes.</td>
<td>Symptoms: Gastrointestinal disturbance, central nervous sys-</td>
</tr>
</tbody>
</table>
Enilconazole Liquid Formulation

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

Section 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:

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):

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:

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:

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:

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
**SAFETY DATA SHEET**

**Enilconazole 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>
</table>

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**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

---

**Benzyl alcohol:**

**Toxicity to fish:**

LC50 (Pimephales promelas (fathead minnow)): 460 mg/l

Exposure time: 96 h

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**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:**

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SAFETY DATA SHEET

Enilconazole Liquid Formulation

Biodegradability:
- 1-[2-(Allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
  - Result: Not rapidly degradable
  - Biodegradation: 50 %
  - Exposure time: 166 d

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

- Ethanol:
  - Result: Readily biodegradable.
  - Biodegradation: 84%
  - Exposure time: 20 d

Bioaccumulative potential

Components:

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

1-[2-(Allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
- Partition coefficient: n-octanol/water: \( \log \text{Pow} = 3.82 \)

Benzyl alcohol:
- Partition coefficient: n-octanol/water: \( \log \text{Pow} = 1.05 \)

Ethanol:
- Partition coefficient: n-octanol/water: \( \log \text{Pow} = -0.35 \)

Mobility in soil

Components:

1-[2-(Allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
- Distribution among environmental compartments: \( \log \text{Koc} = 3.82 \)

Other adverse effects

No data available
Section 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.

Section 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-imidazole)
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)
Class: 3
Subsidiary risk: 6.1
Packing group: III
Labels: Flammable Liquids, Toxic
Packing instruction (cargo aircraft): 366
Packing instruction (passenger aircraft): 355

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)
Class: 3
Subsidiary risk: 6.1
Packing group: III
Labels: 3 (6.1)
EmS Code: F-E, S-D
Marine pollutant: yes

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

National Regulations
SAFETY DATA SHEET

Enilconazole Liquid Formulation

Version 3.7  Revision Date: 09/13/2019  SDS Number: 906765-00010  Date of last issue: 24.04.2019
Date of first issue: 22.09.2016

NZS 5433
UN number : UN 1992
Proper shipping name : FLAMMABLE LIQUID, TOXIC, N.O.S.
                      (Ethanol, 1-[2-(Allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole)
Class : 3
Subsidiary risk : 6.1
Packing group : III
Labels : 3 (6.1)
Hazchem Code : 3W

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

Safety, health and environmental regulations/legislation specific for the substance or mixture

HSNO Approval Number
HSR100759 Veterinary Medicines Non dispersive Open System Application Group Standard 2017

HSW Controls
Certified handler certificate not required.
Tracking hazardous substance not required.
Refer to the Health and Safety at Work (Hazardous Substances) Regulations 2017, for further information.

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

Section 16: Other information

Further information
Date format : dd.mm.yyyy

Full text of other abbreviations
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
NZ OEL : New Zealand. Workplace Exposure Standards for Atmospher-
ic Contaminants

ACGIH / STEL : Short-term exposure limit
NZ OEL / WES-TWA : Workplace Exposure Standard - Time Weighted average

AICS - Australian Inventory of Chemical Substances; 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 Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; 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; 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.

NZ / EN