Enilconazole Liquid Formulation

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Enilconazole Liquid Formulation

Manufacturer or supplier’s details
Company: MSD
Address: No. 485 Jing Tai Road  
Pu Tuo District - Shanghai - China 200331
Telephone: 908-740-4000
Emergency telephone number: 86-571-87268110
E-mail address: EHSDATASTEWARD@msd.com

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

2. HAZARDS IDENTIFICATION

Emergency Overview
Appearance: liquid
Colour: light yellow
Odour: musty

Flammable liquid and vapour. Toxic if swallowed. Causes serious eye irritation. Harmful if inhaled. Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure. Toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

GHS Classification
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
Short-term (acute) aquatic hazard: Category 2
Long-term (chronic) aquatic hazard: Category 1
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GHS label elements

Hazard pictograms: 

- Flammable liquid and vapour
- Poison
- Hazards to health
- Flora and fauna

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 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/ 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.
- 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/ shower.
- 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.

Physical and chemical hazards
Flammable liquid and vapour.

Health hazards
Toxic if swallowed. Harmful if inhaled. Causes serious eye irritation. Suspected of causing cancer. May cause damage to organs through prolonged or repeated exposure.

Environmental hazards
Toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Chemical name</td>
</tr>
<tr>
<td>Mixture</td>
<td>Sodium bis(2-ethylhexyl)sulfosuccinate</td>
</tr>
<tr>
<td></td>
<td>1-[2-(Allyloxy)-2-4-dichlorophenyl]ethyl]-1H-imidazole</td>
</tr>
<tr>
<td></td>
<td>Benzyl alcohol</td>
</tr>
<tr>
<td></td>
<td>Ethanol</td>
</tr>
</tbody>
</table>

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.
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5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO2)
Dry chemical

Unsuitable extinguishing media : High volume water jet

Specific hazards during firefighting : 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.

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.

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. 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.

Avoidance of contact: Oxidizing agents
- Acids

Storage
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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

Packaging material: Unsuitable material: None known.

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>
<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

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

Eye/face 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.

Hand protection: Material: Chemical-resistant gloves

Remarks: Take note that the product is flammable, which may impact the selection of hand protection.

Hygiene measures: If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the work-
ing 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>light yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>musty</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>9.5</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>45 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.094</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>soluble</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
</tbody>
</table>
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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

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.

11. TOXICOLOGICAL INFORMATION

Exposure routes : Inhalation
  Skin contact
  Ingestion
  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

### 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
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<table>
<thead>
<tr>
<th>Method</th>
<th>OECD Test Guideline 404</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Skin irritation</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Mild skin irritation</td>
</tr>
</tbody>
</table>

**Benzyl alcohol:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 404</td>
</tr>
<tr>
<td>Result</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>

**Ethanol:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 404</td>
</tr>
<tr>
<td>Result</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>

**Serious eye damage/eye irritation**

Causes serious eye irritation.

**Product:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Moderate eye irritation</td>
</tr>
</tbody>
</table>

**Components:**

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

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Irreversible effects on the eye</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 405</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Irreversible effects on the eye</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on harmonised classification in EU regulation 1272/2008, Annex VI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Moderate eye irritation</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on harmonised classification in EU regulation 1272/2008, Annex VI</td>
</tr>
</tbody>
</table>

**Benzyl alcohol:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Irritation to eyes, reversing within 21 days</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 405</td>
</tr>
</tbody>
</table>
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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

Benzyl alcohol:
Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

Ethanol:
Test Type: Local lymph node assay (LLNA)
Exposure routes: Skin contact
Species: Mouse
Result: negative

Germ cell mutagenicity
Not classified based on available information.
Components:

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

- **Genotoxicity in vitro**
  - Test Type: Bacterial reverse mutation assay (AMES)
  - Method: OECD Test Guideline 471
  - Result: negative
  - Test Type: Chromosome aberration test in vitro
  - Method: OECD Test Guideline 473
  - Result: equivocal
  - 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
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**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>Species</th>
<th>Oral</th>
<th>2 Years</th>
<th>40 mg/kg body weight</th>
<th>negative</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
<th>Oral</th>
<th>2 Years</th>
<th>33 mg/kg body weight</th>
<th>positive</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
<th>Oral (feed)</th>
<th>23 Months</th>
<th>8 mg/kg body weight</th>
<th>positive</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
<th>Ingestion</th>
<th>103 weeks</th>
<th>OECD Test Guideline 451</th>
<th>negative</th>
</tr>
</thead>
</table>

#### Benzyl alcohol:

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Application Route</th>
<th>Ingestion</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Exposure time</th>
<th>103 weeks</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Method</th>
<th>OECD Test Guideline 451</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Result</th>
<th>negative</th>
</tr>
</thead>
</table>

Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI
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.
  - Test Type: Development
  - Species: Rabbit
  - Application Route: Oral
  - 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
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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 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:
Species: Rat
NOAEL: 750 mg/kg
Application Route: Ingestion
Exposure time: 90 Days

1-[2-(Allyloxy)-2-(2,4-dichlorophenyl)ethyl]-1H-imidazole:
Species: Rat
NOAEL: 5 mg/kg
LOAEL: 20 mg/kg
Application Route: Oral
Exposure time: 3 - 24 Months
Target Organs: Liver
Symptoms: decrease in appetite
Enilconazole Liquid Formulation

Species: Dog
NOAEL: 2.5 mg/kg
LOAEL: 20 mg/kg
Application Route: Oral
Exposure time: 12 Months
Symptoms: Salivation, Vomiting

Species: Mouse
NOAEL: 12 mg/kg
LOAEL: 140 mg/kg
Application Route: Oral
Exposure time: 3 Months
Target Organs: Liver

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
### 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
**Enilconazole Liquid Formulation**

**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

**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

**Other adverse effects**
No data available

13. **DISPOSAL CONSIDERATIONS**

**Disposal methods**
- **Waste from residues:** Dispose of in accordance with local regulations.
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

GB 6944/12268
UN number : UN 1992
Proper shipping name : FLAMMABLE LIQUID, TOXIC, N.O.S.
Enilconazole Liquid Formulation

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

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

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

National regulatory information
Law on the Prevention and Control of Occupational Diseases

Regulations on Safety Management of Hazardous Chemicals
Catalogue of Hazardous Chemicals : Listed

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)
No. / Code Chemical name / Category Threshold quantity
W5.4 Flammable liquids 5,000 t

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

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 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; PBRT - 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

Disclaimer
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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