SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name: Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

1.2 Relevant identified uses of the substance or mixture and uses advised against
Use of the Substance/Mixture: Veterinary product

1.3 Details of the supplier of the safety data sheet
Company: MSD
20 Spartan Road
1619 Spartan, South Africa
Telephone: +27119239300
E-mail address of person responsible for the SDS: EHSDATASTEWARD@msd.com

1.4 Emergency telephone number
+1-908-423-6000

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3
Acute toxicity, Category 3
Acute toxicity, Category 4
Acute toxicity, Category 3
Skin irritation, Category 2
Serious eye damage, Category 1
Germ cell mutagenicity, Category 1B
Carcinogenicity, Category 1B
Reproductive toxicity, Category 1B
Specific target organ toxicity - single exposure, Category 1
Specific target organ toxicity - single exposure, Category 3
Specific target organ toxicity - repeated exposure, Category 1
Aspiration hazard, Category 1
Short-term (acute) aquatic hazard, Category 1
Long-term (chronic) aquatic hazard, Category 1

H226: Flammable liquid and vapour.
H301: Toxic if swallowed.
H332: Harmful if inhaled.
H311: Toxic in contact with skin.
H315: Causes skin irritation.
H318: Causes serious eye damage.
H340: May cause genetic defects.
H350: May cause cancer.
H360FD: May damage fertility. May damage the unborn child.
H370: Causes damage to organs.
H336: May cause drowsiness or dizziness.
H372: Causes damage to organs through prolonged or repeated exposure.
H304: May be fatal if swallowed and enters airways.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting
2.2 Label elements

**Labelling (REGULATION (EC) No 1272/2008)**

<table>
<thead>
<tr>
<th>Hazard pictograms</th>
<th>Signal word</th>
<th>Hazard statements</th>
<th>Precautionary statements</th>
</tr>
</thead>
</table>
| ![Pictograms](image1) | Danger     | H226 Flammable liquid and vapour.  
H301 + H311 Toxic if swallowed or in contact with skin.  
H304 May be fatal if swallowed and enters airways.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H332 Harmful if inhaled.  
H336 May cause drowsiness or dizziness.  
H340 May cause genetic defects.  
H350 May cause cancer.  
H360FD May damage fertility. May damage the unborn child.  
H370 Causes damage to organs.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H410 Very toxic to aquatic life with long lasting effects.  |
|                   |             |                   | P201 Obtain special instructions before use.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  |
|                   |             |                   | Prevention:  |
|                   |             |                   | Response:  |
|                   |             |                   | P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.  
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.  
P391 Collect spillage.  |

Hazardous components which must be listed on the label:

- Solvent naphtha (petroleum), light aromatic
- Ethion
- Chlorpyrifos
- 2-Methyl-1-propanol

**Additional Labelling**

Restricted to professional users.
## 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Vapours may form explosive mixture with air.

### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No. Index-No. Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>64742-95-6 265-199-0 649-356-00-4</td>
<td>Flam. Liq. 3; H226 Skin Irrit. 2; H315 Muta. 1B; H340 Carc. 1B; H350 STOT SE 3; H336 Asp. Tox. 1; H304 Aquatic Chronic 2; H411</td>
<td>&gt;= 50 - &lt; 70</td>
</tr>
<tr>
<td>Ethion</td>
<td>563-12-2 209-242-3 015-047-00-2</td>
<td>Acute Tox. 2; H300 Acute Tox. 2; H330 Acute Tox. 2; H310 STOT SE 1; H370 (Central nervous system) STOT RE 1; H372 (Central nervous system) Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>&gt;= 10 - &lt; 20</td>
</tr>
<tr>
<td>Chlorpyrifos</td>
<td>2921-88-2 220-864-4 015-084-00-4</td>
<td>Acute Tox. 3; H301 Acute Tox. 2; H330 Acute Tox. 4; H312 Repr. 1B; H360FD STOT SE 1; H370 (Central nervous system) STOT RE 1; H372 (Central nervous system)</td>
<td>&gt;= 2.5 - &lt; 10</td>
</tr>
</tbody>
</table>
### SAFETY DATA SHEET

**Ethion / Chlorpyrifos / Alpha-Cypermethrin 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>

| 2-Methyl-1-propanol | 78-83-1  
|                     | 201-148-0  
|                     | 603-108-00-1 | Flam. Liq. 3; H226 
|                     |               | Skin Irrit. 2; H315 
|                     |               | Eye Dam. 1; H318 
|                     |               | STOT SE 3; H335 
|                     |               | STOT SE 3; H336 |

| (S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate | 67375-30-8  
|                                                                 | 607-422-00-X | Acute Tox. 3; H301 
|                                                                 |               | Acute Tox. 4; H332 
|                                                                 |               | Skin Irr. 2; H315 
|                                                                 |               | STOT SE 3; H335 
|                                                                 |               | STOT RE 2; H373 
|                                                                 |               | (Central nervous system) 
| Hydrocarbons, C10, aromatics, <1% naphthalene | 64742-94-5 | STOT SE 3; H336 
| Hydrocarbons, C10, aromatics, <1% naphthalene | 64742-94-5 | Asp. Tox. 1; H304 
| 2,6-Di-tert-butyl-p-cresol | 128-37-0  
| | 204-881-4 | Aquatic Acute 1; H400 
| 2,6-Di-tert-butyl-p-cresol | 128-37-0  
| | 204-881-4 | Aquatic Chronic 1; H410 |

For explanation of abbreviations see section 16.
SECTION 4: First aid measures

4.1 Description of 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.

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).

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 for at least 15 minutes while removing 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 immediately.

If swallowed: If swallowed, DO NOT induce vomiting. If vomiting occurs have person lean forward. Call a physician or poison control centre immediately. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Risks: Toxic if swallowed or in contact with skin. May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye damage. Harmful if inhaled. May cause drowsiness or dizziness. May cause genetic defects. May cause cancer. May damage fertility. May damage the unborn child. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically and supportively.
SECTION 5: Firefighting measures

5.1 Extinguishing media

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

Unsuitable extinguishing media:
- High volume water jet

5.2 Special hazards arising from the substance or mixture

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
- Oxides of phosphorus
- Chlorine compounds
- Nitrogen oxides (NOx)

5.3 Advice for firefighters

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

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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions:
- Remove all sources of ignition.
- Use personal protective equipment.
- Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).

6.2 Environmental precautions

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).
6.3 Methods and material for containment and cleaning up

Methods for 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.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe 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 get on skin or clothing.
- Do not breathe mist or vapours.
- Do not swallow.
- Do not get in eyes.
- Wash skin thoroughly after handling.
- Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
  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.

Hygiene measures:
- If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working
7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers:
- 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.

Advice on common storage:
- Do not store with the following product types:
  - Strong oxidizing agents
  - Organic peroxides
  - Flammable solids
  - Pyrophoric liquids
  - Pyrophoric solids
  - Self-heating substances and mixtures
  - Substances and mixtures, which in contact with water, emit flammable gases
  - Explosives
  - Gases

7.3 Specific end use(s)

Specific use(s):
- No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

### Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorpyrifos</td>
<td>2921-88-2</td>
<td>TWA OEL-RL</td>
<td>0,2 mg/m³</td>
<td>ZA OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL OEL-RL</td>
<td>0,6 mg/m³</td>
<td>ZA OEL</td>
</tr>
<tr>
<td>2-Methyl-1-propanol</td>
<td>78-83-1</td>
<td>STEL OEL-RL</td>
<td>75 ppm 225 mg/m³</td>
<td>ZA OEL</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>TWA OEL-RL</td>
<td>10 mg/m³</td>
<td>ZA OEL</td>
</tr>
</tbody>
</table>

### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Substance name</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Sampling time</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorpyrifos</td>
<td>2921-88-2</td>
<td>Cholinesterase activity: 70 % of an individual's base-</td>
<td>Discretionary (At any time)</td>
<td>ZA BEI</td>
</tr>
</tbody>
</table>
### Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methyl-1-propanol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>310 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>55 mg/m³</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Dermal</td>
<td>Long-term systemic effects</td>
<td>0.5 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>0.86 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Dermal</td>
<td>Long-term systemic effects</td>
<td>0.25 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.25 mg/kg bw/day</td>
</tr>
<tr>
<td>Hydrocarbons, C10, aromatics, &lt;1% naphthalene</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>151 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>12.5 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>32 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>7.5 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>7.5 mg/kg bw/day</td>
</tr>
</tbody>
</table>

### Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methyl-1-propanol</td>
<td>Fresh water</td>
<td>0.4 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.04 mg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>11 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>10 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>1.56 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>0.156 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>0.076 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>Fresh water</td>
<td>0.199 µg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>0.02 µg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.02 µg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>0.17 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>0.0996 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>0.00996 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>0.04769 mg/kg</td>
</tr>
</tbody>
</table>
8.2 Exposure controls

Engineering measures

Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.
Use explosion-proof electrical, ventilating and lighting equipment.

Personal protective equipment

Eye protection : Wear the following personal protective equipment:
Chemical resistant goggles must be worn.
If splashes are likely to occur, wear:
Face-shield

Hand protection

Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Take note that the product is flammable, which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

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 (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : liquid
Colour : yellow
Odour : strong
Odour Threshold : No data available
pH : No data available
Melting point/freezing point : No data available


Initial boiling point and boiling range: No data available
Flash point: 43 °C
Evaporation rate: No data available
Flammability (solid, gas): 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: 0.96 - 1.02
Density: No data available
Solubility(ies)
   Water solubility: No data available
   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.

9.2 Other information
Flammability (liquids): Not applicable
Molecular weight: No data available
Particle size: No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
Not classified as a reactivity hazard.

10.2 Chemical stability
Stable under normal conditions.
SAFETY DATA SHEET

Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

Version 3.6 Revision Date: 27.08.2021 SDS Number: 935023-00011 Date of last issue: 09.04.2021
Date of first issue: 12.10.2016

10.3 Possibility of hazardous reactions
Hazardous reactions: Flammable liquid and vapour. Vapours may form explosive mixture with air. Can react with strong oxidizing agents.

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

10.5 Incompatible materials
Materials to avoid: Oxidizing agents

10.6 Hazardous decomposition products
No hazardous decomposition products are known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects
Information on likely routes of exposure:
Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity
Toxic if swallowed or in contact with skin. Harmful if inhaled.

Product:
Acute oral toxicity: Acute toxicity estimate: 70,32 mg/kg Method: Calculation method
Acute inhalation toxicity: Acute toxicity estimate: 1,64 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity: Acute toxicity estimate: 376,23 mg/kg Method: Calculation method

Components:
Solvent naphtha (petroleum), light aromatic:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
Acute inhalation toxicity: LC50 (Rat): > 5,61 mg/l Exposure time: 4 h Test atmosphere: vapour
Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg

Ethion:
### Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

**Version 3.6**

**Revision Date:** 27.08.2021

**SDS Number:** 935023-00011

**Date of last issue:** 09.04.2021

**Date of first issue:** 12.10.2016

---

**Acute oral toxicity**

- **LD50 (Rat):** 13 mg/kg
  - Acute toxicity estimate: 13 mg/kg
  - Method: Calculation method

**Acute inhalation toxicity**

- **LC50 (Rat):** 0.450 mg/l
  - Exposure time: 4 h
  - Test atmosphere: dust/mist
  - Acute toxicity estimate: 0.45 mg/l
  - Test atmosphere: dust/mist
  - Method: Calculation method

**Acute dermal toxicity**

- **LD50 (Rat):** 62 mg/kg
  - Acute toxicity estimate: 62 mg/kg
  - Method: Calculation method

**Chlorpyrifos:**

**Acute oral toxicity**

- **LD50 (Rat):** 82 mg/kg
  - Acute toxicity estimate: 82 mg/kg
  - Method: Calculation method

**Acute inhalation toxicity**

- **LC50 (Rat):** 0.385 mg/l
  - Exposure time: 4 h
  - Test atmosphere: dust/mist
  - Acute toxicity estimate: 0.385 mg/l
  - Test atmosphere: dust/mist
  - Method: Calculation method

**Acute dermal toxicity**

- **LD50 (Rat):** 1.250 - 2.000 mg/kg
  - Acute toxicity estimate: 1.250 mg/kg
  - Method: Calculation method

**2-Methyl-1-propanol:**

**Acute oral toxicity**

- **LD50 (Rat):** 3.350 mg/kg
  - Method: OECD Test Guideline 401

**Acute inhalation toxicity**

- **LC50 (Rat):** > 24.6 mg/l
  - Exposure time: 4 h
  - Test atmosphere: vapour

**Acute dermal toxicity**

- **LD50 (Rabbit):** 2.460 mg/kg
  - Method: OECD Test Guideline 402

**2-(S)-(α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:**

**Acute oral toxicity**

- **LD50 (Rat):** 57 mg/kg
Method: EC Directive 92/69/EEC B.1 Acute Toxicity (Oral)

Acute toxicity estimate: 57 mg/kg
Method: Calculation method

Acute inhalation toxicity:
LC50 (Rat): > 1.16 - 1.21 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute toxicity estimate: 1.160116 mg/l
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity:
LD50 (Rat): > 2.000 mg/kg

Hydrocarbons, C10, aromatics, <1% naphthalene:

Acute oral toxicity:
LD50 (Rat): > 5.000 mg/kg
Method: OECD Test Guideline 420
Remarks: Based on data from similar materials

Acute inhalation toxicity:
LC50 (Rat): > 4.778 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: Based on data from similar materials

Acute dermal toxicity:
LD50 (Rabbit): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

2,6-Di-tert-butyl-p-cresol:

Acute oral toxicity:
LD50 (Rat): > 6.000 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity:
LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation
Causes skin irritation.

Components:

Solvent naphtha (petroleum), light aromatic:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Skin irritation
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Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

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Date of last issue: 09.04.2021
Date of first issue: 12.10.2016

Ethion:
Species : Rabbit
Result : Mild skin irritation

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

2-Methyl-1-propanol:
Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:
Species : Rabbit
Result : Skin irritation

Hydrocarbons, C10, aromatics, <1% naphthalene:
Assessment : Repeated exposure may cause skin dryness or cracking.

2,6-Di-tert-butyl-p-cresol:
Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation
Remarks : Based on data from similar materials

Serious eye damage/eye irritation
Causes serious eye damage.

Components:

Solvent naphtha (petroleum), light aromatic:
Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation

Ethion:
Result : No eye irritation

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

2-Methyl-1-propanol:
Species : Rabbit
Method : OECD Test Guideline 405
Result : Irreversible effects on the eye

(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:
Species : Rabbit
Result : No eye irritation

Hydrocarbons, C10, aromatics, <1% naphthalene:
Species : Rabbit
Result : No eye irritation
Remarks : Based on data from similar materials

2,6-Di-tert-butyl-p-cresol:
Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation
Remarks : Based on data from similar materials

Respiratory or skin sensitisation
Skin sensitisation
Not classified based on available information.
Respiratory sensitisation
Not classified based on available information.
Components:
Solvent naphtha (petroleum), light aromatic:
Test Type : Buehler Test
Exposure routes : Skin contact
Species : Guinea pig
Result : negative

Ethion:
Exposure routes : Skin contact
Species : Guinea pig
Result : negative

Chlorpyrifos:
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative

2-Methyl-1-propanol:
Test Type : Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Result: negative
Remarks: Based on data from similar materials

(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:
Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

Hydrocarbons, C10, aromatics, <1% naphthalene:
Test Type: Maximisation Test
Exposure routes: Skin contact
Species: Guinea pig
Result: negative
Remarks: Based on data from similar materials

2,6-Di-tert-butyl-p-cresol:
Test Type: Human repeat insult patch test (HRIPT)
Exposure routes: Skin contact
Species: Humans
Result: negative

Germ cell mutagenicity
May cause genetic defects.

Components:
Solvent naphtha (petroleum), light aromatic:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo: Test Type: In vitro mammalian cell gene mutation test
Result: positive

Genotoxicity in vivo: Test Type: Sister chromatid exchange analysis in spermatogonia
Species: Mouse
Application Route: Intraperitoneal injection
Result: positive

Germ cell mutagenicity- Assessment: Positive result(s) from in vivo heritable germ cell mutagenicity tests in mammals

Ethion:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
Result: negative

Test Type: In vitro sister chromatid exchange assay in mammalian cells
Result: negative

Test Type: in vitro micronucleus test
Result: positive

Genotoxicity in vivo:
Test Type: Chromosomal aberration
Species: Rat
Result: negative

Test Type: In vivo micronucleus test
Species: Mouse
Result: positive

Germ cell mutagenicity- Assessment:
Weight of evidence does not support classification as a germ cell mutagen.

Chlorpyrifos:

Genotoxicity in vitro:
Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

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

Genotoxicity in vivo:
Test Type: In vivo mammalian alkaline comet assay
Species: Rat
Result: positive

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

Germ cell mutagenicity- Assessment:
Weight of evidence does not support classification as a germ cell mutagen.

2-Methyl-1-propanol:

Genotoxicity in vitro:
Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Test Type: Chromosome aberration test in vitro
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Result: negative
Genotoxicity in vivo

- Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
  - Species: Mouse
  - Application Route: Ingestion
  - Method: OECD Test Guideline 474
  - Result: negative

\[(S)-\alpha-\text{Cyano-3-phenoxybenzyl} (1R, 3R)-3-(2,2\text{-dichlorovinyl})-2,2\text{-dimethylcyclopropanecarboxylate}:\]

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: negative

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

Genotoxicity in vivo

- Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
  - Species: Mouse
  - Application Route: Ingestion
  - Method: OECD Test Guideline 475
  - Result: negative

  - Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
    - Species: Mouse
    - Application Route: Ingestion
    - Method: OECD Test Guideline 474
    - Result: negative

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

Hydrocarbons, C10, aromatics, <1% naphthalene:

Genotoxicity in vitro

- Test Type: In vitro sister chromatid exchange assay in mammalian cells
  - Result: negative
  - Remarks: Based on data from similar materials

Genotoxicity in vivo

- Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
  - Species: Rat
  - Application Route: inhalation (vapour)
Result: negative
Remarks: Based on data from similar materials

2,6-Di-tert-butyl-p-cresol:
Genotoxicity in vitro:
- Test Type: Bacterial reverse mutation assay (AMES)
  Result: negative
- Test Type: In vitro mammalian cell gene mutation test
  Result: negative
- Test Type: Chromosome aberration test in vitro
  Result: negative

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

Carcinogenicity
May cause cancer.

Components:

Solvent naphtha (petroleum), light aromatic:
Species: Mouse
Application Route: Skin contact
Exposure time: 2 Years
Result: positive

Carcinogenicity - Assessment:
Sufficient evidence of carcinogenicity in animal experiments

Ethion:
Species: Rat
Application Route: Ingestion
Exposure time: 18 Months
Result: negative

Species: Mouse
Application Route: Ingestion
Exposure time: 24 Months
Result: negative

Chlorpyrifos:
Species: Rat
Application Route: Ingestion
Exposure time: 2 Years
Result: negative

Species: Dog
Application Route: Ingestion
**Safety Data Sheet**

**Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation**

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Exposure time: 2 Years  
Result: negative

**(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:**

Species: Rat  
Application Route: Ingestion  
Exposure time: 2 Years  
Result: negative

**2,6-Di-tert-butyl-p-cresol:**

Species: Rat  
Application Route: Ingestion  
Exposure time: 22 Months  
Result: negative

**Reproductive toxicity**

May damage fertility. May damage the unborn child.

**Components:**

**Solvent naphtha (petroleum), light aromatic:**

Effects on fertility: Test Type: Reproduction/Developmental toxicity screening test  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

Effects on foetal development: Test Type: Embryo-foetal development  
Species: Rat  
Application Route: inhalation (vapour)  
Result: negative

**Ethion:**

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

**Chlorpyrifos:**

Effects on fertility: Test Type: Fertility  
Species: Mouse  
Application Route: Ingestion  
Result: positive
Effects on foetal development:
- Test Type: Embryo-foetal development
  - Species: Mouse
  - Application Route: Intraperitoneal injection
  - Result: positive

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

2-Methyl-1-propanol:
Effects on fertility:
- Test Type: Two-generation reproduction toxicity study
  - Species: Rat
  - Application Route: Inhalation (vapour)
  - Method: OPPTS 870.3800
  - Result: negative

Effects on foetal development:
- Test Type: Embryo-foetal development
  - Species: Rat
  - Application Route: Inhalation (vapour)
  - Method: OECD Test Guideline 414
  - Result: negative

(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:
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
  - Method: OECD Test Guideline 414
  - Result: negative

Hydrocarbons, C10, aromatics, <1% naphthalene:
Effects on fertility:
- Test Type: Three-generation reproduction toxicity study
  - Species: Rat
  - Application Route: Inhalation (vapour)
  - Result: negative
  - Remarks: Based on data from similar materials

Effects on foetal development:
- Test Type: Embryo-foetal development
  - Species: Rat
  - Application Route: Ingestion
  - Result: negative
  - Remarks: Based on data from similar materials

2,6-Di-tert-butyl-p-cresol:
Effects on fertility:
- Test Type: Two-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

STOT - single exposure
May cause drowsiness or dizziness.
Causes damage to organs.

Components:

Solvent naphtha (petroleum), light aromatic:
Assessment: May cause drowsiness or dizziness.

Ethion:
Assessment: Causes damage to organs.

Chlorpyrifos:
Target Organs: Central nervous system
Assessment: Causes damage to organs.

2-Methyl-1-propanol:
Assessment: May cause respiratory irritation., May cause drowsiness or dizziness.

(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:
Assessment: May cause respiratory irritation.
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Hydrocarbons, C10, aromatics, <1% naphthalene:
Assessment: May cause drowsiness or dizziness.
Remarks: Based on data from similar materials

STOT - repeated exposure
Causes damage to organs through prolonged or repeated exposure.

Components:

Ethion:
Target Organs: Central nervous system
Assessment: Causes damage to organs through prolonged or repeated exposure.
### Chlorpyrifos:
- **Target Organs**: Central nervous system
- **Assessment**: Causes damage to organs through prolonged or repeated exposure.

(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:
- **Exposure routes**: Ingestion
- **Target Organs**: Central nervous system
- **Assessment**: Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

### 2,6-Di-tert-butyl-p-cresol:
- **Assessment**: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

### Repeated dose toxicity

### Components:

#### Solvent naphtha (petroleum), light aromatic:
- **Species**: Rat
- **LOAEL**: 500 mg/kg
- **Application Route**: Ingestion
- **Exposure time**: 28 Days

#### Ethion:
- **Species**: Dog
- **NOAEL**: 0.05 mg/kg
- **Application Route**: Ingestion
- **Exposure time**: 90 Days

#### Chlorpyrifos:
- **Species**: Rat
- **LOAEL**: 1 mg/kg
- **Application Route**: Ingestion
- **Exposure time**: 13 Weeks

#### 2-Methyl-1-propanol:
- **Species**: Rat
- **NOAEL**: > 1.450 mg/kg
- **Application Route**: Ingestion
- **Exposure time**: 90 Days
- **Method**: OECD Test Guideline 408

(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:
- **Species**: Dog
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NOAEL: 3.5 mg/kg
LOAEL: 13.3 mg/kg
Application Route: Ingestion
Exposure time: 90 Days

Hydrocarbons, C10, aromatics, <1% naphthalene:
Species: Rat
NOAEL: 300 mg/kg
Application Route: Ingestion
Exposure time: 13 Weeks
Remarks: Based on data from similar materials

2,6-Di-tert-butyl-p-cresol:
Species: Rat
NOAEL: 25 mg/kg
Application Route: Ingestion
Exposure time: 22 Months

Aspiration toxicity
May be fatal if swallowed and enters airways.

Product:
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Components:
Solvent naphtha (petroleum), light aromatic:
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

2-Methyl-1-propanol:
The substance or mixture causes concern owing to the assumption that it causes a human aspiration toxicity hazard.

Hydrocarbons, C10, aromatics, <1% naphthalene:
The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Experience with human exposure
Components:
Ethion:
Ingestion: Symptoms: Blurred vision, Dizziness, Headache

Chlorpyrifos:
Inhalation: Symptoms: Headache, Nausea, Vomiting
Ingestion: Symptoms: Cyanosis, Diarrhoea
SECTION 12: Ecological information

12.1 Toxicity

**Components:**

**Solvent naphtha (petroleum), light aromatic:**

- **Toxicity to fish**: LC50 (Pimephales promelas (fathead minnow)): 8.2 mg/l
  - Exposure time: 96 h
  - Test substance: Water Accommodated Fraction

- **Toxicity to daphnia and other aquatic invertebrates**: EL50 (Daphnia magna (Water flea)): 4.5 mg/l
  - Exposure time: 48 h
  - Test substance: Water Accommodated Fraction
  - Method: OECD Test Guideline 202

- **Toxicity to algae/aquatic plants**: EL50 (Pseudokirchneriella subcapitata (microalgae)): 3.1 mg/l
  - Exposure time: 96 h
  - Test substance: Water Accommodated Fraction
  - Method: OECD Test Guideline 201

  NOELR (Pseudokirchneriella subcapitata (microalgae)): 0.5 mg/l
  - Exposure time: 96 h
  - Test substance: Water Accommodated Fraction
  - Method: OECD Test Guideline 201

- **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**:
  - NOELR: 2.6 mg/l
  - Exposure time: 21 d
  - Species: Daphnia magna (Water flea)
  - Test substance: Water Accommodated Fraction
  - Method: OECD Test Guideline 211

**Ethion:**

- **Toxicity to fish**: LC50 (Oncorhynchus mykiss (rainbow trout)): 0.18 mg/l
  - Exposure time: 96 h

- **Toxicity to daphnia and other aquatic invertebrates**: EC50: 0.056 - 7.7 µg/l
  - Exposure time: 48 h

- **M-Factor (Acute aquatic toxicity)**: 10.000

- **M-Factor (Chronic aquatic toxicity)**: 10.000

**Chlorpyrifos:**

- **Toxicity to fish**: LC50 (Menidia menidia (Atlantic silverside)): 0.53 µg/l
  - Exposure time: 96 h

- **Toxicity to daphnia and other aquatic invertebrates**: LC50 (Daphnia sp. (water flea)): 0.035 µg/l
  - Exposure time: 48 h
Toxicity to algae/aquatic plants: EC₅₀ (Skeletonema costatum (marine diatom)): 298 µg/l
Exposure time: 72 h

M-Factor (Acute aquatic toxicity): 10.000

Toxicity to fish (Chronic toxicity): NOEC: 0.003 mg/l
Exposure time: 7 d
Species: Pimephales promelas (fathead minnow)

M-Factor (Chronic aquatic toxicity): 10.000

2-Methyl-1-propanol:
Toxicity to fish: LC₅₀ (Pimephales promelas (fathead minnow)): 1.430 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC₅₀ (Daphnia pulex (Water flea)): 1.100 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants: ER₅₀ (Pseudokirchneriella subcapitata (green algae)): 1.799 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 117 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 20 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:
Toxicity to fish: LC₅₀ (Cyprinus carpio (Carp)): 0.00084 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC₅₀ (Daphnia magna (Water flea)): 0.0003 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants: ER₅₀ (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

EC₁₀ (Pseudokirchneriella subcapitata (green algae)): > 1 mg/l
Exposure time: 72 h
M-Factor (Acute aquatic toxicity) : 1.000

Toxicity to fish (Chronic toxicity) : NOEC: 0.03 µg/l
Exposure time: 34 d
Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.03 µg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity) : 1.000

**Hydrocarbons, C10, aromatics, <1% naphthalene:**

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 2 - 5 mg/l
Exposure time: 96 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 3 - 10 mg/l
Exposure time: 48 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EL50 (Pseudokirchneriella subcapitata (green algae)): > 1 - 3 mg/l
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

**2,6-Di-tert-butyl-p-cresol:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 0,57 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0,48 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 0,24 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 0,24 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity): 1

Toxicity to microorganisms: EC50: > 10.000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to fish (Chronic toxicity): NOEC: 0.053 mg/l
Exposure time: 30 d
Species: Oryzias latipes (Japanese medaka)
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 0.316 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity): 1

12.2 Persistence and degradability

Components:

Solvent naphtha (petroleum), light aromatic:
Biodegradability: Result: Inherently biodegradable.
Biodegradation: 94 %
Exposure time: 25 d

Ethion:
Biodegradability: Result: not rapidly degradable

Chlorpyrifos:
Biodegradability: Result: not rapidly degradable

2-Methyl-1-propanol:
Biodegradability: Result: Readily biodegradable.
Biodegradation: 70 - 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:
Biodegradability: Result: Not readily biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

Hydrocarbons, C10, aromatics, <1% naphthalene:
Biodegradability: Result: Not readily biodegradable.
Biodegradation: 49.56 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

2,6-Di-tert-butyl-p-cresol:
Biodegradability : Result: Not readily biodegradable.
Biodegradation: 4.5 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

12.3 Bioaccumulative potential

Components:

Ethion:
Partition coefficient: n-octanol/water : log Pow: 5.07

Chlorpyrifos:
Bioaccumulation : Species: Pimephales promelas (fathead minnow)
Bioconcentration factor (BCF): 23.000

Partition coefficient: n-octanol/water : log Pow: 5

2-Methyl-1-propanol:
Partition coefficient: n-octanol/water : log Pow: 1

(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:
Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 910

Partition coefficient: n-octanol/water : log Pow: 6.94

2,6-Di-tert-butyl-p-cresol:
Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 330 - 1.800

Partition coefficient: n-octanol/water : log Pow: 5.1

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

Product:
Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
12.6 Other adverse effects

Product: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product: Dispose of in accordance with local regulations. According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

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

14.1 UN number

| ADN | UN 1992 |
| ADR | UN 1992 |
| RID | UN 1992 |
| IMDG | UN 1992 |
| IATA | UN 1992 |

14.2 UN proper shipping name

| ADN | FLAMMABLE LIQUID, TOXIC, N.O.S.  (Solvent naphtha (petroleum), light aromatic, Ethion) |
| ADR | FLAMMABLE LIQUID, TOXIC, N.O.S.  (Solvent naphtha (petroleum), light aromatic, Ethion) |
| RID | FLAMMABLE LIQUID, TOXIC, N.O.S.  (Solvent naphtha (petroleum), light aromatic, Ethion) |
| IMDG | FLAMMABLE LIQUID, TOXIC, N.O.S.  (Solvent naphtha (petroleum), light aromatic, Ethion, Chlorpyrifos) |
| IATA | Flammable liquid, toxic, n.o.s. |
14.3 Transport hazard class(es)

- ADN: 3
- ADR: 3
- RID: 3
- IMDG: 3
- IATA: 3

14.4 Packing group

- **ADN**
  - Packing group: III
  - Classification Code: FT1
  - Hazard Identification Number: 36
  - Labels: 3 (6.1)

- **ADR**
  - Packing group: III
  - Classification Code: FT1
  - Hazard Identification Number: 36
  - Labels: 3 (6.1)
  - Tunnel restriction code: (D/E)

- **RID**
  - Packing group: III
  - Classification Code: FT1
  - Hazard Identification Number: 36
  - Labels: 3 (6.1)

- **IMDG**
  - Packing group: III
  - Labels: 3 (6.1)
  - EmS Code: F-E, S-D

- **IATA (Cargo)**
  - Packing instruction (cargo aircraft): 366
  - Packing instruction (LQ): Y343
  - Packing group: III
  - Labels: Flammable Liquids, Toxic

- **IATA (Passenger)**
  - Packing instruction (passenger aircraft): 355
  - Packing instruction (LQ): Y343
  - Packing group: III
  - Labels: Flammable Liquids, Toxic

14.5 Environmental hazards

- **ADN**
  - Environmentally hazardous: yes

- **ADR**
  - Environmentally hazardous: yes
SAFETY DATA SHEET

Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

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Date of first issue: 12.10.2016

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes

14.6 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.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code
Remarks : Not applicable for product as supplied.

SECTION 15: Regulatory information

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

The components of this product are reported in the following inventories:

AICS : not determined

DSL : not determined

IECSC : not determined

15.2 Chemical safety assessment
A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

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

Full text of H-Statements

H226 : Flammable liquid and vapour.
H300 : Fatal if swallowed.
H301 : Toxic if swallowed.
H304 : May be fatal if swallowed and enters airways.
H310 : Fatal in contact with skin.
H312 : Harmful in contact with skin.
H315 : Causes skin irritation.
H318 : Causes serious eye damage.
H330 : Fatal if inhaled.
H332 : Harmful if inhaled.
H335 : May cause respiratory irritation.
H336 : May cause drowsiness or dizziness.
H340 : May cause genetic defects.
H350 : May cause cancer.
H360FD : May damage fertility. May damage the unborn child.
SAFETY DATA SHEET

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version: 3.6
Revision Date: 27.08.2021
SDS Number: 935023-00011
Date of last issue: 09.04.2021
Date of first issue: 12.10.2016

H370: Causes damage to organs.
H372: Causes damage to organs through prolonged or repeated exposure.
H373: May cause damage to organs through prolonged or repeated exposure.
H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.
H411: Toxic to aquatic life with long lasting effects.
EUH066: Repeated exposure may cause skin dryness or cracking.

Full text of other abbreviations
Acute Tox.: Acute toxicity
Aquatic Acute: Short-term (acute) aquatic hazard
Aquatic Chronic: Long-term (chronic) aquatic hazard
Asp. Tox.: Aspiration hazard
Carc.: Carcinogenicity
Eye Dam.: Serious eye damage
Flam. Liq.: Flammable liquids
Muta.: Germ cell mutagenicity
Repr.: Reproductive toxicity
Skin Irrit.: Skin irritation
STOT RE: Specific target organ toxicity - repeated exposure
STOT SE: Specific target organ toxicity - single exposure
ZA BEI: South Africa. Hazardous Chemical Substances Regulations, Biological Exposure Indices.
ZA OEL: South Africa. Hazardous Chemical Substances Regulations, Occupational Exposure Limits
ZA OEL / TWA OEL-RL: Long term occupational exposure limits - recommended limit
ZA OEL / STEL OEL-RL: Short term occupational exposure limits - recommended limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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; GHS - Globally Harmonized System; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observeable Effect Loading Rate; 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 - (Quanti-
Further information

Sources of key data used to compile the Safety Data Sheet:

Classification of the mixture:

<table>
<thead>
<tr>
<th>Property</th>
<th>Classification</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flam. Liq. 3</td>
<td>H226</td>
<td>Based on product data or assessment</td>
</tr>
<tr>
<td>Acute Tox. 3</td>
<td>H301</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute Tox. 4</td>
<td>H332</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute Tox. 3</td>
<td>H311</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
<td>H315</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Eye Dam. 1</td>
<td>H318</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Muta. 1B</td>
<td>H340</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Carc. 1B</td>
<td>H350</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Repr. 1B</td>
<td>H360FD</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT SE 1</td>
<td>H370</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>H336</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT RE 1</td>
<td>H372</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Asp. Tox. 1</td>
<td>H304</td>
<td>Based on product data or assessment</td>
</tr>
<tr>
<td>Aquatic Acute 1</td>
<td>H400</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
<td>H410</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

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