1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Ethion / Chlorpyrifos / Alpha-Cypermethrin 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

<table>
<thead>
<tr>
<th>Appearance</th>
<th>liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>strong</td>
</tr>
</tbody>
</table>

Flammable liquid and vapour. 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. Very toxic to aquatic life with long lasting effects.

GHS Classification

<table>
<thead>
<tr>
<th>Flammable liquids</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (Oral)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Acute toxicity (Inhalation)</td>
<td>Category 4</td>
</tr>
<tr>
<td>Acute toxicity (Dermal)</td>
<td>Category 3</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>Category 2</td>
</tr>
<tr>
<td>Serious eye damage/eye irri-</td>
<td>Category 1</td>
</tr>
<tr>
<td>tation</td>
<td></td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>Category 1B</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Category 1B</td>
</tr>
</tbody>
</table>
## Reproductive toxicity
- Category 1B

## Specific target organ toxicity - single exposure
- Category 1
- 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

### GHS label elements

**Hazard pictograms**
- Flammable liquid and vapour
- Graphical representation
- Acute toxicity
- Skin irritation
- Eye damage
- Inhalation hazard

**Signal word**: Danger

**Hazard statements**
- 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.

**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.
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version 3.4 Revision Date: 09/13/2019 SDS Number: 934970-00007 Date of last issue: 2019/04/24

Date of first issue: 2016/10/12

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.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of water. Call a POISON CENTER/doctor if you feel unwell.
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 + 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.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.
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. Toxic in contact with skin. Causes skin irritation. Causes serious eye damage. May cause genetic defects. May cause cancer. May damage fertility. May damage the unborn child. Causes damage to organs. May cause drowsiness or dizziness. Causes damage to organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways.

Environmental hazards
Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

Version 3.4 Revision Date: 09/13/2019 SDS Number: 934970-00007 Date of last issue: 2019/04/24 Date of first issue: 2016/10/12

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>64742-95-6</td>
<td>&gt;= 50 -&lt; 70</td>
</tr>
<tr>
<td>Ethion</td>
<td>563-12-2</td>
<td>&gt;= 10 -&lt; 20</td>
</tr>
<tr>
<td>Chlorpyrifos</td>
<td>2921-88-2</td>
<td>&gt;= 2.5 -&lt; 10</td>
</tr>
<tr>
<td>2-Methyl-1-propanol</td>
<td>78-83-1</td>
<td>&gt;= 3 -&lt; 10</td>
</tr>
<tr>
<td>(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate</td>
<td>67375-30-8</td>
<td>&gt;= 2.5 -&lt; 10</td>
</tr>
<tr>
<td>Hydrocarbons, C10, aromatics, &lt;1% naphthalene</td>
<td>64742-94-5</td>
<td>&gt;= 1 -&lt; 2.5</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>&gt;= 1 -&lt; 2.5</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 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.

Most important symptoms and effects, both acute and delayed: 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.
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

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.

Protection of first-aiders:
First Aid responders should pay attention to self-protection,
and use the recommended personal protective equipment
when the potential for exposure exists (see section 8).

Notes to physician:
Treat symptomatically and supportively.

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
Oxides of phosphorus
Chlorine compounds
Nitrogen oxides (NOx)

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/PERSOAL 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 get on skin or clothing. Do not breathe vapours or spray mist. Do not swallow. Do not get in eyes. 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

Storage
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>Solvent naphtha (petroleum), light aromatic</td>
<td>64742-95-6</td>
<td>TWA</td>
<td>200 mg/m3 (total hydrocarbon vapor)</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Ethion</td>
<td>563-12-2</td>
<td>TWA (Inhalable fraction and vapor)</td>
<td>0.05 mg/m3</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Chlorpyrifos</td>
<td>2921-88-2</td>
<td>PC-TWA</td>
<td>0.2 mg/m3</td>
<td>GBZ 2.1-2007</td>
</tr>
</tbody>
</table>

Further information: Skin

<table>
<thead>
<tr>
<th>Components</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA (Inhalable fraction and vapor)</td>
<td>0.1 mg/m3</td>
<td></td>
<td>ACGIH</td>
</tr>
<tr>
<td>2-Methyl-1-propanol</td>
<td>TWA</td>
<td>50 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>TWA (Inhalable fraction and vapor)</td>
<td>2 mg/m3</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

#### Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorpyrifos</td>
<td>2921-88-2</td>
<td>Acetylcholinesterase activity</td>
<td>In red blood cells</td>
<td>End of shift</td>
<td>70 % of an individual's baseline</td>
<td>ACGIH BEI</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Butyrylcholinesterase activity</td>
<td>In serum or plasma</td>
<td>End of shift</td>
<td>60 % of an individual's baseline</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>

#### Engineering measures

Minimize workplace exposure concentrations.
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.

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

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).

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.

Hygiene measures: If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid

Colour: yellow

Odour: strong

Odour Threshold: No data available

pH: No data available
### 10. STABILITY AND REACTIVITY

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>Not classified as a reactivity hazard.</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>Stable under normal conditions.</td>
</tr>
</tbody>
</table>

---

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
Flammability (liquids): Not applicable
Upper explosion limit / Upper flammability limit: No data available
Lower explosion limit / Lower flammability limit: No data available
Vapour pressure: No data available
Relative vapour density: No data available
Relative density: 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.
Molecular weight: No data available
Particle size: No data available
Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

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

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 or in contact with skin.
- Harmful if inhaled.

Product:

<table>
<thead>
<tr>
<th>Toxicity Route</th>
<th>Acute Toxicity Estimate</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>70.2 mg/kg</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>1.64 mg/l</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>371.69 mg/kg</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Components:

Solvent naphtha (petroleum), light aromatic:

<table>
<thead>
<tr>
<th>Toxicity Route</th>
<th>LD50/LC50</th>
<th>Expos. Time</th>
<th>Test Atmosphere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>&gt; 5,000 mg/kg</td>
<td>Rat</td>
<td>Dust/mist</td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>&gt; 5.61 mg/l</td>
<td>Rat</td>
<td>Dust/mist</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>&gt; 2,000 mg/kg</td>
<td>Rat</td>
<td></td>
</tr>
</tbody>
</table>

Ethion:

<table>
<thead>
<tr>
<th>Toxicity Route</th>
<th>LD50/LC50</th>
<th>Expos. Time</th>
<th>Test Atmosphere</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>13 mg/kg</td>
<td>Rat</td>
<td></td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>0.450 mg/l</td>
<td>Rat</td>
<td>Dust/mist</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>62 mg/kg</td>
<td>Rat</td>
<td>Dust/mist</td>
</tr>
</tbody>
</table>
Chlorpyrifos:
Acute oral toxicity: LD50 (Rat): 82 mg/kg
Acute inhalation toxicity: LC50 (Rat): 0.385 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
Acute dermal toxicity: LD50 (Rat): 1,250 - 2,000 mg/kg

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

(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 inhalation toxicity: LC50 (Rat): > 1.16 - 1.21 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
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:
Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

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

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
Result: No eye irritation
Method: OECD Test Guideline 405

**Ethion:**
Result: No eye irritation

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

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

**(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
Result: No eye irritation
Method: OECD Test Guideline 405
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-phenoxycarbonyl (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
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
<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)</td>
<td></td>
<td>positive</td>
</tr>
<tr>
<td>Genotoxicity in vivo</td>
<td>Rat</td>
<td>positive</td>
</tr>
<tr>
<td>Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)</td>
<td>Mouse</td>
<td>negative</td>
</tr>
<tr>
<td>Germ cell mutagenicity - Assessment</td>
<td></td>
<td>Weight of evidence does not support classification as a germ cell mutagen.</td>
</tr>
<tr>
<td>2-Methyl-1-propanol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genotoxicity in vitro</td>
<td>Test Type: Bacterial reverse mutation assay (AMES)</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: Chromosome aberration test in vitro</td>
<td>negative</td>
<td></td>
</tr>
<tr>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
<td>negative</td>
<td></td>
</tr>
<tr>
<td>Genotoxicity in vivo</td>
<td>Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)</td>
<td>negative</td>
</tr>
<tr>
<td>Species: Mouse</td>
<td>applications: Ingestion</td>
<td>Method: OECD Test Guideline 474</td>
</tr>
<tr>
<td>(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Genotoxicity in vitro</td>
<td>Test Type: Bacterial reverse mutation assay (AMES)</td>
<td>Method: OECD Test Guideline 471</td>
</tr>
<tr>
<td>Result: negative</td>
<td></td>
<td>Method: OECD Test Guideline 473</td>
</tr>
<tr>
<td>Test Type: Chromosome aberration test in vitro</td>
<td>negative</td>
<td></td>
</tr>
<tr>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
<td>negative</td>
<td></td>
</tr>
<tr>
<td>Genotoxicity in vivo</td>
<td>Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)</td>
<td>negative</td>
</tr>
<tr>
<td>Species: Mouse</td>
<td>applications: Ingestion</td>
<td></td>
</tr>
</tbody>
</table>
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>
<tbody>
<tr>
<td>3.4</td>
<td>09/13/2019</td>
<td>934970-00007</td>
<td>2019/04/24</td>
<td>2016/10/12</td>
</tr>
</tbody>
</table>

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:  
Result: negative  
Remarks: Based on data from similar materials

Genotoxicity in vivo:  
Result: negative  
Remarks: Based on data from similar materials

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

Genotoxicity in vitro:  
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:  
Result: negative  
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
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: Ingestion  
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 / Chlorpyrifos / Alpha-Cypermethrin
Formulation

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.
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

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
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
SAFETY DATA SHEET
generated by GB/T 16483 and GB/T 17519

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version 3.4 Revision Date: 09/13/2019 SDS Number: 934970-00007 Date of last issue: 2019/04/24
Date of first issue: 2016/10/12

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

12. ECOLOGICAL INFORMATION

Ecotoxicity

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
### 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>
<tbody>
<tr>
<td>3.4</td>
<td>09/13/2019</td>
<td>934970-00007</td>
<td>2019/04/24</td>
<td>2016/10/12</td>
</tr>
</tbody>
</table>

#### Toxicity to algae/aquatic plants
- **Ethion:** EL50 (Pseudokirchneriella subcapitata (microalgae)): 3.1 mg/l
  - Exposure time: 96 h
  - Test substance: Water Accommodated Fraction
  - Method: OECD Test Guideline 201
- **Chlorpyrifos:** 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)
- **Ethion:** NOELR (Daphnia magna (Water flea)): 2.6 mg/l
  - Exposure time: 21 d
  - 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

#### 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
- **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

**M-Factor:**
- **Acute aquatic toxicity:** 10,000
- **Chronic aquatic toxicity:** 10,000
Toxicity to algae/aquatic plants:
- ErC50 (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 (Daphnia magna (Water flea)): 20 mg/l
  Exposure time: 21 d

(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:
  - ErC50 (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
    Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity): 1,000

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

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

M-Factor (Chronic aquatic toxicity): 1,000

Hydrocarbons, C10, aromatics, <1% naphthalene:
- 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
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>
<tbody>
<tr>
<td>3.4</td>
<td>09/13/2019</td>
<td>934970-00007</td>
<td>2019/04/24</td>
<td>2016/10/12</td>
</tr>
</tbody>
</table>

**Toxicity to daphnia and other aquatic invertebrates**

<table>
<thead>
<tr>
<th>Test substance:</th>
<th>EC50 (Daphnia magna (Water flea)):</th>
<th>Exposure time:</th>
<th>Method:</th>
<th>Remarks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Accommodated Fraction</td>
<td>0.48 mg/l</td>
<td>48 h</td>
<td>OECD Test Guideline 202</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**Toxicity to algae/aquatic plants**

<table>
<thead>
<tr>
<th>Test substance:</th>
<th>EC50 (Pseudokirchneriella subcapitata (green algae)):</th>
<th>Exposure time:</th>
<th>Method:</th>
<th>Remarks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Accommodated Fraction</td>
<td>&gt; 0.24 mg/l</td>
<td>72 h</td>
<td>OECD Test Guideline 201</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

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

**Toxicity to fish**

<table>
<thead>
<tr>
<th>Test substance:</th>
<th>LC50 (Danio rerio (zebra fish)):</th>
<th>Exposure time:</th>
<th>Method:</th>
</tr>
</thead>
</table>

**Toxicity to daphnia and other aquatic invertebrates**

<table>
<thead>
<tr>
<th>Test substance:</th>
<th>EC50 (Daphnia magna (Water flea)):</th>
<th>Exposure time:</th>
<th>Method:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Accommodated Fraction</td>
<td>0.48 mg/l</td>
<td>48 h</td>
<td>OECD Test Guideline 202</td>
</tr>
</tbody>
</table>

**Toxicity to algae/aquatic plants**

<table>
<thead>
<tr>
<th>Test substance:</th>
<th>ErC50 (Pseudokirchneriella subcapitata (green algae)):</th>
<th>Exposure time:</th>
<th>Method:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Accommodated Fraction</td>
<td>&gt; 0.24 mg/l</td>
<td>72 h</td>
<td>OECD Test Guideline 201</td>
</tr>
</tbody>
</table>

**NOEC (Pseudokirchneriella subcapitata (green algae)): 0.24 mg/l**

**Toxicity to microorganisms**

<table>
<thead>
<tr>
<th>Test substance:</th>
<th>EC50:</th>
<th>Exposure time:</th>
<th>Method:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvent naphtha (petroleum), light aromatic</td>
<td>&gt; 10,000 mg/l</td>
<td>3 h</td>
<td>OECD Test Guideline 209</td>
</tr>
</tbody>
</table>

**M-Factor (Acute aquatic toxicity) : 1**

**Toxicity to fish (Chronic toxicity)**

<table>
<thead>
<tr>
<th>Test substance:</th>
<th>NOEC (Oryzias latipes (Japanese medaka)):</th>
<th>Exposure time:</th>
<th>Method:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Accommodated Fraction</td>
<td>0.053 mg/l</td>
<td>30 d</td>
<td>OECD Test Guideline 210</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test substance:</th>
<th>NOEC (Daphnia magna (Water flea)):</th>
<th>Exposure time:</th>
<th>Method:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Accommodated Fraction</td>
<td>0.316 mg/l</td>
<td>21 d</td>
<td>OECD Test Guideline 209</td>
</tr>
</tbody>
</table>

**M-Factor (Chronic aquatic toxicity) : 1**

**Persistence and degradability**

**Components:**

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

Ethion:  
Result: Inherently biodegradable.  
Biodegradation: 94 %  
Exposure time: 25 d

Chlorpyrifos:  
Result: not rapidly degradable

2-Methyl-1-propanol:  
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:  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B

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

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

**Bioaccumulative potential**

**Components:**

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

**Chlorpyrifos:**  
Species: Pimephales promelas (fathead minnow)  
Bioconcentration factor (BCF): 23,000  
Partition coefficient: n-  
log Pow: 5
Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

Version 3.4 Revision Date: 09/13/2019 SDS Number: 934970-00007 Date of last issue: 2019/04/24 Date of first issue: 2016/10/12

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

Mobility in soil
No data available

Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number: UN 1992
Proper shipping name: FLAMMABLE LIQUID, TOXIC, N.O.S. (Solvent naphtha (petroleum), light aromatic, Ethion)
Class: 3
Subsidiary risk: 6.1
Packing group: III
Labels: 3 (6.1)

IATA-DGR
UN/ID No.: UN 1992
SAFETY DATA SHEET  
according to GB/T 16483 and GB/T 17519

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>
<tbody>
<tr>
<td>3.4</td>
<td>09/13/2019</td>
<td>934970-00007</td>
<td>2019/04/24</td>
<td>2016/10/12</td>
</tr>
</tbody>
</table>

Proper shipping name : Flammable liquid, toxic, n.o.s. 
(Solvent naphtha (petroleum), light aromatic, Ethion)
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. 
(Solvent naphtha (petroleum), light aromatic, Ethion, Chlorpyrifos)
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. 
(Solvent naphtha (petroleum), light aromatic, Ethion)
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
SAFETY DATA SHEET
according to GB/T 16483 and GB/T 17519

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version 3.4  Revision Date: 09/13/2019  SDS Number: 934970-00007  Date of last issue: 2019/04/24
Date of first issue: 2016/10/12

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:
Date format: yyyy/mm/dd

Full text of other abbreviations:
ACGIH: USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI: ACGIH - Biological Exposure Indices (BEI)
ACGIH / TWA: 8-hour, time-weighted average
GBZ 2.1-2007 / PC-TWA: Permissible concentration - time weighted average

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evalua-
SAFETY DATA SHEET
generated by MSD

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version 3.4  Revision Date: 09/13/2019  SDS Number: 934970-00007  Date of last issue: 2019/04/24
Date of first issue: 2016/10/12

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.

CN / EN