SECTION 1. IDENTIFICATION

Product name: Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

Manufacturer or supplier’s details
Company name of supplier: Merck & Co., Inc
Address: 2000 Galloping Hill Road
Kenilworth - New Jersey - U.S.A. 07033
Telephone: 908-740-4000
Telefax: 908-735-1496
Emergency telephone: 1-908-423-6000
E-mail address: EHSDATASTEWARD@merck.com

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

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids: Category 3
Acute toxicity (Oral): Category 3
Acute toxicity (Inhalation): Category 4
Acute toxicity (Dermal): 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 (Central nervous system)
Specific target organ toxicity - single exposure: Category 3
Specific target organ toxicity - repeated exposure: Category 1 (Central nervous system)
Aspiration hazard: Category 1

GHS label elements
SAFETY DATA SHEET

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version 4.3     Revision Date: 03/23/2020     SDS Number: 935022-00008     Date of last issue: 09/13/2019
Date of first issue: 10/12/2016

Hazard pictograms :

Signal Word : Danger

Hazard Statements :
H226 Flammable liquid and vapor.
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 (Central nervous system).
H372 Causes damage to organs (Central nervous system) through prolonged or repeated exposure.

Precautionary Statements :

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

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.
P307 + P311 If exposed: Call a POISON CENTER or doctor/physician.
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.

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

Disposal:
P501 Dispose of contents/container to an approved waste disposal plant.

Other hazards
Vapors may form explosive mixture with air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Substance / Mixture</th>
<th>Mixture</th>
</tr>
</thead>
</table>

**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;= 5 - &lt; 10</td>
</tr>
<tr>
<td>2-Methyl-1-propanol</td>
<td>78-83-1</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td>(S)-α-Cyano-3-phenoxoybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate</td>
<td>67375-30-8</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td>Hydrocarbons, C10, aromatics, &lt;1% naphthalene</td>
<td>64742-94-5</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
</tbody>
</table>

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

**General advice**
In the case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt seek medical advice.

**If inhaled**
If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention.

**In case of skin contact**
In case of contact, immediately flush skin with plenty of water 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 center 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. 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.

SECTION 5. FIRE-FIGHTING MEASURES

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

Unsuitable extinguishing media: High volume water jet

Specific hazards during fire fighting: Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapors may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides
Sulfur 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.
SAFETY DATA SHEET

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version 4.3  Revision Date: 03/23/2020  SDS Number: 935022-00008  Date of last issue: 09/13/2019

Date of first issue: 10/12/2016

5 / 31

Evacuate area.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g., by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapors/mists with a water spray jet. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

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

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

Advice on safe handling: Do not get on skin or clothing. Do not breathe vapors 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.

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

Materials to avoid:
- Do not store with the following product types:
  - 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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients 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>500 ppm</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2,000 mg/m³</td>
<td></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>TWA (Inhalable fraction and vapor)</td>
<td>0.1 mg/m³</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.4 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td>2-Methyl-1-propanol</td>
<td>78-83-1</td>
<td>TWA</td>
<td>50 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.2 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.6 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0</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>Acetylcholin esterase 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: General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Material: Chemical-resistant gloves

Remarks: Choose gloves to protect hands against chemicals depending on the concentration 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.

Eye 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).

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid
Color: yellow
Odor: strong
Odor 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: 109 °F / 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
Vapor pressure: No data available
Relative vapor density: No data available
Relative density: 0.96 - 1.02
Density: No data available
Solubility(ies)
Water solubility: No data available
SAFETY DATA SHEET

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Partition coefficient: n-octanol/water : No data available
Autoignition temperature : No data available
Decomposition temperature : No data available
Viscosity
Viscosity, kinematic : No data available
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.
Molecular weight : No data available
Particle size : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reactions
Flammable liquid and vapor.
Vapors 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.

SECTION 11. TOXICOLOGICAL INFORMATION

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: 70.2 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
SAFETY DATA SHEET
Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

Version 4.3  Revision Date: 03/23/2020  SDS Number: 935022-00008  Date of last issue: 09/13/2019  Date of first issue: 10/12/2016

Acute dermal toxicity: Acute toxicity estimate: 371.69 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: vapor
Acute dermal toxicity: LD50 (Rabbit): > 2,000 mg/kg

Ethion:
Acute oral toxicity: LD50 (Rat): 13 mg/kg
Acute inhalation toxicity: LC50 (Rat): 0.450 mg/l  Exposure time: 4 h  Test atmosphere: dust/mist
Acute dermal toxicity: LD50 (Rat): 62 mg/kg

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: vapor
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:**

**Acute oral toxicity**
- LD50 (Rat): > 6,000 mg/kg
  - Method: OECD Test Guideline 401

**Acute dermal toxicity**
- LD50 (Rabbit): > 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 sensitization

Skin sensitization
Not classified based on available information.

Respiratory sensitization
Not classified based on available information.

Components:

Solvent naphtha (petroleum), light aromatic:
Test Type: Buehler Test
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative

Ethion:
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative

Chlorpyrifos:
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

2-Methyl-1-propanol:
Test Type: Maximization Test
Routes of exposure: 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: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Method: OECD Test Guideline 406
Result: negative

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

- **Test Type:** Maximization Test
- **Routes of exposure:** 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)
- **Routes of exposure:** 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

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromosomal aberration</td>
<td>Rat</td>
<td>negative</td>
</tr>
<tr>
<td>In vivo micronucleus test</td>
<td>Mouse</td>
<td>positive</td>
</tr>
</tbody>
</table>

### 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)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-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
  Remarks: Based on data from similar materials

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 (vapor)
  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
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>
<tbody>
<tr>
<td>4.3</td>
<td>03/23/2020</td>
<td>935022-00008</td>
<td>09/13/2019</td>
<td>10/12/2016</td>
</tr>
</tbody>
</table>

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  
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

IARC
No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA
No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP
No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

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 (vapor)
Result: negative

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

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

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

Chlorpyrifos:
Effects on fertility: Test Type: Fertility
Species: Mouse
Application Route: Ingestion
Result: positive

Effects on fetal development: Test Type: Embryo-fetal development
Species: Mouse
Application Route: Intraperitoneal injection
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 (vapor)
Method: OPPTS 870.3800
Result: negative

Effects on fetal development: Test Type: Embryo-fetal development
Species: Rat
Application Route: inhalation (vapor)
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 fetal development: Test Type: Embryo-fetal 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 (vapor)
Result: negative
Remarks: Based on data from similar materials

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

**STOT-single exposure**
May cause drowsiness or dizziness.
Causes damage to organs (Central nervous system).

**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 (Central nervous system) 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:
Routes of exposure: 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
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, Diarrhea
SECTION 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

- 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 (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

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

- Toxicity to fish (Chronic toxicity):
  - NOEC (Pimephales promelas (fathead minnow)): 0.003 mg/l
  - Exposure time: 7 d
### 2-Methyl-1-propanol:

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>LC50 (Pimephales promelas (fathead minnow)): 1,430 mg/l, Exposure time: 96 h</td>
</tr>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>EC50 (Daphnia pulex (Water flea)): 1,100 mg/l, Exposure time: 48 h</td>
</tr>
<tr>
<td>Toxicity to algae/aquatic plants</td>
<td>ErC50 (Pseudokirchneriella subcapitata (green algae)): 1,799 mg/l, Exposure time: 72 h, Method: OECD Test Guideline 201</td>
</tr>
<tr>
<td></td>
<td>NOEC (Pseudokirchneriella subcapitata (green algae)): 117 mg/l, Exposure time: 72 h, Method: OECD Test Guideline 201</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>LC50 (Cyprinus carpio (Carp)): 0.00084 mg/l, Exposure time: 96 h, Method: OECD Test Guideline 203</td>
</tr>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>EC50 (Daphnia magna (Water flea)): 0.0003 mg/l, Exposure time: 48 h, Method: OECD Test Guideline 202</td>
</tr>
<tr>
<td>Toxicity to algae/aquatic plants</td>
<td>ErC50 (Pseudokirchneriella subcapitata (green algae)): &gt; 1 mg/l, Exposure time: 72 h, Method: OECD Test Guideline 201</td>
</tr>
<tr>
<td></td>
<td>EC10 (Pseudokirchneriella subcapitata (green algae)): &gt; 1 mg/l, Exposure time: 72 h, Method: OECD Test Guideline 201</td>
</tr>
<tr>
<td>Toxicity to fish (Chronic toxicity)</td>
<td>NOEC (Pimephales promelas (fathead minnow)): 0.03 µg/l, Exposure time: 34 d</td>
</tr>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</td>
<td>NOEC (Daphnia magna (Water flea)): 0.03 µg/l, Exposure time: 21 d</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to fish</td>
<td>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</td>
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</table>
### Toxicity to daphnia and other aquatic invertebrates

<table>
<thead>
<tr>
<th>Test</th>
<th>EL50 (Daphnia magna (Water flea))</th>
<th>Exposure time</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 - 10 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</th>
<th>EL50 (Pseudokirchneriella subcapitata (green algae))</th>
<th>Exposure time</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 - 3 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:

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

<table>
<thead>
<tr>
<th>Test</th>
<th>EC50 (Daphnia magna (Water flea))</th>
<th>Exposure time</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.48 mg/l</td>
<td>48 h</td>
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<table>
<thead>
<tr>
<th>Test</th>
<th>ErC50 (Pseudokirchneriella subcapitata (green algae))</th>
<th>Exposure time</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 0.24 mg/l</td>
<td>72 h</td>
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<th>Test</th>
<th>NOEC (Pseudokirchneriella subcapitata (green algae))</th>
<th>Exposure time</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.24 mg/l</td>
<td>72 h</td>
<td>OECD Test Guideline 201</td>
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</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>NOEC (Oryzias latipes (Japanese medaka))</th>
<th>Exposure time</th>
<th>Method</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.053 mg/l</td>
<td>30 d</td>
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<table>
<thead>
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<th>Test</th>
<th>NOEC (Daphnia magna (Water flea))</th>
<th>Exposure time</th>
<th>Method</th>
<th>Remarks</th>
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<tbody>
<tr>
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<td>0.316 mg/l</td>
<td>21 d</td>
<td>OECD Test Guideline 210</td>
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</table>

<table>
<thead>
<tr>
<th>Test</th>
<th>EC50: &gt; 10,000 mg/l</th>
<th>Exposure time</th>
<th>Method</th>
<th>Remarks</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>3 h</td>
<td>OECD Test Guideline 209</td>
<td></td>
</tr>
</tbody>
</table>

### Persistence and degradability

#### Components:

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

- Result: Inherently biodegradable.
- Biodegradation: 94 %
- Exposure time: 25 d
SAFETY DATA SHEET
Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

Version  4.3  Revision Date: 03/23/2020  SDS Number: 935022-00008  Date of last issue: 09/13/2019
Date of first issue: 10/12/2016

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

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
Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

Version: 4.3 Date of last issue: 09/13/2019
Revision Date: 03/23/2020 Date of first issue: 10/12/2016
SDS Number: 935022-00008

**Bioaccumulation**

**Species:** Fish

Bioconcentration factor (BCF): 910

**Partition coefficient:** n-octanol/water

log Pow: 6.94

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

**Species:** Cyprinus carpio (Carp)

Bioconcentration factor (BCF): 330 - 1,800

**Mobility in soil**

No data available

**Other adverse effects**

No data available

### SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

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

If not otherwise specified: Dispose of as unused product.

### SECTION 14. TRANSPORT INFORMATION

**International Regulations**

**UNRTDG**

- **UN number:** UN 1992
- **Proper shipping name:** FLAMMABLE LIQUID, TOXIC, N.O.S. (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
- **Proper shipping name:** Flammable liquid, toxic, n.o.s. (Solvent naphtha (petroleum), light aromatic, Ethion)
- **Class:** 3
- **Subsidiary risk:** 6.1
- **Packing group:** III
SAFETY DATA SHEET

Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

Version 4.3 Revision Date: 03/23/2020 SDS Number: 935022-00008 Date of last issue: 09/13/2019 Date of first issue: 10/12/2016

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.

Domestic regulation

49 CFR
UN/ID/NA number: UN 1992
Proper shipping name: Flammable liquids, toxic, n.o.s. (Solvent naphtha (petroleum), light aromatic, Ethion)
Class: 3
Subsidiary risk: 6.1
Packing group: III
Labels: FLAMMABLE LIQUID, TOXIC
ERG Code: 131
Marine pollutant: yes (Ethion, Chlorpyrifos)

Special precautions for user
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
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</thead>
<tbody>
<tr>
<td>Chlorpyrifos</td>
<td>2921-88-2</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Ethion</td>
<td>563-12-2</td>
<td>10</td>
<td>62</td>
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<tr>
<td>2-Methyl-1-propanol</td>
<td>78-83-1</td>
<td>5000</td>
<td>62500</td>
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</table>

SARA 304 Extremely Hazardous Substances Reportable Quantity

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethion</td>
<td>563-12-2</td>
<td>10</td>
<td>62</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET

Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

Version 4.3  Revision Date: 03/23/2020  SDS Number: 935022-00008  Date of last issue: 09/13/2019  Date of first issue: 10/12/2016

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Component TPQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethion</td>
<td>563-12-2</td>
<td>1000</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazards:
- Flammable (gases, aerosols, liquids, or solids)
- Acute toxicity (any route of exposure)
- Germ cell mutagenicity
- Carcinogenicity
- Reproductive toxicity
- Specific target organ toxicity (single or repeated exposure)
- Aspiration hazard
- Skin corrosion or irritation
- Serious eye damage or eye irritation

SARA 313:
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Pennsylvania Right To Know

Solvent naphtha (petroleum), light aromatic 64742-95-6
Ethion 563-12-2
Chlorpyrifos 2921-88-2
2-Methyl-1-propanol 78-83-1
Polyethylene-polypropylene Glycol Monobutyl Ether 9038-95-3
(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate 67375-30-8
Hydrocarbons, C10, aromatics, <1% naphthalene 64742-94-5
2,6-Di-tert-butyl-p-cresol 128-37-0

California Prop. 65
WARNING: This product can expose you to chemicals including Chlorpyrifos, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethion</td>
<td>563-12-2</td>
</tr>
<tr>
<td>Chlorpyrifos</td>
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</tr>
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<td>2,6-Di-tert-butyl-p-cresol</td>
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</tr>
</tbody>
</table>

California Permissible Exposure Limits for Chemical Contaminants

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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>AICS</td>
<td>not determined</td>
</tr>
<tr>
<td>DSL</td>
<td>not determined</td>
</tr>
<tr>
<td>IECSC</td>
<td>not determined</td>
</tr>
</tbody>
</table>
SECTION 16. OTHER INFORMATION

Further information

NFPA 704:

HMIS® IV:

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
NIOSH REL : USA. NIOSH Recommended Exposure Limits
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
ACGIH / TWA : 8-hour, time-weighted average
NIOSH REL / TWA : Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek
NIOSH REL / ST : STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday
OSHA Z-1 / TWA : 8-hour time weighted average

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; HMIS - Hazardous Materials Identification 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
SAFETY DATA SHEET

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version 4.3  Revision Date: 03/23/2020  SDS Number: 935022-00008  Date of last issue: 09/13/2019

Revision Date 03/23/2020

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.

US / Z8