SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version 7.0    Revision Date: 09/30/2023    SDS Number: 935022-00015    Date of last issue: 04/04/2023

Date of first issue: 10/12/2016

SECTION 1. IDENTIFICATION

Product name: Ethion / Chlorpyrifos / Alpha-Cypermethrin Formulation

Manufacturer or supplier's details
Company name of supplier: Merck & Co., Inc
Address: 126 E. Lincoln Avenue
Rahway, New Jersey U.S.A. 07065
Telephone: 908-740-4000
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
Restrictions on use: Not applicable

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (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, Nervous system)

Specific target organ toxicity - repeated exposure:
Category 1 (Central nervous system)

Aspiration hazard: Category 1

GHS label elements
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Hazard pictograms:

- Flammable liquid and vapor
- Poison
- Skin corrosion
- Gas
- Attention

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.
- H360D May damage the unborn child.
- H370 Causes damage to organs (Central nervous system, 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 flame and hot surfaces. No smoking.
- P233 Keep container tightly closed.
- P241 Use explosion-proof electrical, ventilating and 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.
- P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:
- P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER. Rinse mouth.
- P302 + P352 + P312 IF ON SKIN: Wash with plenty of soap and water. Call a doctor if you feel unwell.
- P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
- P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a 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.
P307 + P311 IF exposed: Call a doctor.
P331 Do NOT induce vomiting.
P332 + P313 IF skin irritation occurs: Get medical 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 and 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>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixture</td>
<td></td>
</tr>
</tbody>
</table>

<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-phenoxybenzyl (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 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.
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 (see section 7) and personal protective equipment recommendations (see section 8).

Environmental precautions:
- Avoid release to the environment.
- Prevent further leakage or spillage if safe to do so.
- Prevent spreading over a wide area (e.g., by containment or oil barriers).
- 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.
- Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling:
- Do not get on skin or clothing.
- Do not breathe mist or vapors.
- Do not swallow.
- Do not get in eyes.
- Wash skin thoroughly after handling.
- Handle in accordance with good industrial hygiene and safety practices.
practice, based on the results of the workplace exposure assessment.
Non-sparking tools should be used.
Keep container tightly closed.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges.
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the environment.

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
Self-reactive substances and mixtures
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
Very acutely toxic substances and mixtures

SECTION 8. EXPOSURE CONTROLS/PERSOAL 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></td>
<td></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</td>
<td>4 µg/m³ (OEB 4)</td>
<td>Internal</td>
</tr>
</tbody>
</table>

Further information: Skin
- Wipe limit: 40 µg/100 cm²
- TWA (Inhalable fraction and vapor): 0.05 mg/m³
- TWA: 0.4 mg/m³
- Control parameters / Permissible concentration: ACGIH

<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>Chlorpyrifos</td>
<td>2921-88-2</td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Version</th>
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<th>SDS Number</th>
<th>Date of last issue</th>
<th>Date of first issue</th>
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<td>7.0</td>
<td>09/30/2023</td>
<td>935022-00015</td>
<td>04/04/2023</td>
<td>10/12/2016</td>
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<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>
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</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></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydrocarbons, C10, aromatics, &lt;1% naphthalene</td>
<td>64742-94-5</td>
<td>TWA (Inhalable particulate matter)</td>
<td>5 mg/m³</td>
<td>ACGIH</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST (Mist)</td>
<td>5 mg/m³</td>
<td>NIOSH REL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Mist)</td>
<td>10 mg/m³</td>
<td>NIOSH REL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>500 ppm</td>
<td>OSHA Z-1</td>
<td></td>
<td></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>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>NIOSH REL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Biological occupational exposure limits**

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

**Personal protective equipment**

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
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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (liquids)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper explosion limit / Upper flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit / Lower flammability limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>No data available</td>
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<tr>
<td>Relative density</td>
<td>0.96 - 1.02</td>
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<tr>
<td>Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
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</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing.</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No data available</td>
</tr>
<tr>
<td>Particle size</td>
<td>No data available</td>
</tr>
</tbody>
</table>

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:**

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Estimate</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): &gt; 5,000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>LC50 (Rat): &gt; 5.61 mg/l</td>
<td></td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rabbit): &gt; 2,000 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

**Components:**

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

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Estimate</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): 13 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>LC50 (Rat): 0.450 mg/l</td>
<td></td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rat): 62 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

**Ethion:**

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Estimate</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): 13 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>LC50 (Rat): 0.450 mg/l</td>
<td></td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rat): 62 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

**Chlorpyrifos:**

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Estimate</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat, female): 68 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rat, females): 1,250 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>
### 2-Methyl-1-propanol:

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat, female): 3,350 mg/kg</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 401</td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>LC50 (Rat): &gt; 18.18 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>6 h</td>
</tr>
<tr>
<td>Test atmosphere</td>
<td>vapor</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rabbit, female): 2,460 mg/kg</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 402</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>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): 57 mg/kg</td>
</tr>
<tr>
<td>Method</td>
<td>EC Directive 92/69/EEC B.1 Acute Toxicity (Oral)</td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>LC50 (Rat): &gt; 1.16 - 1.21 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>4 h</td>
</tr>
<tr>
<td>Test atmosphere</td>
<td>dust/mist</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rat): &gt; 2,000 mg/kg</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): &gt; 5,000 mg/kg</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 420</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>Acute inhalation toxicity</td>
<td>LC50 (Rat): &gt; 4.778 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>4 h</td>
</tr>
<tr>
<td>Test atmosphere</td>
<td>dust/mist</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 403</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rabbit): &gt; 2,000 mg/kg</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 402</td>
</tr>
<tr>
<td>Assessment</td>
<td>The substance or mixture has no acute dermal toxicity</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute oral toxicity</td>
<td>LD50 (Rat): &gt; 6,000 mg/kg</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 401</td>
</tr>
<tr>
<td>Acute dermal toxicity</td>
<td>LD50 (Rat): &gt; 2,000 mg/kg</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 402</td>
</tr>
<tr>
<td>Assessment</td>
<td>The substance or mixture has no acute dermal toxicity</td>
</tr>
</tbody>
</table>
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 / Chlorpyrifos / Alpha-Cypermethrin Formulation

**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
### Chlorpyrifos:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Buehler Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routes of exposure</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Species</td>
<td>Guinea pig</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 406</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Buehler Test</th>
</tr>
</thead>
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<td>Skin contact</td>
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</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 406</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

**Remarks:** Based on data from similar materials

### 2-Methyl-1-propanol:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Buehler Test</th>
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<tbody>
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<td>Skin contact</td>
</tr>
<tr>
<td>Species</td>
<td>Guinea pig</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 406</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Type</th>
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<tr>
<td>Routes of exposure</td>
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<tr>
<td>Method</td>
<td>OECD Test Guideline 406</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

**Remarks:** Based on data from similar materials

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

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Maximization Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routes of exposure</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Species</td>
<td>Guinea pig</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 406</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<td>Routes of exposure</td>
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<tr>
<td>Method</td>
<td>OECD Test Guideline 406</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

**Remarks:** Based on data from similar materials

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

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Maximization Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routes of exposure</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Species</td>
<td>Guinea pig</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
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<tr>
<td>Routes of exposure</td>
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</tr>
<tr>
<td>Species</td>
<td>Guinea pig</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

**Remarks:** Based on data from similar materials

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

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Human repeat insult patch test (HRIPT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routes of exposure</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Species</td>
<td>Humans</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Human repeat insult patch test (HRIPT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routes of exposure</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Species</td>
<td>Humans</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

### Germ cell mutagenicity

May cause genetic defects.

### Components:

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

<table>
<thead>
<tr>
<th>Genotoxicity in vitro</th>
<th>Test Type: Bacterial reverse mutation assay (AMES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result: negative</td>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
</tr>
<tr>
<td><strong>Ethion / Chlorpyrifos / Alpha-Cypermethrin</strong> Formulation</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>Version</strong></td>
<td>Revision Date:</td>
</tr>
<tr>
<td>7.0</td>
<td>09/30/2023</td>
</tr>
<tr>
<td><strong>Genotoxicity in vivo</strong></td>
<td>Result: positive</td>
</tr>
</tbody>
</table>
| **Germ cell mutagenicity - Assessment** | Test Type: Sister chromatid exchange analysis in spermato- gonia  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: positive |
| **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 |
| **Chlorpyrifos** | | |
| **Genotoxicity in vitro** | Test Type: Bacterial reverse mutation assay (AMES)  
Method: OECD Test Guideline 471  
Result: negative |
| | Test Type: In vitro mammalian cell gene mutation test  
Method: OECD Test Guideline 476  
Result: negative |
| | Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)  
Result: negative |
| | Test Type: Chromosome aberration test in vitro |
Result: positive

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

2-Methyl-1-propanol:

Genotoxicity in vitro

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

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

Test Type: in vitro micronucleus 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
Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Method: OECD Test Guideline 474
Result: negative

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

Hydrocarbons, C10, aromatics, <1% naphthalene:

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

Genotoxicity in vivo: Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Rat
Application Route: inhalation (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
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 / Chlorpyrifos / Alpha-Cypermethrin Formulation

<table>
<thead>
<tr>
<th>Species</th>
<th>Application Route</th>
<th>Exposure time</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethion</td>
<td>Ingestion</td>
<td>18 Months</td>
<td>negative</td>
</tr>
<tr>
<td>Species</td>
<td>Mouse</td>
<td>Ingestion</td>
<td>negative</td>
</tr>
<tr>
<td>Chlorpyrifos</td>
<td>Ingestion</td>
<td>2 Years</td>
<td>negative</td>
</tr>
<tr>
<td>(S)-α-Cyano-3-phenoxybenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:</td>
<td>Species</td>
<td>Rat</td>
<td>negative</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol:</td>
<td>Species</td>
<td>Rat</td>
<td>negative</td>
</tr>
</tbody>
</table>

**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 the unborn child.

**Components:**

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

<table>
<thead>
<tr>
<th>Effects on fertility</th>
<th>Test Type: Reproduction/Developmental toxicity screening test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Species: Rat</td>
<td>Application Route: inhalation (vapor)</td>
</tr>
<tr>
<td>Result: negative</td>
<td></td>
</tr>
</tbody>
</table>
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: 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: positive

Reproductive toxicity - Assessment: 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
Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

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, Nervous system).

Components:

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

Ethion:
Assessment: Causes damage to organs.

Chlorpyrifos:
Target Organs: 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 national or regional regulation.

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.

(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
SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Exposure time: 90 Days

Chlorpyrifos:

Species: Rat
NOAEL: 0.1 mg/kg
LOAEL: 1 mg/kg
Application Route: Ingestion
Exposure time: 13 Weeks

Species: Rat
NOAEL: > 0.000296 mg/l
Application Route: Inhalation (vapor)
Exposure time: 13 Weeks

Species: Rat
NOAEL: > 5 mg/kg
Application Route: Skin contact
Exposure time: 21 Days

2-Methyl-1-propanol:

Species: Rat
NOAEL: > 1,450 mg/kg
Application Route: Ingestion
Exposure time: 90 Days
Method: OECD Test Guideline 408

Species: Rat
NOAEL: >= 7.5 mg/l
Application Route: Inhalation (vapor)
Exposure time: 17 Weeks

(S)-α-Cyano-3-phenoxycenzyl (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

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
SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

**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>
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<tbody>
<tr>
<td>7.0</td>
<td>09/30/2023</td>
<td>935022-00015</td>
<td>04/04/2023</td>
<td>10/12/2016</td>
</tr>
</tbody>
</table>

**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: > 0.1 - 1 µg/l  
  Exposure time: 96 h
- **Toxicity to daphnia and other aquatic invertebrates**  
  : EC50: > 0.01 - 0.1 µg/l  
  Exposure time: 48 h
- **Toxicity to algae/aquatic plants**  
  : EC50 (Scenedesmus subspicatus): 0.48 mg/l  
  Exposure time: 96 h
- **Toxicity to fish (Chronic toxicity)**  
  : NOEC: 0.3 µg/l  
  Exposure time: 35 d
- **Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)**  
  : NOEC (Mysisopsis bahia (opossum shrimp)): 0.0046 µg/l  
  Exposure time: 21 d

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

- **Toxicity to fish**  
  : LC50 (Pimephales promelas (fathead minnow)): 1,430 mg/l  
  Exposure time: 96 h
- **Toxicity to daphnia and other aquatic invertebrates**  
  : EC50 (Daphnia pulex (Water flea)): 1,100 mg/l  
  Exposure time: 48 h
- **Toxicity to algae/aquatic plants**  
  : ErC50 (Pseudokirchneriella subcapitata (green algae)): 1,799 mg/l  
  Exposure time: 72 h
  **Method:** OECD Test Guideline 201

  NOEC (Pseudokirchneriella subcapitata (green algae)): 117
## Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

<table>
<thead>
<tr>
<th>Test substance</th>
<th>EC50 (Daphnia magna (Water flea)):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 1,000 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>16 h</td>
</tr>
</tbody>
</table>

## Toxicity to microorganisms

<table>
<thead>
<tr>
<th>Test substance</th>
<th>EC50:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 1,000 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>16 h</td>
</tr>
</tbody>
</table>

## Toxicity to fish

<table>
<thead>
<tr>
<th>Test substance</th>
<th>LC50 (Cyprinus carpio (Carp)):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.00084 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>96 h</td>
</tr>
</tbody>
</table>

## Toxicity to daphnia and other aquatic invertebrates

<table>
<thead>
<tr>
<th>Test substance</th>
<th>NOEC (Daphnia magna (Water flea)):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>21 d</td>
</tr>
</tbody>
</table>

## Toxicity to algae/aquatic plants

<table>
<thead>
<tr>
<th>Test substance</th>
<th>ErC50 (Pseudokirchneriella subcapitata (green algae)):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 1 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>72 h</td>
</tr>
</tbody>
</table>

## Toxicity to fish (Chronic toxicity)

<table>
<thead>
<tr>
<th>Test substance</th>
<th>NOEC (Pimephales promelas (fathead minnow)):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.03 µg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>34 d</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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.03 µg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>21 d</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test substance</th>
<th>LL50 (Onchorhynchus mykiss (rainbow trout)):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 - 5 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>96 h</td>
</tr>
<tr>
<td>Test substance</td>
<td>Water Accommodated Fraction</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 203</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test substance</th>
<th>EL50 (Daphnia magna (Water flea)):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 - 10 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>48 h</td>
</tr>
<tr>
<td>Test substance</td>
<td>Water Accommodated Fraction</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 202</td>
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<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Test substance</th>
<th>EL50 (Pseudokirchneriella subcapitata (green algae)):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 1 - 3 mg/l</td>
</tr>
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## (S)-α-Cyano-3-phenoxycbenzyl (1R, 3R)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate:

<table>
<thead>
<tr>
<th>Test substance</th>
<th>LC50 (Cyprinus carpio (Carp)):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0003 mg/l</td>
</tr>
<tr>
<td>Exposure time</td>
<td>96 h</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 203</td>
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</tbody>
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<tr>
<td>Method</td>
<td>OECD Test Guideline 202</td>
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</tbody>
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<tr>
<th>Test substance</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Exposure time</td>
<td>34 d</td>
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</tbody>
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<table>
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<tr>
<th>Test substance</th>
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<tbody>
<tr>
<td></td>
<td>0.03 µg/l</td>
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<tr>
<td>Exposure time</td>
<td>21 d</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Test substance</th>
<th>LL50 (Onchorhynchus mykiss (rainbow trout)):</th>
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<tbody>
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<tr>
<td>Test substance</td>
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</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Test substance</th>
<th>EL50 (Daphnia magna (Water flea)):</th>
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<tbody>
<tr>
<td></td>
<td>3 - 10 mg/l</td>
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<tr>
<td>Test substance</td>
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<tr>
<td>Method</td>
<td>OECD Test Guideline 202</td>
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<td>Remarks</td>
<td>Based on data from similar materials</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Test substance</th>
<th>EL50 (Pseudokirchneriella subcapitata (green algae)):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 1 - 3 mg/l</td>
</tr>
</tbody>
</table>
Exposure time: 72 h
Test substance: Water Accommodated Fraction
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

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

Toxicity to fish: LC50 (Danio rerio (zebra fish)): > 0.57 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 0.48 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants: ErC50 (Pseudokirchneriella subcapitata (green algae)): > 0.24 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
NOEC (Pseudokirchneriella subcapitata (green algae)): 0.24 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

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

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

Toxicity to microorganisms: EC50: > 10,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Persistence and degradability

Components:

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

Ethion:
Biodegradability: Result: not rapidly degradable

Chlorpyrifos:
Biodegradability: Result: Not readily biodegradable.
Biodegradation: 22 %
Exposure time: 28 d  
Method: OECD Test Guideline 301D

Stability in water:  
Degradation half life (DT50): > 2 Months

2-Methyl-1-propanol:
Biodegradability:  
Result: Readily biodegradable.  
Biodegradation: 74 %  
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: Danio rerio (zebra fish)  
Bioconcentration factor (BCF): 6,918  
Method: OECD Test Guideline 305
Partition coefficient: n-octanol/water:  
log Pow: 5.21  
Method: OECD Test Guideline 107

2-Methyl-1-propanol:
Partition coefficient: n-octanol/water:  
log Pow: 1  
Method: OECD Test Guideline 117
Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version 7.0  Revision Date: 09/30/2023  SDS Number: 935022-00015  Date of last issue: 04/04/2023
Date of first issue: 10/12/2016

(S)-α-Cyano-3-phenoxycinnamyl (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

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods
Waste from residues : Dispose of in accordance with local regulations.
Do not dispose of waste into sewer.

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)
Environmentally hazardous : yes

IATA-DGR
UN/ID No. : UN 1992
SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

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.

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

CERCLA 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>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>
</tr>
<tr>
<td>2-Methyl-1-propanol</td>
<td>78-83-1</td>
<td>5000</td>
<td>62500</td>
</tr>
</tbody>
</table>
SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

Version 7.0  Revision Date: 09/30/2023  SDS Number: 935022-00015  Date of last issue: 04/04/2023
Date of first issue: 10/12/2016

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>

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
- Ethion 563-12-2
- Chlorpyrifos 2921-88-2
- 2-Methyl-1-propanol 78-83-1
- Hydrocarbons, C10, aromatics, <1% naphthalene 64742-94-5
- 2,6-Di-tert-butyl-p-cresol 128-37-0

California Permissible Exposure Limits for Chemical Contaminants
- Ethion 563-12-2
- Chlorpyrifos 2921-88-2
- 2-Methyl-1-propanol 78-83-1
- Hydrocarbons, C10, aromatics, <1% naphthalene 64742-94-5
The ingredients of this product are reported in the following inventories:

- AICS: not determined
- DSL: not determined
- IECSC: not determined

### SECTION 16. OTHER INFORMATION

**Further information**

**NFPA 704:**
- Flammability: 2
- Health: 3
- Instability: 0

**HMIS® IV:**
- HEALTH: 4
- FLAMMABILITY: 2
- PHYSICAL HAZARD: 0

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

AIIC - Australian Inventory of Industrial Chemicals; 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 Sub-
SAFETY DATA SHEET
according to the OSHA Hazard Communication Standard

Ethion / Chlorpyrifos / Alpha-Cypermethrin
Formulation

<table>
<thead>
<tr>
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<tbody>
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<td>7.0</td>
<td>09/30/2023</td>
<td>935022-00015</td>
<td>04/04/2023</td>
<td>10/12/2016</td>
</tr>
</tbody>
</table>

stances 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 Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50% of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RCRA - Resource Conservation and Recovery Act; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SAR - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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

Revision Date: 09/30/2023

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

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.