SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Fluazuron / Fipronil Formulation

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

1.1 Product identifier
Trade name : Fluazuron / Fipronil Formulation

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

1.3 Details of the supplier of the safety data sheet
Company : MSD
Shotton Lane
NE23 3JU Cramlington NU - Great Britain

Telephone : 44 1 670 59 30 00
Telefax : 908-735-1496
E-mail address of person responsible for the SDS : EHSDATASTEWARD@msd.com

1.4 Emergency telephone number
1-908-423-6000

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

<table>
<thead>
<tr>
<th>Classification</th>
<th>H350: May cause cancer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammable liquids, Category 3</td>
<td>H226: Flammable liquid and vapour.</td>
</tr>
<tr>
<td>Skin irritation, Category 2</td>
<td>H315: Causes skin irritation.</td>
</tr>
<tr>
<td>Eye irritation, Category 2</td>
<td>H319: Causes serious eye irritation.</td>
</tr>
<tr>
<td>Carcinogenicity, Category 1B</td>
<td>H350: May cause cancer.</td>
</tr>
<tr>
<td>Reproductive toxicity, Category 1B</td>
<td>H360D: May damage the unborn child.</td>
</tr>
<tr>
<td>Specific target organ toxicity - single exposure, Category 3</td>
<td>H335: May cause respiratory irritation.</td>
</tr>
<tr>
<td>Specific target organ toxicity - repeated exposure, Category 2</td>
<td>H373: May cause damage to organs through prolonged or repeated exposure.</td>
</tr>
<tr>
<td>Short-term (acute) aquatic hazard, Category 1</td>
<td>H400: Very toxic to aquatic life.</td>
</tr>
<tr>
<td>Long-term (chronic) aquatic hazard, Category 1</td>
<td>H410: Very toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)
SAFETY DATA SHEET
generated according to Regulation (EC) No. 1907/2006

Fluazuron / Fipronil Formulation

Version 3.3 Revision Date: 23.03.2020 SDS Number: 564218-00009 Date of last issue: 13.09.2019
Date of first issue: 15.03.2016

Hazard pictograms:

Signal word: Danger

Hazard statements:
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H350 May cause cancer.
H360D May damage the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements:

Prevention:
P201 Obtain special instructions before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P391 Collect spillage.

Hazardous components which must be listed on the label:
N-Methyl-2-pyrrolidone
Fipronil (ISO)
tert-butyl-4-methoxyphenol

Additional Labelling
Restricted to professional users.

2.3 Other hazards
Vapours may form explosive mixture with air.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No. EC-No. Index-No. Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>112-34-5 203-961-6 603-096-00-8</td>
<td>Eye Irrit. 2; H319</td>
<td>&gt;= 50 - &lt; 70</td>
</tr>
</tbody>
</table>
**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

**Fluazuron / Fipronil Formulation**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>Hazard Class</th>
<th>Pictograms</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4 212-828-1 606-021-00-7</td>
<td>Skin Irrit. 2; H315 Eye Irrit. 2; H319 Repir. 1B; H360D STOT SE 3; H335</td>
<td>&gt;= 10 - &lt; 20</td>
<td></td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5 200-578-6 603-002-00-5</td>
<td>Flam. Liq. 2; H225 Eye Irrit. 2; H319</td>
<td>&gt;= 10 - &lt; 20</td>
<td></td>
</tr>
<tr>
<td>Fluazuron</td>
<td>86811-58-7</td>
<td>Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>M-Factor (Acute aquatic toxicity): 1,000 M-Factor (Chronic aquatic toxicity): 1,000</td>
<td></td>
</tr>
<tr>
<td>Fipronil (ISO)</td>
<td>120068-37-3 424-610-5 608-055-00-8</td>
<td>Acute Tox. 3; H301 Acute Tox. 2; H330 Acute Tox. 3; H311 STOT RE 1; H372 Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>&gt;= 1 - &lt; 2.5</td>
<td></td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0 204-881-4</td>
<td>Aquatic Acute 1; H400 Aquatic Chronic 1; H410</td>
<td>M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 10,000</td>
<td></td>
</tr>
<tr>
<td>tert-butyl-4-methoxyphenol</td>
<td>25013-16-5 246-563-8</td>
<td>Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Carc. 1B; H350 Repr. 2; H361 Aquatic Chronic 2; H411</td>
<td>&gt;= 0.1 - &lt; 0.25</td>
<td></td>
</tr>
</tbody>
</table>

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

4.1 Description of first aid measures

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

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

If inhaled: If inhaled, remove to fresh air. 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.

If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water.

4.2 Most important symptoms and effects, both acute and delayed

Risks: Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause cancer. May damage the unborn child. May cause damage to organs through prolonged or repeated exposure.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
5.2 Special hazards arising from the substance or mixture
Specific hazards during firefighting: Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. Vapours may form explosive mixtures with air. Exposure to combustion products may be a hazard to health.

Hazardous combustion products: Carbon oxides Nitrogen oxides (NOx) Chlorine compounds Fluorine compounds Sulphur oxides

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

Specific extinguishing methods: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

SECTION 6: Accidental release measures

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

6.2 Environmental precautions
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.

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

6.4 Reference to other sections
See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

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

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

Advice on safe handling: Do not get on skin or clothing. Do not breathe vapours or spray mist. Do not swallow. Do not get in eyes. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment.

Non-sparking tools should be used. Keep container tightly closed. Already sensitised individuals should consult their physician regarding working with respiratory irritants or sensitisers. 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.

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. The effective operation of a facility should include review of engineering controls, proper personal protective equipment, appropriate degowning and decontamination procedures, industrial hygiene monitoring, medical surveillance and the use of administrative controls.

7.2 Conditions for safe storage, including any incompatibilities

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

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

7.3 Specific end use(s)
Specific use(s): No data available

SECTION 8: Exposure controls/personal protection

8.1 Control: Exposure controls/personal protection

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>112-34-5</td>
<td>TWA</td>
<td>10 ppm 67.5 mg/m3</td>
<td>2006/15/EC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td></td>
<td>15 ppm 101.2 mg/m3</td>
<td>2006/15/EC</td>
<td></td>
</tr>
<tr>
<td>OELV - 8 hrs (TWA)</td>
<td></td>
<td>10 ppm 67.5 mg/m3</td>
<td>IE OEL</td>
<td></td>
</tr>
<tr>
<td>Further information:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OELV - 15 min (STEL)</td>
<td></td>
<td>15 ppm 101.2 mg/m3</td>
<td>IE OEL</td>
<td></td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>TWA</td>
<td>10 ppm 40 mg/m3</td>
<td>2009/161/EU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Further information:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td></td>
<td>20 ppm 80 mg/m3</td>
<td>2009/161/EU</td>
<td></td>
</tr>
<tr>
<td>OELV - 8 hrs (TWA)</td>
<td></td>
<td>10 ppm 40 mg/m3</td>
<td>IE OEL</td>
<td></td>
</tr>
<tr>
<td>Further information:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OELV - 15 min (STEL)</td>
<td></td>
<td>20 ppm 80 mg/m3</td>
<td>IE OEL</td>
<td></td>
</tr>
<tr>
<td>Ethanol</td>
<td>64-17-5</td>
<td>OELV - 15 min (STEL)</td>
<td>1,000 ppm</td>
<td>IE OEL</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluazuron</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>14.4 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>40 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>4.8 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3.6 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>4.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>2.4 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.85 mg/kg bw/day</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>1900 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>343 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>950 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>950 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>206 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>114 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>87 mg/kg bw/day</td>
</tr>
<tr>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>67.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>67.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>101.2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>83 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>40.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>40.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>60.7 mg/m³</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Consumers</th>
<th>Skin contact</th>
<th>Long-term systemic effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>5 mg/kg bw/day</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
</tr>
<tr>
<td>Workers</td>
<td>Dermal</td>
<td>Long-term systemic effects</td>
<td>0.5 mg/kg bw/day</td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>0.86 mg/m3</td>
</tr>
<tr>
<td>Consumers</td>
<td>Dermal</td>
<td>Long-term systemic effects</td>
<td>0.25 mg/kg bw/day</td>
</tr>
<tr>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.25 mg/kg bw/day</td>
</tr>
<tr>
<td>tert-butyl-4-methoxyphenol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
</tr>
<tr>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>6.25 mg/kg bw/day</td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>2.717391 mg/m3</td>
</tr>
<tr>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>3.125 mg/kg bw/day</td>
</tr>
<tr>
<td>Consumers</td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>1.5625 mg/kg bw/day</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>Fresh water</td>
<td>0.25 mg/l</td>
</tr>
<tr>
<td></td>
<td>Freshwater - intermittent</td>
<td>5 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.025 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>10 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>1.09 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>1.09 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>0.07 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Fresh water</td>
<td>0.96 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.79 mg/l</td>
</tr>
<tr>
<td></td>
<td>Intermittent use/release</td>
<td>2.75 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>580 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>3.6 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>2.9 mg/kg</td>
</tr>
<tr>
<td></td>
<td>Soil</td>
<td>0.63 mg/kg</td>
</tr>
<tr>
<td>Oral (Secondary Poisoning)</td>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>720 mg/kg food</td>
</tr>
<tr>
<td></td>
<td>Fresh water</td>
<td>1.1 mg/l</td>
</tr>
<tr>
<td></td>
<td>Freshwater - intermittent</td>
<td>11 mg/l</td>
</tr>
<tr>
<td></td>
<td>Marine water</td>
<td>0.11 mg/l</td>
</tr>
<tr>
<td></td>
<td>Sewage treatment plant</td>
<td>200 mg/l</td>
</tr>
<tr>
<td></td>
<td>Fresh water sediment</td>
<td>4.4 mg/kg dry weight (d.w.)</td>
</tr>
<tr>
<td></td>
<td>Marine sediment</td>
<td>0.44 mg/kg dry weight (d.w.)</td>
</tr>
</tbody>
</table>
Soil | 0.32 mg/kg dry weight (d.w.)
---|---
Secondary Poisoning | 56 mg/kg food
2,6-Di-tert-butyl-p-cresol | 0.199 µg/l
Fresh water | 0.02 µg/l
Marine water | 0.02 µg/l
Sewage treatment plant | 0.17 mg/l
Fresh water sediment | 0.0996 mg/kg dry weight (d.w.)
Marine sediment | 0.00996 mg/kg dry weight (d.w.)
Soil | 0.04769 mg/kg dry weight (d.w.)
Oral (Secondary Poisoning) | 8.33 mg/kg food
tert-butyl-4-methoxyphenol | 0.002 mg/l
Fresh water | 0.00015 mg/l
Marine water | 1.0405 mg/l
Sewage treatment plant | 28.539285 mg/kg
Fresh water sediment | 28.539285 mg/kg
Marine sediment | 13.37592 mg/kg

### 8.2 Exposure controls

**Engineering measures**

Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).

All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.

Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices).

Minimize open handling.

**Personal protective equipment**

**Eye protection**

Wear safety glasses with side shields or goggles.

If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.

Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or aerosols.

**Hand protection**

**Material**

Chemical-resistant gloves

**Remarks**

Consider double gloving. Take note that the product is flammable, which may impact the selection of hand protection.

**Skin and body protection**

Work uniform or laboratory coat.

Additional body garments should be used based upon the task being performed (e.g., sleevelets, apron, gauntlets, disposable suits) to avoid exposed skin surfaces.

Use appropriate degowning techniques to remove potentially contaminated clothing.

**Respiratory protection**

If adequate local exhaust ventilation is not available or expo-
sure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Equipment should conform to I.S. EN 14387
Filter type: Combined particulates and organic vapour type (A-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>light yellow</td>
</tr>
<tr>
<td>Odour</td>
<td>solvent-like</td>
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<td>Odour Threshold</td>
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<tr>
<td>pH</td>
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<td>Melting point/freezing point</td>
<td>No data available</td>
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<tr>
<td>Initial boiling point and boiling range</td>
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<td>Flash point</td>
<td>32 °C</td>
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<tr>
<td>Evaporation rate</td>
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<tr>
<td>Flammability (solid, gas)</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>
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</tr>
<tr>
<td>Vapour pressure</td>
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</tr>
<tr>
<td>Relative vapour density</td>
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<tr>
<td>Relative density</td>
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<tr>
<td>Solubility(ies)</td>
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<td>Water solubility</td>
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<tr>
<td>Partition coefficient: n-octanol/water</td>
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<td>Auto-ignition temperature</td>
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<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
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<tr>
<td>Viscosity</td>
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</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>
</tbody>
</table>
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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

SECTION 10: Stability and reactivity

10.1 Reactivity
Not classified as a reactivity hazard.

10.2 Chemical stability
Stable under normal conditions.

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

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

10.5 Incompatible materials
Materials to avoid : Oxidizing agents

10.6 Hazardous decomposition products
No hazardous decomposition products are known.

SECTION 11: Toxicological information

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

Acute toxicity
Not classified based on available information.

Product:
Acute oral toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method
Components:

2-(2-Butoxyethoxy)ethanol:
Acute oral toxicity: LD50 (Mouse): 2,410 mg/kg
Acute dermal toxicity: LD50 (Rabbit): 2,764 mg/kg

N-Methyl-2-pyrrolidone:
Acute oral toxicity: LD50 (Rat): 4,150 mg/kg
Acute inhalation toxicity: LC50 (Rat): > 5.1 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
  Method: OECD Test Guideline 403
Acute dermal toxicity: LD50 (Rat): > 5,000 mg/kg

Ethanol:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
  Method: OECD Test Guideline 401
Acute inhalation toxicity: LC50 (Rat): 124.7 mg/l
  Exposure time: 4 h
  Test atmosphere: vapour

Fluazuron:
Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
  Method: OECD Test Guideline 401
Acute inhalation toxicity: LC50 (Rat): > 6.0 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
  Method: OECD Test Guideline 403
Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg
  Method: OECD Test Guideline 402

Fipronil (ISO):
Acute oral toxicity: LD50 (Rat): 92 mg/kg
Acute inhalation toxicity: LC50 (Rat): 0.36 mg/l
  Exposure time: 4 h
  Test atmosphere: dust/mist
Acute dermal toxicity: LD50 (Rabbit): 354 mg/kg

2,6-Di-tert-butyl-p-cresol:
Acute oral toxicity: LD50 (Rat): > 6,000 mg/kg
  Method: OECD Test Guideline 401
Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

tert-butyl-4-methoxyphenol:
Acute oral toxicity: LD50 (Rat): 2,000 mg/kg
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:

2-(2-Butoxyethoxy)ethanol:
Species: Rabbit
Method: OECD Test Guideline 404
Result: Mild skin irritation

N-Methyl-2-pyrrolidone:
Result: Skin irritation

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

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

Fipronil (ISO):
Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

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

tert-butyl-4-methoxyphenol:
Fluazuron / Fipronil Formulation

Result: Skin irritation

**Serious eye damage/eye irritation**
Causes serious eye irritation.

**Components:**

**2-(2-Butoxyethoxy)ethanol:**
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

**N-Methyl-2-pyrrolidone:**
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

**Ethanol:**
Species: Rabbit
Method: OECD Test Guideline 405
Result: Irritation to eyes, reversing within 21 days

**Fluazuron:**
Species: Rabbit
Method: OECD Test Guideline 405
Result: Mild eye irritation

**Fipronil (ISO):**
Species: Rabbit
Method: OECD Test Guideline 405
Result: No eye irritation

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

**tert-butyl-4-methoxyphenol:**
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

**Respiratory or skin sensitisation**

**Skin sensitisation**
Not classified based on available information.

**Respiratory sensitisation**
Not classified based on available information.
## Components:

**2-(2-Butoxyethoxy)ethanol:**
- **Test Type**: Maximisation Test
- **Exposure routes**: Skin contact
- **Species**: Guinea pig
- **Result**: negative

**N-Methyl-2-pyrrolidone:**
- **Test Type**: Local lymph node assay (LLNA)
- **Exposure routes**: Skin contact
- **Species**: Mouse
- **Method**: OECD Test Guideline 429
- **Result**: negative
- **Remarks**: Based on data from similar materials

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

**Fluazuron:**
- **Exposure routes**: Skin contact
- **Species**: Guinea pig
- **Result**: negative

**Fipronil (ISO):**
- **Test Type**: Buehler Test
- **Exposure routes**: Skin contact
- **Species**: Guinea pig
- **Method**: OECD Test Guideline 406
- **Result**: negative

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

**tert-butyl-4-methoxyphenol:**
- **Test Type**: Human repeat insult patch test (HRIPT)
- **Exposure routes**: Skin contact
- **Result**: negative

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

#### 2-(2-Butoxyethoxy)ethanol:

- **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: Mouse
    - Application Route: Ingestion
    - Result: negative

#### N-Methyl-2-pyrrolidone:

- **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

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

#### Ethanol:

- **Genotoxicity in vitro**  
  - Test Type: In vitro mammalian cell gene mutation test  
    - Result: negative
  - Test Type: Bacterial reverse mutation assay (AMES)  
    - Result: negative

- **Genotoxicity in vivo**  
  - Test Type: Rodent dominant lethal test (germ cell) (in vivo)
<table>
<thead>
<tr>
<th>Species</th>
<th>Test Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluazuron</td>
<td>Genotoxicity in vitro</td>
<td>Bacterial reverse mutation assay (AMES)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DNA Repair</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In vitro mammalian cell gene mutation test</td>
</tr>
<tr>
<td></td>
<td>Genotoxicity in vivo</td>
<td>Cytogenetic assay</td>
</tr>
<tr>
<td>Fipronil (ISO)</td>
<td>Genotoxicity in vitro</td>
<td>Bacterial reverse mutation assay (AMES)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Method: OECD Test Guideline 471</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In vitro mammalian cell gene mutation test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Method: OECD Test Guideline 476</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chromosome aberration test in vitro</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Method: OECD Test Guideline 473</td>
</tr>
<tr>
<td></td>
<td>Genotoxicity in vivo</td>
<td>Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Species: Mouse</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Application Route: Ingestion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Method: OECD Test Guideline 474</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Species: Rat</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Application Route: Ingestion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Method: OECD Test Guideline 486</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>Genotoxicity in vitro</td>
<td>Bacterial reverse mutation assay (AMES)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In vitro mammalian cell gene mutation test</td>
</tr>
</tbody>
</table>
Fluazuron / Fipronil Formulation

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

tert-butyl-4-methoxyphenol:
Genotoxicity in vitro:
Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Carcinogenicity
May cause cancer.

Components:

N-Methyl-2-pyrrolidone:
Species: Rat
Application Route: Ingestion
Exposure time: 2 Years
Result: negative

Species: Rat
Application Route: inhalation (vapour)
Exposure time: 2 Years
Result: negative

Fluazuron:
Species: Rat
Application Route: Ingestion
Exposure time: 2 Years
Method: OECD Test Guideline 453
Result: negative

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

Fipronil (ISO):
Species: Mouse
Application Route: Ingestion
Exposure time: 78 weeks
Result: negative

Species: Rat
Application Route: Ingestion
Exposure time: 104 weeks
Result : positive
Remarks : The mechanism or mode of action is not relevant in humans.

2,6-Di-tert-butyl-p-cresol:
Species : Rat
Application Route : Ingestion
Exposure time : 22 Months
Result : negative

tert-butyl-4-methoxyphenol:
Species : Hamster
Application Route : Ingestion
Exposure time : 24 weeks
Result : positive

Species : Rat
Application Route : Ingestion
Exposure time : 12 Months
Result : positive

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in animal experiments

Reproductive toxicity
May damage the unborn child.

Components:

2-(2-Butoxyethoxy)ethanol:
Effects on fertility : Test Type: One-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 415
Result: negative

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

N-Methyl-2-pyrrolidone:
Effects on fertility : Test Type: Two-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 416
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 414
## Fluazuron / Fipronil Formulation

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Species</th>
<th>Application Route</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertility/early embryonic development</td>
<td>Rat</td>
<td>Inhalation (vapour)</td>
<td>Positive</td>
</tr>
<tr>
<td>Embryo-foetal development</td>
<td>Rabbit</td>
<td>Ingestion</td>
<td>Positive</td>
</tr>
<tr>
<td>Two-generation reproduction toxicity study</td>
<td>Mouse</td>
<td>Ingestion</td>
<td>Negative</td>
</tr>
<tr>
<td>Two-generation reproduction toxicity study</td>
<td>Rat</td>
<td>Ingestion</td>
<td>Negative</td>
</tr>
<tr>
<td>Two-generation reproduction toxicity study</td>
<td>Rabbit</td>
<td>Ingestion</td>
<td>Negative</td>
</tr>
<tr>
<td>Embryo-foetal development</td>
<td>Rat</td>
<td>Ingestion</td>
<td>Negative</td>
</tr>
<tr>
<td>Embryo-foetal development</td>
<td>Rabbit</td>
<td>Ingestion</td>
<td>Negative</td>
</tr>
</tbody>
</table>

**Reproductive toxicity - Assessment:** Clear evidence of adverse effects on development, based on animal experiments.

**Ethanol:**

**Effects on fertility:**

Test Type: Two-generation reproduction toxicity study  
Species: Mouse  
Application Route: Ingestion  
Result: Negative

**Fluazuron:**

**Effects on fertility:**

Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: Negative

**Effects on foetal development:**

Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Result: Negative

**Fipronil (ISO):**

**Effects on fertility:**

Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: Negative

**Effects on foetal development:**

Test Type: Embryo-foetal development  
Species: Rabbit  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: Negative

**2,6-Di-tert-butyl-p-cresol:**
Effects on fertility
- Test Type: Two-generation reproduction toxicity study
  - Species: Rat
  - Application Route: Ingestion
  - Result: negative

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

**tert-butyl-4-methoxyphenol:**
- Effects on fertility
  - Test Type: One-generation reproduction toxicity study
    - Species: Rat
    - Application Route: Ingestion
    - Result: positive

- Effects on foetal development
  - Test Type: Embryo-foetal development
    - Species: Rat
    - Application Route: Ingestion
    - Result: positive

Reproductive toxicity - Assessment
- Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

**STOT - single exposure**
May cause respiratory irritation.

**Components:**

**N-Methyl-2-pyrrolidone:**
- Assessment: May cause respiratory irritation.

**STOT - repeated exposure**
May cause damage to organs through prolonged or repeated exposure.

**Components:**

**Fipronil (ISO):**
- Exposure routes: Ingestion
- Target Organs: Central nervous system, Kidney
- Assessment: Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

**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:**

**2-(2-Butoxyethoxy)ethanol:**
**Species**: Rat  
**NOAEL**: 250 mg/kg  
**LOAEL**: 1,000 mg/kg  
**Application Route**: Ingestion  
**Exposure time**: 90 Days  
**Method**: OECD Test Guideline 408

**Species**: Rat  
**NOAEL**: >= 0.094 mg/l  
**Application Route**: Inhalation (vapour)  
**Exposure time**: 90 Days  
**Method**: OECD Test Guideline 413

**Species**: Rat  
**NOAEL**: >= 2,000 mg/kg  
**Application Route**: Skin contact  
**Exposure time**: 90 Days

### N-Methyl-2-pyrrolidone:

**Species**: Rat, male  
**NOAEL**: 169 mg/kg  
**LOAEL**: 433 mg/kg  
**Application Route**: Ingestion  
**Exposure time**: 90 Days  
**Method**: OECD Test Guideline 408

**Species**: Rat  
**NOAEL**: 0.5 mg/l  
**LOAEL**: 1 mg/l  
**Application Route**: Inhalation (dust/mist/fume)  
**Exposure time**: 96 Days  
**Method**: OECD Test Guideline 413

**Species**: Rabbit  
**NOAEL**: 826 mg/kg  
**LOAEL**: 1,653 mg/kg  
**Application Route**: Skin contact  
**Exposure time**: 20 Days

### Ethanol:

**Species**: Rat  
**NOAEL**: 1,280 mg/kg  
**LOAEL**: 3,156 mg/kg  
**Application Route**: Ingestion  
**Exposure time**: 90 Days

### Fluazuron:

**Species**: Rat  
**NOAEL**: 240 mg/kg  
**Application Route**: Ingestion  
**Exposure time**: 13 Weeks  
**Target Organs**: Liver, Thyroid, Pituitary gland
Species: Rat
NOAEL: 10 mg/kg
LOAEL: 100 mg/kg
Application Route: Skin contact
Exposure time: 3 Weeks

Species: Dog
NOAEL: 7.5 mg/kg
LOAEL: 110 mg/kg
Application Route: Ingestion
Exposure time: 52 Weeks
Target Organs: Liver

Fipronil (ISO):
Species: Rabbit
NOAEL: 5 mg/kg
LOAEL: 10 mg/kg
Application Route: Skin contact
Exposure time: 21 Days
Method: OECD Test Guideline 410

Species: Rat, male
NOAEL: 0.059 mg/kg
LOAEL: 0.019 mg/kg
Application Route: Ingestion
Exposure time: 89 Weeks

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

tert-butyl-4-methoxyphenol:
Species: Rat
LOAEL: 63,000 mg/kg
Application Route: Ingestion
Exposure time: 6 Weeks

Aspiration toxicity
Not classified based on available information.

Experience with human exposure

Components:

N-Methyl-2-pyrrolidone:
Skin contact: Symptoms: Skin irritation
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

Fluazuron / Fipronil Formulation

SECTION 12: Ecological information

12.1 Toxicity

Components:

2-(2-Butoxyethoxy)ethanol:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 1,300 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): >= 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC10 : > 1,995 mg/l
Exposure time: 30 min

N-Methyl-2-pyrrolidone:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 500 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Method: DIN 38412

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 600.5 mg/l
Exposure time: 72 h

EC10 (Desmodesmus subspicatus (green algae)): 92.6 mg/l
Exposure time: 72 h

Toxicity to microorganisms : EC50 : > 600 mg/l
Exposure time: 30 min
Method: ISO 8192

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 12.5 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 211

Ethanol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): > 1,000 mg/l
Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates: EC50 (Ceriodaphnia (water flea)): > 1,000 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants:
- ErC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l
  Exposure time: 72 h
- EC10 (Chlorella vulgaris (Fresh water algae)): 11.5 mg/l
  Exposure time: 72 h

Toxicity to microorganisms:
- EC50 (Pseudomonas putida): 6,500 mg/l
  Exposure time: 16 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
- NOEC: 9.6 mg/l
  Exposure time: 9 d
  Species: Daphnia magna (Water flea)

**Fluazuron:**

Toxicity to fish:
- LC50 (Cyprinus carpio (Carp)): > 9.1 mg/l
  Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
- EC50 (Daphnia sp. (water flea)): 0.0006 mg/l
  Exposure time: 48 h

Toxicity to algae/aquatic plants:
- NOEC (Raphidocelis subcapitata (freshwater green alga)):
  27.9 mg/l
  Exposure time: 72 h

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

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

**Fipronil (ISO):**

Toxicity to fish:
- LC50 (Lepomis macrochirus (Bluegill sunfish)): 85.2 µg/l
  Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates:
- LC50 (Mysisopsis bahia (oossum shrimp)): 0.14 µg/l
  Exposure time: 96 h

Toxicity to algae/aquatic plants:
- EC50 (Desmodesmus subspicatus (green algae)): 68 µg/l
  Exposure time: 96 h
  Method: OECD Test Guideline 201
  NOEC (Desmodesmus subspicatus (green algae)): 40 µg/l
  Exposure time: 96 h
  Method: OECD Test Guideline 201

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

Toxicity to microorganisms:
- EC50: > 1,000 mg/l
  Exposure time: 3 h
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Toxicity to fish (Chronic toxicity): NOEC: 2.9 µg/l
Exposure time: 35 d
Species: Cyprinodon variegatus (sheepshead minnow)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC: 0.0077 µg/l
Exposure time: 28 d
Species: Mysis midas (opossum shrimp)

M-Factor (Chronic aquatic toxicity): 10,000

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

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

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

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

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.24 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity): 1

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

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

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

M-Factor (Chronic aquatic toxicity): 1

tert-butyl-4-methoxyphenol:

Toxicity to fish: LC50: 5.8 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

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Toxicity to daphnia and other aquatic invertebrates:
EC50 (Daphnia magna (Water flea)): 2.3 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants:
EC50 (Pseudokirchneriella subcapitata (green algae)): 5.2 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

12.2 Persistence and degradability

Components:

2-(2-Butoxyethoxy)ethanol:
Biodegradability: Result: Readily biodegradable.
Biodegradation: 85 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

N-Methyl-2-pyrrolidone:
Biodegradability: Result: Readily biodegradable.
Biodegradation: 73 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

Ethanol:
Biodegradability: Result: Readily biodegradable.
Biodegradation: 84 %
Exposure time: 20 d

Fipronil (ISO):
Biodegradability: Result: Not readily biodegradable.
Biodegradation: 47 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

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

12.3 Bioaccumulative potential

Components:

2-(2-Butoxyethoxy)ethanol:
Partition coefficient: n-octanol/water: log Pow: 1

N-Methyl-2-pyrrolidone:
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<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Date of last issue:</th>
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<td>13.09.2019</td>
<td>15.03.2016</td>
</tr>
</tbody>
</table>

- **Ethanol:**
  - Partition coefficient: \( n\)-octanol/water
  - \( \log Pow: -0.35 \)

- **Fluazuron:**
  - Partition coefficient: \( n\)-octanol/water
  - \( \log Pow: 5.1 \)

- **Fipronil (ISO):**
  - Bioaccumulation: Species: Lepomis macrochirus (Bluegill sunfish)
    - Bioconcentration factor (BCF): 321
  - Partition coefficient: \( n\)-octanol/water
  - \( \log Pow: 4 \)

- **2,6-Di-tert-butyl-p-cresol:**
  - Bioaccumulation: Species: Cyprinus carpio (Carp)
    - Bioconcentration factor (BCF): 330 - 1,800
  - Partition coefficient: \( n\)-octanol/water
  - \( \log Pow: 5.1 \)

- **tert-butyl-4-methoxyphenol:**
  - Partition coefficient: \( n\)-octanol/water
  - \( \log Pow: 2.8 \)

12.4 Mobility in soil
- No data available

12.5 Results of PBT and vPvB assessment
- Not relevant

12.6 Other adverse effects
- No data available

SECTION 13: Disposal considerations

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

- **Contaminated packaging:**
  - Empty containers should be taken to an approved waste handling site for recycling or disposal.
  - Empty containers retain residue and can be dangerous.
  - Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
  - If not otherwise specified: Dispose of as unused product.
SECTION 14: Transport information

14.1 UN number

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14.2 UN proper shipping name

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14.3 Transport hazard class(es)

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14.4 Packing group

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## EmS Code
- IATA (Cargo): F-E, S-D

### IATA (Cargo)
- Packing instruction (cargo aircraft): 366
- Packing instruction (LQ): Y344
- Packing group: III
- Labels: Flammable Liquids

### IATA (Passenger)
- Packing instruction (passenger aircraft): 355
- Packing instruction (LQ): Y344
- Packing group: III
- Labels: Flammable Liquids

## 14.5 Environmental hazards

- ADN
  - Environmentally hazardous: yes
- ADR
  - Environmentally hazardous: yes
- RID
  - Environmentally hazardous: yes
- IMDG
  - Marine pollutant: yes

## 14.6 Special precautions for user

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

## 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

### Remarks
- Not applicable for product as supplied.

## SECTION 15: Regulatory information

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

- **REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII):**
  - Conditions of restriction for the following entries should be considered:
    - Number on list 3 N-Methyl-2-pyrrolidone (Number on list 72, 71, 30)
    - 2-(2-Butoxyethoxy)ethanol (Number on list 55)

- **REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).**
  - N-Methyl-2-pyrrolidone

- **REACH - List of substances subject to authorisation (Annex XIV).**
  - Not applicable

- **Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.**
  - Not applicable
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Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals: Fipronil (ISO)

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<td>200 t</td>
</tr>
<tr>
<td>5,000 t</td>
<td>50,000 t</td>
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</table>

Other regulations:
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.
Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:
AICS : not determined
DSL : not determined
IECSC : not determined

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

SECTION 16: Other information

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

Full text of H-statements
H225 : Highly flammable liquid and vapour.
H301 : Toxic if swallowed.
H302 : Harmful if swallowed.
H311 : Toxic in contact with skin.
H315 : Causes skin irritation.
H319 : Causes serious eye irritation.
H330 : Fatal if inhaled.
H335 : May cause respiratory irritation.
H350 : May cause cancer.
H360D : May damage the unborn child.
H361 : Suspected of damaging fertility or the unborn child.
H372 : Causes damage to organs through prolonged or repeated exposure.
H400 : Very toxic to aquatic life.
H410 : Very toxic to aquatic life with long lasting effects.
H411 : Toxic to aquatic life with long lasting effects.

Full text of other abbreviations
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Acute Tox.: Acute toxicity
Aquatic Acute: Short-term (acute) aquatic hazard
Aquatic Chronic: Long-term (chronic) aquatic hazard
Carc.: Carcinogenicity
Eye Irrit.: Eye irritation
Flam. Liq.: Flammable liquids
Repr.: Reproductive toxicity
Skin Irrit.: Skin irritation
STOT RE: Specific target organ toxicity - repeated exposure
STOT SE: Specific target organ toxicity - single exposure
2006/15/EC: Europe. Indicative occupational exposure limit values
IE OEL: Ireland. List of Chemical Agents and Occupational Exposure Limit Values - Schedule 1
2006/15/EC / TWA: Limit Value - eight hours
2006/15/EC / STEL: Short term exposure limit
2009/161/EU / TWA: Limit Value - eight hours
2009/161/EU / STEL: Short term exposure limit
IE OEL / OELV - 8 hrs (TWA): Occupational exposure limit value (8-hour reference period)
IE OEL / OELV - 15 min (STEL): Occupational exposure limit value (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical
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Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:

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<th>Classification</th>
<th>Procedure</th>
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<td>Aquatic Chronic 1</td>
<td>H410</td>
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</tbody>
</table>

Classification procedure:
- Based on product data or assessment
- Calculation method

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.

IE / EN