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

Fluazuron / Fipronil Formulation

Version 3.4 Revision Date: 10.10.2020 SDS Number: 564217-00010 Date of last issue: 23.03.2020
Date of first issue: 15.03.2016

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
Walton Manor, Walton
MK7 7AJ Milton Keynes - United Kingdom

Telephone: 908-740-4000
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)
- Flammable liquids, Category 3 - H226: Flammable liquid and vapour.
- Skin irritation, Category 2 - H315: Causes skin irritation.
- Eye irritation, Category 2 - H319: Causes serious eye irritation.
- Carcinogenicity, Category 1B - H350: May cause cancer.
- Reproductive toxicity, Category 1B - H360D: May damage the unborn child.
- Specific target organ toxicity - single exposure, Category 3 - H335: May cause respiratory irritation.
- Specific target organ toxicity - repeated exposure, Category 2 - H373: May cause damage to organs through prolonged or repeated exposure.
- Short-term (acute) aquatic hazard, Category 1 - H400: Very toxic to aquatic life.
- Long-term (chronic) aquatic hazard, Category 1 - H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements
Labelling (REGULATION (EC) No 1272/2008)
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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>
# Voluntarily-disclosed non-hazardous substance
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

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture
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. 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 (see section 7) and personal protective equipment recommendations (see section 8).

6.2 Environmental precautions
Environmental precautions : Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). 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 contain-
ment 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 absorb-
ent.
Local or national regulations may apply to releases and dis-
posal of this material, as well as those materials and items
employed in the cleanup of releases. You will need to deter-
mine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding
certain local or national requirements.

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : See Engineering measures under EXPOSURE
CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust
ventilation.
Use explosion-proof electrical, ventilating and lighting equip-
ment.
Advice on safe handling : Do not get on skin or clothing.
Do not breathe mist or vapours.
Do not swallow.
Do not get in eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety
practice, based on the results of the workplace exposure as-
essment.
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, hot surfaces, sparks, open flames and
other ignition sources. No smoking.
Take precautionary measures against static discharges.
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the
environment.

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

Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>112-34-5</td>
<td>TWA</td>
<td>10 ppm</td>
<td>2006/15/EC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>67.5 mg/m³</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>15 ppm</td>
<td>2006/15/EC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>101.2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>TWA</td>
<td>10 ppm</td>
<td>2009/161/EU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>40 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Further information: Indicative

Further information: Identifies the possibility of significant uptake through the skin, Indicative

Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will
### Fluazuron / Fipronil Formulation

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<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Date of last issue:</th>
<th>Date of first issue:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4</td>
<td>10.10.2020</td>
<td>564217-00010</td>
<td>23.03.2020</td>
<td>15.03.2016</td>
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</tbody>
</table>

Lead to systemic toxicity.

<table>
<thead>
<tr>
<th>Substance</th>
<th>STEL</th>
<th>TWA</th>
<th>GB EH40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>20 ppm 80 mg/m³</td>
<td>1,000 ppm 1,920 mg/m³</td>
<td>GB EH40</td>
</tr>
<tr>
<td>Fluazuron</td>
<td><strong>Further information</strong>: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flupyradoluclid</td>
<td>60 µg/m³ (OEB 3)</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>Flupyradoluclid</td>
<td>600 µg/100cm²</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>Fipronil (ISO)</td>
<td>2 µg/m³ (OEB 4)</td>
<td>Internal</td>
<td></td>
</tr>
<tr>
<td>Fipronil (ISO)</td>
<td><strong>Further information</strong>: Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fipronil (ISO)</td>
<td><strong>Further information</strong>: Substances used as active ingredients in pesticides are listed under their systematic chemical names and/or their (ISO) common names. These may sometimes be used as parts of the names of proprietary pesticide formulations. In all cases, the exposure limit applies to the specific active ingredient in the workplace atmosphere and not the formulation as a whole.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Wipe limit</th>
<th>GB EH40</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>20 µg/100 cm²</td>
<td>GB EH40</td>
</tr>
<tr>
<td>Ethanol</td>
<td>900 mg/m³</td>
<td>GB EH40</td>
</tr>
<tr>
<td>Ethanol</td>
<td>206 mg/kg bw/day</td>
<td>GB EH40</td>
</tr>
<tr>
<td>Ethanol</td>
<td>950 mg/m³</td>
<td>GB EH40</td>
</tr>
<tr>
<td>Ethanol</td>
<td>950 mg/m³</td>
<td>GB EH40</td>
</tr>
</tbody>
</table>

**Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:**

<table>
<thead>
<tr>
<th>Substance name</th>
<th>End Use</th>
<th>Exposure routes</th>
<th>Potential health effects</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>14.4 mg/m³</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>40 mg/m³</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</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>N-Methyl-2-pyrrolidone</td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3.6 mg/m³</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>4.5 mg/m³</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</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>Ethanol</td>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>343 mg/kg bw/day</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>950 mg/m³</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Consumers</td>
<td>Inhalation</td>
<td>Acute local effects</td>
<td>950 mg/m³</td>
</tr>
<tr>
<td>Ethanol</td>
<td>Consumers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>206 mg/kg bw/day</td>
</tr>
</tbody>
</table>
**Fluazuron / Fipronil Formulation**

<table>
<thead>
<tr>
<th>Consumers / Workers</th>
<th>Exposure Route</th>
<th>Environmental Effect</th>
<th>Predicted No Effect Concentration (PNEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>114 mg/m³</td>
</tr>
<tr>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>67.5 mg/m³</td>
</tr>
<tr>
<td>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>67.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>83 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>87 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>83 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Acute local effects</td>
<td>101.2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>5 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term local effects</td>
<td>40.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term local effects</td>
<td>40.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>50 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Acute local effects</td>
<td>60.7 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>10 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.86 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>0.25 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.25 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.25 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.5 mg/kg bw/day</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3.5 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Dermal</td>
<td>Long-term systemic effects</td>
<td>0.5 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.86 mg/m³</td>
</tr>
<tr>
<td>tert-Butyl-4-methoxyphenol</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>4.93 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>1.4 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.87 mg/m³</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.5 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Ingestion</td>
<td>Long-term systemic effects</td>
<td>0.5 mg/kg bw/day</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Substance name</th>
<th>Environmental Compartment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>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>Marine water</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Intermittent use/release</td>
<td>2.75 mg/l</td>
<td></td>
</tr>
<tr>
<td>Sewage treatment plant</td>
<td>580 mg/l</td>
<td></td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>3.6 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Marine sediment</td>
<td>2.9 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>0.63 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Oral (Secondary Poisoning)</td>
<td>720 mg/kg</td>
<td></td>
</tr>
<tr>
<td>2-(2-Butoxyethoxy)ethanol</td>
<td>Fresh water</td>
<td>1.1 mg/l</td>
</tr>
<tr>
<td>Freshwater - intermittent</td>
<td>11 mg/l</td>
<td></td>
</tr>
<tr>
<td>Marine water</td>
<td>0.11 mg/l</td>
<td></td>
</tr>
<tr>
<td>Sewage treatment plant</td>
<td>200 mg/l</td>
<td></td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>4.4 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Marine sediment</td>
<td>0.44 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>0.32 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Secondary Poisoning</td>
<td>56 mg/kg food</td>
<td></td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>Fresh water</td>
<td>0.199 µg/l</td>
</tr>
<tr>
<td>Intermittent use/release</td>
<td>0.02 µg/l</td>
<td></td>
</tr>
<tr>
<td>Marine water</td>
<td>0.02 µg/l</td>
<td></td>
</tr>
<tr>
<td>Sewage treatment plant</td>
<td>0.17 mg/l</td>
<td></td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>0.0996 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Marine sediment</td>
<td>0.00996 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>0.04769 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Oral (Secondary Poisoning)</td>
<td>8.33 mg/kg food</td>
<td></td>
</tr>
<tr>
<td>tert-Butyl-4-methoxyphenol</td>
<td>Fresh water</td>
<td>0.0124 mg/l</td>
</tr>
<tr>
<td>Freshwater - intermittent</td>
<td>0.0156 mg/l</td>
<td></td>
</tr>
<tr>
<td>Marine water</td>
<td>0.00124 mg/l</td>
<td></td>
</tr>
<tr>
<td>Marine water - intermittent</td>
<td>0.0156 mg/l</td>
<td></td>
</tr>
<tr>
<td>Sewage treatment plant</td>
<td>0.152713 mg/l</td>
<td></td>
</tr>
<tr>
<td>Fresh water sediment</td>
<td>1.78 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Marine sediment</td>
<td>0.178 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
<tr>
<td>Soil</td>
<td>0.348 mg/kg dry weight (d.w.)</td>
<td></td>
</tr>
</tbody>
</table>

### 8.2 Exposure controls

**Engineering measures**

Use explosion-proof electrical, ventilating and lighting equipment.

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 exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
- Equipment should conform to BS 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>
</tr>
<tr>
<td>Odour Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>32 °C</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<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>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
</tbody>
</table>
Fluazuron / Fipronil Formulation

Relative vapour density : No data available
Relative density : No data available

Solubility(ies)
Water solubility : No data available
Partition coefficient: n-octanol/water : No data available
Auto-ignition temperature : No data available
Decomposition temperature : No data available

Viscosity
Viscosity, kinematic : No data available

Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.

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

SECTION 10: Stability and reactivity

10.1 Reactivity
Not classified as a reactivity hazard.

10.2 Chemical stability
Stable under normal conditions.

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.
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

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

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

Fluazuron:
- Acute oral toxicity: LD50 (Rat): > 5,000 mg/kg
Fluazuron / Fipronil Formulation

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, female): > 2,000 mg/kg
Method: OECD Test Guideline 423
Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity: LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation
Causes skin irritation.

Components:

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

Ethanol:
Species: Rabbit
# Fluazuron / Fipronil Formulation

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date</th>
<th>SDS Number</th>
<th>Date of last issue</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4</td>
<td>10.10.2020</td>
<td>564217-00010</td>
<td>23.03.2020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Method</th>
<th>OECD Test Guideline 404</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>

**N-Methyl-2-pyrrolidone:**

| Result                              | Skin irritation          |

**Fluazuron:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 404</td>
</tr>
<tr>
<td>Result</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>

**Fipronil (ISO):**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 404</td>
</tr>
<tr>
<td>Result</td>
<td>No skin irritation</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 404</td>
</tr>
<tr>
<td>Result</td>
<td>No skin irritation</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**tert-Butyl-4-methoxyphenol:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 404</td>
</tr>
<tr>
<td>Result</td>
<td>No skin irritation</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**Serious eye damage/eye irritation**

Causes serious eye irritation.

**Components:**

**2-(2-Butoxyethoxy)ethanol:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Irritation to eyes, reversing within 21 days</td>
</tr>
</tbody>
</table>

**Ethanol:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 405</td>
</tr>
<tr>
<td>Result</td>
<td>Irritation to eyes, reversing within 21 days</td>
</tr>
</tbody>
</table>

**N-Methyl-2-pyrrolidone:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Irritation to eyes, reversing within 21 days</td>
</tr>
</tbody>
</table>

**Fluazuron:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
</table>
# Fluazuron / Fipronil Formulation

<table>
<thead>
<tr>
<th>Method</th>
<th>OECD Test Guideline 405</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result</td>
<td>Mild eye irritation</td>
</tr>
</tbody>
</table>

**Fipronil (ISO):**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 405</td>
</tr>
<tr>
<td>Result</td>
<td>No eye irritation</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 405</td>
</tr>
<tr>
<td>Result</td>
<td>No eye irritation</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**tert-Butyl-4-methoxyphenol:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>OECD Test Guideline 405</td>
</tr>
<tr>
<td>Result</td>
<td>No eye irritation</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>

**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:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Maximisation Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure routes</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>

**Ethanol:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Local lymph node assay (LLNA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure routes</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Species</td>
<td>Mouse</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
</tbody>
</table>

**N-Methyl-2-pyrrolidone:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Local lymph node assay (LLNA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure routes</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Species</td>
<td>Mouse</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 429</td>
</tr>
<tr>
<td>Result</td>
<td>negative</td>
</tr>
<tr>
<td>Remarks</td>
<td>Based on data from similar materials</td>
</tr>
</tbody>
</table>
### Fluazuron / Fipronil Formulation

**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: Maximisation Test
- Exposure routes: Skin contact
- Species: Guinea pig
- Method: OECD Test Guideline 406
- Result: negative
- Remarks: Based on data from similar materials

**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

**Ethanol:**
- Genotoxicity in vitro:
  - Test Type: In vitro mammalian cell gene mutation test
    - Result: negative
Fluazuron / Fipronil Formulation

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Bacterial reverse mutation assay (AMES)</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: Rodent dominant lethal test (germ cell) (in vivo)</td>
<td>equivocal</td>
</tr>
<tr>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)</td>
<td>negative</td>
</tr>
</tbody>
</table>

**N-Methyl-2-pyrrolidone:**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Bacterial reverse mutation assay (AMES)</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)</td>
<td>negative</td>
</tr>
</tbody>
</table>

Fluazuron:

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Bacterial reverse mutation assay (AMES)</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: DNA Repair</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: In vitro mammalian cell gene mutation test</td>
<td>negative</td>
</tr>
<tr>
<td>Test Type: Cytogenetic assay</td>
<td>equivocal</td>
</tr>
</tbody>
</table>

Fipronil (ISO):

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Type: Bacterial reverse mutation assay (AMES)</td>
<td></td>
</tr>
</tbody>
</table>
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: Chromosome aberration test in vitro  
Method: OECD Test Guideline 473  
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: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 486  
Result: negative

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

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

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

Test Type: Chromosome aberration test in vitro  
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

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

Ethanol:
- Effects on fertility: Test Type: Two-generation reproduction toxicity study
  Species: Mouse
  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
  Result: positive

  Test Type: Fertility/early embryonic development
  Species: Rat
  Application Route: inhalation (vapour)
  Result: positive

  Test Type: Embryo-foetal development
  Species: Rabbit
  Application Route: Ingestion
  Result: positive

Reproductive toxicity - Assessment: Clear evidence of adverse effects on development, based on
Fluazuron / Fipronil Formulation

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

- Test Type: Embryo-foetal development
- Species: Rabbit
- Application Route: Ingestion
- Method: OECD Test Guideline 414
- 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: One-generation reproduction toxicity study
- Species: Rat
- Application Route: Ingestion
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

**Ethanol:**
Species : Rat  
NOAEL : 1,280 mg/kg  
LOAEL : 3,156 mg/kg  
Application Route : Ingestion  
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

**Fluazuron:**

Species : Rat  
NOAEL : 240 mg/kg  
LOAEL : 10 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
Fluazuron / Fipronil Formulation

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: Monkey
NOAEL: 125 mg/kg
LOAEL: 250 mg/kg
Application Route: Ingestion
Exposure time: 12 Weeks

Aspiration toxicity
Not classified based on available information.

Experience with human exposure

Components:

N-Methyl-2-pyrrolidone:
Skin contact: Symptoms: Skin irritation

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
### Fluazuron / Fipronil Formulation

<table>
<thead>
<tr>
<th>Test Parameter</th>
<th>Test Method</th>
<th>Exposure Time</th>
<th>EC10</th>
<th>EC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to microorganisms</td>
<td>EC10: &gt; 1,995 mg/l</td>
<td>96 h</td>
<td>&gt; 1,995 mg/l</td>
<td>6,500 mg/l</td>
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<td>Toxicity to microorganisms</td>
<td>EC50: &gt; 600 mg/l</td>
<td>30 min</td>
<td>&gt; 600 mg/l</td>
<td>&gt; 600 mg/l</td>
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<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>NOEC: 9.6 mg/l</td>
<td>9 d</td>
<td>&gt; 1,000 mg/l</td>
<td>12.5 mg/l</td>
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<tr>
<td>Toxicity to algae/aquatic plants</td>
<td>LC50: &gt; 9.1 mg/l</td>
<td>96 h</td>
<td>&gt; 9.1 mg/l</td>
<td>600.5 mg/l</td>
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<tr>
<td>Toxicity to algae/aquatic plants</td>
<td>ErC50: 275 mg/l</td>
<td>72 h</td>
<td>&gt; 1,000 mg/l</td>
<td>92.6 mg/l</td>
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<tr>
<td>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</td>
<td>NOEC: 12.5 mg/l</td>
<td>21 d</td>
<td>&gt; 12.5 mg/l</td>
<td>9.1 mg/l</td>
</tr>
<tr>
<td>Ethanol:</td>
<td>LC50: &gt; 1,000 mg/l</td>
<td>96 h</td>
<td></td>
<td></td>
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<tr>
<td>Toxicity to microorganisms</td>
<td>EC50: 6,500 mg/l</td>
<td>16 h</td>
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<tr>
<td>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</td>
<td>NOEC: 9.6 mg/l</td>
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</tr>
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<td></td>
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<tr>
<td>Toxicity to algae/aquatic plants</td>
<td>EC10: 11.5 mg/l</td>
<td>72 h</td>
<td></td>
<td></td>
</tr>
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<td>EC50: &gt; 1,000 mg/l</td>
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<td>Toxicity to algae/aquatic plants</td>
<td>ErC50: 275 mg/l</td>
<td>72 h</td>
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<tr>
<td>Toxicity to algae/aquatic plants</td>
<td>EC10: 11.5 mg/l</td>
<td>72 h</td>
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<td></td>
</tr>
</tbody>
</table>

**Method:** OECD Test Guideline 201

**Exposure time:** 96 h
**Fluazuron / Fipronil Formulation**

**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 (Mysidopsis bahia (opossum 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

**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: Mysidopsis bahia (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
### Fluazuron / Fipronil Formulation

**Toxicity to algae/aquatic plants**
- **ErC50** (Pseudokirchneriella subcapitata (green algae)): $> 0.24 \text{ mg/l}$
- 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**: $> 10,000 \text{ mg/l}$
- 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**:
- **LC50** (Danio rerio (zebra fish)): 1.56 mg/l
- Exposure time: 96 h
- Method: OECD Test Guideline 203

**Toxicity to daphnia and other aquatic invertebrates**
- **EC50** (Daphnia magna (Water flea)): 2.3 mg/l
- Exposure time: 48 h

**Toxicity to algae/aquatic plants**
- **ErC50** (Chlorella vulgaris (Fresh water algae)): 9.33 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

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

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

**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

**tert-Butyl-4-methoxyphenol:**
Biodegradability: Result: Not readily biodegradable.  
Biodegradation: 34.41%  
Exposure time: 28 d  
Method: OECD Test Guideline 301D

### 12.3 Bioaccumulative potential

**Components:**

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

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

**N-Methyl-2-pyrrolidone:**
Partition coefficient: n-octanol/water: log Pow: -0.46  
Method: OECD Test Guideline 107

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

**Fipronil (ISO):**
Bioaccumulation: Species: Lepomis macrochirus (Blugill sunfish)  
Bioconcentration factor (BCF): 321
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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

<table>
<thead>
<tr>
<th>Code</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>UN 1170</td>
</tr>
<tr>
<td>ADR</td>
<td>UN 1170</td>
</tr>
<tr>
<td>RID</td>
<td>UN 1170</td>
</tr>
<tr>
<td>IMDG</td>
<td>UN 1170</td>
</tr>
<tr>
<td>IATA</td>
<td>UN 1170</td>
</tr>
</tbody>
</table>
ADN : ETHANOL SOLUTION
ADR : ETHANOL SOLUTION
RID : ETHANOL SOLUTION
IMDG : ETHANOL SOLUTION
(Ifluazuron, Fipronil (ISO))
IATA : Ethanol solution

14.3 Transport hazard class(es)

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

14.4 Packing group

ADN
Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

ADR
Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3
Tunnel restriction code : (D/E)

RID
Packing group : III
Classification Code : F1
Hazard Identification Number : 30
Labels : 3

IMDG
Packing group : III
Labels : 3
EnS Code : 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
SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006

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Date of first issue: 15.03.2016

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-pyrrrolidone (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-pyrrrolidone

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

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)


<table>
<thead>
<tr>
<th>E1</th>
<th>ENVIRONMENTAL HAZARDS</th>
<th>Quantity 1</th>
<th>Quantity 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>100 t</td>
<td>200 t</td>
</tr>
</tbody>
</table>

| P5c | FLAMMABLE LIQUIDS      | 5,000 t    | 50,000 t   |

32 / 35
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.
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
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
2009/161/EU : Europe. COMMISSION DIRECTIVE 2009/161/EU establishing a third list of indicative occupational exposure limit values in
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GB EH40: UK. EH40 WEL - Workplace Exposure Limits
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
GB EH40 / TWA: Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL: Short-term exposure limit (15-minute reference period)

Further information

Classification of the mixture:

| Flam. Liq. 3 | H226 |
| Skin Irrit. 2 | H315 |
| Eye Irrit. 2 | H319 |
| Carc. 1B | H350 |

Classification procedure:

- Based on product data or assessment
- Calculation method
- Calculation method
- Calculation method
Fluazuron / Fipronil Formulation

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.

GB / EN