SAFETY DATA SHEET
Abamectin / Fluazuron Formulation

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

1.1 Product identifier
   Trade name: Abamectin / Fluazuron 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
   20 Spartan Road
   1619 Spartan, South Africa
   Telephone: +27119239300
   Telefax: 908-735-1496
   E-mail address of person responsible for the SDS: EHSDATASEWARD@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.
- Acute toxicity, Category 4
  - H332: Harmful if inhaled.
- Skin irritation, Category 2
  - H315: Causes skin irritation.
- Eye irritation, Category 2
  - H319: Causes serious eye irritation.
- Skin sensitisation, Category 1
  - H317: May cause an allergic skin reaction.
- 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 - single exposure, Category 3
  - H336: May cause drowsiness or dizziness.
- 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)
SAFETY DATA SHEET
Abamectin / Fluazuron Formulation

Hazard pictograms:
- Flame
- Exclamation mark
- Raising the tooth
- Skull and crossbones

Signal word: Danger

Hazard statements:
- H226 Flammable liquid and vapour.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H335 May cause respiratory irritation.
- H336 May cause drowsiness or dizziness.
- 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:
- Propan-2-ol
- N-Methyl-2-pyrrolidone
- 7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate
- Abamectin (combination of avermectin B1a and avermectin B1b)

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.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Registration number</th>
<th>Classification</th>
<th>Concentration (% w/w)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td></td>
<td></td>
<td></td>
<td>Flam. Liq.2; H225</td>
<td>&gt;= 30 - &lt; 50</td>
</tr>
</tbody>
</table>
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. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

In case of skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

In case of eye contact: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lens, if worn. Get medical attention.

If swallowed: If swallowed, DO NOT induce vomiting. Get medical attention. Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Risks:
- Causes skin irritation.
- May cause an allergic skin reaction.
- Causes serious eye irritation.
- Harmful if inhaled.
- May cause respiratory irritation.
- May cause drowsiness or dizziness.
- 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

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

### 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/PERSOtal 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
SAFETY DATA SHEET
Abamectin / Fluazuron Formulation

Version 4.3 Revision Date: 23.03.2020 SDS Number: 800411-00014 Date of last issue: 13.09.2019 Date of first issue: 12.07.2016

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

<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>Propan-2-ol</td>
<td>67-63-0</td>
<td>STEL OEL-RL</td>
<td>500 ppm 1.225 mg/m³</td>
<td>ZA OEL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA OEL-RL</td>
<td>400 ppm 960 mg/m³</td>
<td>ZA OEL</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>TWA OEL-RL</td>
<td>100 ppm 400 mg/m³</td>
<td>ZA OEL</td>
</tr>
</tbody>
</table>

Further information: Absorption through the skin, Recommended Limit

<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></td>
<td></td>
<td>TWA</td>
<td>10 ppm 40 mg/m³</td>
<td>2009/161/EU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>20 ppm 80 mg/m³</td>
<td>2009/161/EU</td>
</tr>
<tr>
<td>Fluazuron</td>
<td>86811-58-7</td>
<td>TWA</td>
<td>60 µg/m³ (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>600 µg/100cm²</td>
<td>Internal</td>
</tr>
<tr>
<td>Abamectin (combination of avermectin B1a and avermectin B1b)</td>
<td>71751-41-2</td>
<td>TWA</td>
<td>30 µg/m³ (OEB 3)</td>
<td>Internal</td>
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<tr>
<td></td>
<td></td>
<td>Wipe limit</td>
<td>300 µg/100 cm²</td>
<td>Internal</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>TWA OEL-RL</td>
<td>10 mg/m³</td>
<td>ZA OEL</td>
</tr>
</tbody>
</table>

Further information: Recommended Limit

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>Workers</td>
<td>Inhalation</td>
<td>Long-term local effects</td>
<td>40 mg/m³</td>
<td></td>
</tr>
<tr>
<td>Workers</td>
<td>Skin contact</td>
<td>Long-term systemic effects</td>
<td>4.8 mg/kg bw/day</td>
<td></td>
</tr>
<tr>
<td>Consumers</td>
<td>Inhalation</td>
<td>Long-term systemic effects</td>
<td>3.6 mg/m³</td>
<td></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>7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-</td>
<td>Fresh water</td>
<td>0.024 mg/l</td>
</tr>
<tr>
<td>oxabicyclo[4.1.0]heptane-3-carboxylate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 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 exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

**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>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</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>28 °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>
<tr>
<td>Relative vapour density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Water solubility</td>
</tr>
<tr>
<td></td>
<td>: No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>: Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>: No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>: No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Viscosity, kinematic</td>
</tr>
<tr>
<td></td>
<td>: No data available</td>
</tr>
</tbody>
</table>
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  :  Not applicable

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
Harmful if inhaled.

Product:
Acute oral toxicity  :  Acute toxicity estimate: > 2.000 mg/kg
                       Method: Calculation method
Acute inhalation toxicity  :  Acute toxicity estimate: 2.06 mg/l
                           Exposure time: 4 h
Components:

**Propan-2-ol:**
- **Acute oral toxicity:** LD50 (Rat): > 5.000 mg/kg
- **Acute inhalation toxicity:** LC50 (Rat): > 25 mg/l
  - Exposure time: 6 h
  - Test atmosphere: vapour
- **Acute dermal toxicity:** LD50 (Rabbit): > 5.000 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 (Rabbit): > 5.000 mg/kg

**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

**Abamectin (combination of avermectin B1a and avermectin B1b):**
- **Acute oral toxicity:** LD50 (Rat): 24 mg/kg
  - LD50 (Mouse): 10 mg/kg
  - LDLo (Monkey): 24 mg/kg
  - Symptoms: Dilatation of the pupil
- **Acute inhalation toxicity:** LC50 (Rat): 0.023 mg/l
  - Exposure time: 4 h
  - Test atmosphere: dust/mist
- **Acute dermal toxicity:** LD50 (Rat): 330 mg/kg
LD50 (Rabbit): 2.000 mg/kg

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
Acute oral toxicity : LD50 (Rat, male): 2.959 - 5.000 mg/kg
 Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): >= 5.19 mg/l
 Exposure time: 4 h
 Test atmosphere: dust/mist
 Method: OECD Test Guideline 436
 Assessment: The substance or mixture has no acute inhalation 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

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

Skin corrosion/irritation
Causes skin irritation.

Components:

Propan-2-ol:
Species : Rabbit
Result : No skin irritation

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

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

Abamectin (combination of avermectin B1a and avermectin B1b):
Species : Rabbit
Result : No skin irritation

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
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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

Serious eye damage/eye irritation
Causes serious eye irritation.

Components:

Propan-2-ol:
Species : Rabbit
Result : Irritation to eyes, reversing within 21 days

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

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

Abamectin (combination of avermectin B1a and avermectin B1b):
Species : Rabbit
Result : Mild eye irritation

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
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

Respiratory or skin sensitisation

Skin sensitisation
May cause an allergic skin reaction.

Respiratory sensitisation
Not classified based on available information.
Components:

**Propan-2-ol:**
- Test Type: Buehler Test
- Exposure routes: Skin contact
- Species: Guinea pig
- Method: OECD Test Guideline 406
- 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

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

**Abamectin (combination of avermectin B1a and avermectin B1b):**
- Test Type: Maximisation Test
- Exposure routes: Skin contact
- Result: Not a skin sensitizer.

**7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:**
- Test Type: Maximisation Test
- Exposure routes: Skin contact
- Species: Guinea pig
- Result: positive
- Assessment: Probability or evidence of skin sensitisation in humans

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

**Germ cell mutagenicity**
Not classified based on available information.

Components:

**Propan-2-ol:**
- Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
  - Result: negative
  - Test Type: In vitro mammalian cell gene mutation test
Genotoxicity in vivo:
Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
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

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

Genotoxicity in vivo:
Test Type: Cytogenetic assay
Species: Hamster
Result: equivocal

Abamectin (combination of avermectin B1a and avermectin B1b):
Genotoxicity in vitro:
Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
<table>
<thead>
<tr>
<th>Test Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In vitro mammalian cell gene mutation test</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Chinese hamster lung cells</strong></td>
<td>negative</td>
</tr>
<tr>
<td><strong>Alkaline elution assay</strong></td>
<td>negative</td>
</tr>
</tbody>
</table>

**Genotoxicity in vivo**

<table>
<thead>
<tr>
<th>Species</th>
<th>Application Route</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mouse</strong></td>
<td><strong>Intraperitoneal injection</strong></td>
<td>negative</td>
</tr>
</tbody>
</table>

**7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In vitro mammalian cell gene mutation test</strong></td>
<td></td>
</tr>
<tr>
<td><strong>positive</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Genotoxicity in vitro**

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo</strong></td>
<td>negative</td>
</tr>
<tr>
<td><strong>Rat</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td></td>
</tr>
<tr>
<td><strong>OECD Test Guideline 486</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Micronucleus test</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mouse</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Intraperitoneal injection</strong></td>
<td></td>
</tr>
<tr>
<td><strong>negative</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Germ cell mutagenicity- Assessment**

Weight of evidence does not support classification as a germ cell mutagen.

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

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bacterial reverse mutation assay (AMES)</strong></td>
<td>negative</td>
</tr>
<tr>
<td><strong>In vitro mammalian cell gene mutation test</strong></td>
<td></td>
</tr>
<tr>
<td><strong>negative</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Chromosome aberration test in vitro</strong></td>
<td></td>
</tr>
<tr>
<td><strong>negative</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Genotoxicity in vivo**

<table>
<thead>
<tr>
<th>Species</th>
<th>Application Route</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rat</strong></td>
<td><strong>Ingestion</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Carcinogenicity**

Not classified based on available information.
### Components:

#### Propan-2-ol:
- **Species**: Rat
- **Application Route**: Inhalation (vapour)
- **Exposure time**: 104 weeks
- **Method**: OECD Test Guideline 451
- **Result**: negative

#### N-Methyl-2-pyrrolidone:
- **Species**: Rat
- **Application Route**: Ingestion
- **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

#### Abamectin (combination of avermectin B1a and avermectin B1b):
- **Species**: Rat
- **Application Route**: Oral
- **Exposure time**: 105 weeks
- **Result**: negative

- **Species**: Mouse
- **Application Route**: Oral
- **Exposure time**: 93 weeks
- **Result**: negative

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

### Reproductive toxicity
May damage the unborn child.
Components:

Propan-2-ol:
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

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

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

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: positive
Result: negative

**Abamectin (combination of avermectin B1a and avermectin B1b):**

**Effects on fertility**
- Test Type: Fertility
- Species: Rat, male
- Application Route: Oral
- Result: Effects on fertility
- Test Type: Two-generation reproduction toxicity study
- Species: Rat
- Application Route: Oral
- Early Embryonic Development: NOAEL: 0,12 mg/kg body weight
- Result: Fetotoxicity

**Effects on foetal development**
- Test Type: Embryo-foetal development
- Species: Mouse
- Application Route: Oral
- General Toxicity Maternal: NOAEL: 0,05 mg/kg body weight
- Developmental Toxicity: NOAEL: 0,2 mg/kg body weight
- Result: Cleft palate
- Remarks: Adverse developmental effects were observed
- Test Type: Embryo-foetal development
- Species: Rabbit
- Application Route: Oral
- Developmental Toxicity: LOAEL: 2 mg/kg body weight
- Result: Cleft palate, Teratogenic effects, Reduced embryonic survival
- Remarks: Adverse developmental effects were observed
- Test Type: Development
- Species: Rat
- Application Route: Oral
- Developmental Toxicity: LOAEL: 1,6 mg/kg body weight
- Result: Teratogenic effects

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

**7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:**

**Effects on foetal development**
- Test Type: Embryo-foetal development
- Species: Rat
- 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

STOT - single exposure
May cause respiratory irritation.
May cause drowsiness or dizziness.

Components:
Propan-2-ol:
Assessment: May cause drowsiness or dizziness.

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

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

Components:
Abamectin (combination of avermectin B1a and avermectin B1b):
Exposure routes: Ingestion
Target Organs: Central nervous system
Assessment: Causes damage to organs through prolonged or repeated exposure.

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:
Propan-2-ol:
Species: Rat
NOAEL: 12.5 mg/l
Application Route: Inhalation (vapour)
Exposure time: 104 Weeks

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
<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>0,5 mg/l</td>
</tr>
<tr>
<td>LOAEL</td>
<td>1 mg/l</td>
</tr>
<tr>
<td>Application Route</td>
<td>inhalation (dust/mist/fume)</td>
</tr>
<tr>
<td>Exposure time</td>
<td>96 Days</td>
</tr>
<tr>
<td>Method</td>
<td>OECD Test Guideline 413</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Rabbit</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>826 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>1.653 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Exposure time</td>
<td>20 Days</td>
</tr>
</tbody>
</table>

**Fluazuron:**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOAEL</td>
<td>240 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Exposure time</td>
<td>13 Weeks</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Liver, Thyroid, Pituitary gland</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>10 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>100 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Skin contact</td>
</tr>
<tr>
<td>Exposure time</td>
<td>3 Weeks</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Dog</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>7,5 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>110 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Ingestion</td>
</tr>
<tr>
<td>Exposure time</td>
<td>52 Weeks</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Liver</td>
</tr>
</tbody>
</table>

**Abamectin (combination of avermectin B1a and avermectin B1b):**

<table>
<thead>
<tr>
<th>Species</th>
<th>Rat</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>1,5 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>24 Months</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Tremors, ataxia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Mouse</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>4,0 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>24 Months</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Central nervous system</td>
</tr>
<tr>
<td>Symptoms</td>
<td>Tremors, ataxia</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Dog</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAEL</td>
<td>0,25 mg/kg</td>
</tr>
<tr>
<td>LOAEL</td>
<td>0,5 mg/kg</td>
</tr>
<tr>
<td>Application Route</td>
<td>Oral</td>
</tr>
<tr>
<td>Exposure time</td>
<td>53 Weeks</td>
</tr>
<tr>
<td>Target Organs</td>
<td>Central nervous system</td>
</tr>
</tbody>
</table>
Symptoms: Tremors, weight loss
Remarks: mortality observed

Species: Monkey
NOAEL: 1,0 mg/kg
Application Route: Oral
Exposure time: 14 Weeks
Target Organs: Central nervous system

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

Aspiration toxicity
Not classified based on available information.

Experience with human exposure

Components:

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

Abamectin (combination of avermectin B1a and avermectin B1b):
Ingestion: Symptoms: May cause, Tremors, Diarrhoea, central nervous system effects, Salivation, tearing

SECTION 12: Ecological information

12.1 Toxicity

Components:

Propan-2-ol:
Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 9.640 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): > 10.000 mg/l Exposure time: 24 h
Toxicity to microorganisms: EC50 (Pseudomonas putida): > 1.050 mg/l Exposure time: 16 h

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
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toxicity to algae/aquatic plants</strong></td>
<td>ErC50 (Desmodesmus subspicatus (green algae)): 600,5 mg/l Exposure time: 72 h</td>
<td>EC10 (Desmodesmus subspicatus (green algae)): 92,6 mg/l Exposure time: 72 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Toxicity to microorganisms</strong></td>
<td>EC50 : &gt; 600 mg/l Exposure time: 30 min Method: ISO 8192</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)</strong></td>
<td>NOEC: 12,5 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Fluazuron:**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toxicity to fish</strong></td>
<td>LC50 (Cyprinus carpio (Carp)): &gt; 9,1 mg/l Exposure time: 96 h</td>
</tr>
<tr>
<td><strong>Toxicity to daphnia and other aquatic invertebrates</strong></td>
<td>EC50 (Daphnia sp. (water flea)): 0,0006 mg/l Exposure time: 48 h</td>
</tr>
<tr>
<td><strong>Toxicity to algae/aquatic plants</strong></td>
<td>NOEC (Raphidocelis subcapitata (freshwater green alga)): 27,9 mg/l Exposure time: 72 h</td>
</tr>
</tbody>
</table>

| M-Factor (Acute aquatic toxicity) | 1.000 |
| M-Factor (Chronic aquatic toxicity) | 1.000 |

**Abamectin (combination of avermectin B1a and avermectin B1b):**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toxicity to fish</strong></td>
<td>LC50 (Oncorhynchus mykiss (rainbow trout)): 3,2 µg/l Exposure time: 96 h LC50 (Lepomis macrochirus (Bluegill sunfish)): 9,6 µg/l Exposure time: 96 h LC50 (Ictalurus punctatus (channel catfish)): 24 µg/l Exposure time: 96 h LC50 (Cyprinus carpio (Carp)): 42 µg/l Exposure time: 96 h LC50 (Cyprinodon variegatus (sheepshead minnow)): 15 µg/l Exposure time: 96 h</td>
</tr>
<tr>
<td><strong>Toxicity to daphnia and other aquatic invertebrates</strong></td>
<td>EC50 (Americamysis): 0,022 µg/l Exposure time: 96 h EC50 (Daphnia magna (Water flea)): 0,34 µg/l Exposure time: 48 h</td>
</tr>
<tr>
<td><strong>Toxicity to algae/aquatic plants</strong></td>
<td>EC50 (Pseudokirchneriella subcapitata (green algae)): 100</td>
</tr>
</tbody>
</table>
plants & mg/l
Exposure time: 72 h

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

Toxicity to microorganisms: EC50 : > 1.000 mg/l
Exposure time: 3 h
Test Type: Respiration inhibition

Toxicity to fish (Chronic toxicity): NOEC: 0,52 µg/l
Exposure time: 32 d
Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC: 0,03 µg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

NOEC: 0,0035 µg/l
Exposure time: 28 d
Species: Mysidopsis bahia (opossum shrimp)

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

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): 24 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 40 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants: ErC50 (Selenastrum capricornutum (green algae)): > 110 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Selenastrum capricornutum (green algae)): 30 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms: EC10 (Natural microorganism): 409 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

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

12.2 Persistence and degradability

Components:

Propan-2-ol:

- Biodegradability: Result: rapidly degradable
- BOD/COD:
  - BOD: 1.19 (BOD5)
  - COD: 2.23
  - BOD/COD: 53 %

N-Methyl-2-pyrrolidone:

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

Abamectin (combination of avermectin B1a and avermectin B1b):

- Stability in water: Hydrolysis: 50 % (< 12 h)

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:

- Biodegradability: Biodegradation: 71 %
  - Exposure time: 28 d
  - Method: OECD Test Guideline 301B
Stability in water : Degradation half life (DT50): 2 d

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:

Propan-2-ol:
Partition coefficient: n-octanol/water : log Pow: 0.05

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

Abamectin (combination of avermectin B1a and avermectin B1b):
Bioaccumulation : Bioconcentration factor (BCF): 52
Partition coefficient: n-octanol/water : log Pow: 4

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
Partition coefficient: n-octanol/water : log Pow: 1.34

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

12.4 Mobility in soil

Components:

Abamectin (combination of avermectin B1a and avermectin B1b):
Distribution among environmental compartments : log Koc: > 3.6

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>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>UN 1993</td>
</tr>
<tr>
<td>ADR</td>
<td>UN 1993</td>
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<tr>
<td>RID</td>
<td>UN 1993</td>
</tr>
<tr>
<td>IMDG</td>
<td>UN 1993</td>
</tr>
<tr>
<td>IATA</td>
<td>UN 1993</td>
</tr>
</tbody>
</table>

14.2 UN proper shipping name

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>FLAMMABLE LIQUID, N.O.S. (Propan-2-ol)</td>
</tr>
<tr>
<td>ADR</td>
<td>FLAMMABLE LIQUID, N.O.S. (Propan-2-ol)</td>
</tr>
<tr>
<td>RID</td>
<td>FLAMMABLE LIQUID, N.O.S. (Propan-2-ol)</td>
</tr>
<tr>
<td>IMDG</td>
<td>FLAMMABLE LIQUID, N.O.S. (Propan-2-ol, Fluazuron, Abamectin (combination of avermectin B1a and avermectin B1b))</td>
</tr>
<tr>
<td>IATA</td>
<td>Flammable liquid, n.o.s. (Propan-2-ol)</td>
</tr>
</tbody>
</table>

14.3 Transport hazard class(es)

<table>
<thead>
<tr>
<th>Code</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>3</td>
</tr>
<tr>
<td>ADR</td>
<td>3</td>
</tr>
<tr>
<td>RID</td>
<td>3</td>
</tr>
<tr>
<td>IMDG</td>
<td>3</td>
</tr>
<tr>
<td>IATA</td>
<td>3</td>
</tr>
</tbody>
</table>

14.4 Packing group
### 14.5 Environmental hazards

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Hazardous?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>Environmentally hazardous</td>
<td>yes</td>
</tr>
<tr>
<td>ADR</td>
<td>Environmentally hazardous</td>
<td>yes</td>
</tr>
<tr>
<td>RID</td>
<td>Environmentally hazardous</td>
<td>yes</td>
</tr>
<tr>
<td>IMDG</td>
<td>Marine pollutant</td>
<td>yes</td>
</tr>
</tbody>
</table>

### 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

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.
- **H300**: Fatal if swallowed.
- **H311**: Toxic in contact with skin.
- **H315**: Causes skin irritation.
- **H317**: May cause an allergic skin reaction.
- **H319**: Causes serious eye irritation.
- **H330**: Fatal if inhaled.
- **H335**: May cause respiratory irritation.
- **H336**: May cause drowsiness or dizziness.
- **H360D**: May damage the unborn child.
- **H361fd**: Suspected of damaging fertility. Suspected of damaging the unborn child.
- **H372**: Causes damage to organs through prolonged or repeated exposure if swallowed.
- **H400**: Very toxic to aquatic life.
- **H410**: Very 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
- **Eye Irrit.**: Eye irritation
- **Flam. Liq.**: Flammable liquids
- **Repr.**: Reproductive toxicity
- **Skin Irrit.**: Skin irritation
- **Skin Sens.**: Skin sensitisation
- **STOT RE**: Specific target organ toxicity - repeated exposure
- **STOT SE**: Specific target organ toxicity - single exposure
SAFETY DATA SHEET

Abamectin / Fluazuron Formulation

Version: 4.3
Revision Date: 23.03.2020
SDS Number: 800411-00014
Date of last issue: 13.09.2019
Date of first issue: 12.07.2016

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HAZARDOUS MATERIAL DATA

2009/161/EU / TWA: South Africa. Hazardous Chemical Substances Regulations, Occupational Exposure Limits
2009/161/EU / STEL: Limit Value - eight hours
ZA OEL / TWA OEL-RL: Short term exposure limit
ZA OEL / STEL OEL-RL: Long term occupational exposure limits - recommended limit
ZA OEL: Short term occupational exposure limits - recommended limit

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; IESCC - 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 Substance Inventory; TSGA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:

| Flam. Liq. 3 | H226 | Classification procedure: Based on product data or assessment |
| Acute Tox. 4 | H332 | Calculation method |
| Skin Irrit. 2 | H315 | Calculation method |
| Eye Irrit. 2 | H319 | Calculation method |
| Skin Sens. 1 | H317 | Calculation method |

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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.

ZA / EN