1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Abamectin / Fluazuron Formulation

Manufacturer or supplier’s details
Company name of supplier : MSD
Address : Kumagaya, Saitama Prefecture, Xicheng 810 MSD Co., Ltd. Menuma factory
Telephone : 048-588-8411
E-mail address : EHSDATASTEWARD@msd.com
Emergency telephone number : 1-908-423-6000

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

2. HAZARDS IDENTIFICATION

GHS Classification
Flammable liquids : Category 3
Acute toxicity (Inhalation) : Category 4
Serious eye damage/eye irritation : Category 2
Skin sensitisation : Category 1
Reproductive toxicity : Category 1B
Specific target organ toxicity - single exposure : Category 3
Specific target organ toxicity - repeated exposure : Category 2 (Central nervous system)
Short-term (acute) aquatic hazard : Category 1
Long-term (chronic) aquatic hazard : Category 1

GHS label elements
Hazard pictograms : 

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SAFETY DATA SHEET
Abamectin / Fluazuron Formulation

Version 6.1  Revision Date: 09/13/2019  SDS Number: 800404-00013  Date of last issue: 2019/04/24  Date of first issue: 2016/07/12

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---
SAFETY DATA SHEET

Abamectin / Fluazuron Formulation

Signal word : Danger

Hazard statements : H226 Flammable liquid and vapour.
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 (Central nervous system) through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233 Keep container tightly closed.
P241 Use explosion-proof electrical/ventilating/lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe mist or vapours.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
SAFETY DATA SHEET
Abamectin / Fluazuron Formulation

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

Other hazards which do not result in classification
Vapours may form explosive mixture with air.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No.</th>
<th>Concentration (% w/w)</th>
<th>ENCS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>&gt;= 30 - &lt; 40</td>
<td>2-207</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>&gt;= 30 - &lt; 40</td>
<td>5-113</td>
</tr>
<tr>
<td>Fluazuron</td>
<td>86811-58-7</td>
<td>&gt;= 2.5 - &lt; 10</td>
<td>3-2452</td>
</tr>
<tr>
<td>7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate</td>
<td>2386-87-0</td>
<td>&gt;= 1 - &lt; 2.5</td>
<td>3-2452</td>
</tr>
<tr>
<td>Abamectin (combination of avermectin B1a and avermectin B1b)</td>
<td>71751-41-2</td>
<td>1.114</td>
<td></td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-p-cresol</td>
<td>128-37-0</td>
<td>&gt;= 0.1 - &lt; 0.25</td>
<td>3-540, 9-1805</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

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

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

In case of skin contact : In case of contact, immediately flush skin with plenty of water. Remove 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.
5. FIREFIGHTING MEASURES

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

Unsuitable extinguishing media: High volume water jet

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

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

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.

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

6. ACCIDENTAL RELEASE MEASURES

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

Environmental precautions: Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
Methods and materials for containment and cleaning up:
Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/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.

7. HANDLING AND STORAGE

Handling
Technical measures: See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
Local/Total ventilation: If sufficient ventilation is unavailable, use with local exhaust ventilation. If advised by assessment of the local exposure potential, use only in an area equipped with explosion-proof exhaust ventilation.
Advice on safe handling: Do not get on skin or clothing. Do not breathe vapours or spray mist. Do not swallow. Do not get in eyes. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment. Non-sparking tools should be used. Keep container tightly closed. Already sensitised individuals should consult their physician regarding working with respiratory irritants or sensitizers. 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.

Avoidance of contact
Hygiene measures: Oxidizing agents
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.
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Abamectin / Fluazuron Formulation

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Storage

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

Packaging material: Unsuitable material: None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Threshold limit value and permissible exposure limits for each component in the work environment

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>ACL</td>
<td>200 ppm</td>
<td>JP OEL ISHL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OEL-C</td>
<td>400 ppm / 980 mg/m3</td>
<td>JP OEL JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>200 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>400 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>OEL-M</td>
<td>1 ppm / 4 mg/m3</td>
<td>JP OEL JSOH</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluazuron</td>
<td>68811-58-7</td>
<td>TWA</td>
<td>60 µg/m3 (OEB 3)</td>
<td>Internal</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wipe limit: 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>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wipe limit: 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 (Inhalable fraction and vapor)</td>
<td>2 mg/m3</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>

Further information: Skin absorption

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Target substance</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>872-50-4</td>
<td>5-Hydroxy-N-methyl-2-pyrrolidone</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>100 mg/l</td>
<td>ACGIH BEI</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>Acetone</td>
<td>Urine</td>
<td>End of shift at end of</td>
<td>40 mg/l</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>
## SAFETY DATA SHEET
### Abamectin / Fluazuron Formulation

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
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<tr>
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<td>800404-00013</td>
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</tr>
</tbody>
</table>

### Engineering measures
- Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., dripless 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

#### Respiratory protection
- If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.

#### Filter type

#### 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.

#### 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.

#### 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.

### 9. 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>
</tbody>
</table>
### Flash point
: 28 °C

### Evaporation rate
: No data available

### Flammability (solid, gas)
: Not applicable

### Flammability (liquids)
: Not applicable

### Upper explosion limit / Upper flammability limit
: No data available

### Lower explosion limit / Lower flammability limit
: No data available

### Vapour pressure
: No data available

### Relative vapour density
: No data available

### Relative density
: No data available

### Density
: No data available

### Solubility(ies)
- **Water solubility**
  : No data available

### Partition coefficient: n-octanol/water
: Not applicable

### 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.

### Molecular weight
: No data available

### Particle size
: Not applicable

## 10. STABILITY AND REACTIVITY

### Reactivity
: Not classified as a reactivity hazard.

### Chemical stability
: Stable under normal conditions.

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

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

### Incompatible materials
: Oxidizing agents.
Hazardous decomposition products: No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

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
  - Test atmosphere: dust/mist
  - Method: Calculation method

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

**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
  - Assessment: The substance or mixture has no acute inhalation toxicity

**Acute dermal toxicity:**
- LD50 (Rat): > 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

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

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

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
Not classified based on available information.

Components:

Propan-2-ol:
SAFETY DATA SHEET

Abamectin / Fluazuron Formulation

Species:
- **N-Methyl-2-pyrrolidone:** Rabbit
- **Fluazuron:** Rabbit
- **7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:** Rabbit
- **Abamectin (combination of avermectin B1a and avermectin B1b):** Rabbit
- **2,6-Di-tert-butyl-p-cresol:** Rabbit

Result:
- **N-Methyl-2-pyrrolidone:** No skin irritation
- **Fluazuron:** No skin irritation
- **7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:** No skin irritation
- **Abamectin (combination of avermectin B1a and avermectin B1b):** No skin irritation
- **2,6-Di-tert-butyl-p-cresol:** 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:**
- Result: Irritation to eyes, reversing within 21 days
- Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

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

**7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:**
- Species: Rabbit
- Result: No eye irritation
Abamectin (combination of avermectin B1a and avermectin B1b):
Species: Rabbit
Result: Mild eye irritation

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

Respiratory or skin 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

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

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
                           Result: negative
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
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

Fluazuron:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
                       Result: negative
                       Test Type: DNA Repair
                       Result: negative
SAFETY DATA SHEET
Abamectin / Fluazuron Formulation

Version 6.1  Revision Date: 09/13/2019  SDS Number: 800404-00013  Date of last issue: 2019/04/24  Date of first issue: 2016/07/12

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

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

7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:
Genotoxicity in vitro:
Test Type: In vitro mammalian cell gene mutation test  Result: positive

Genotoxicity in vivo:
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

Test Type: Micronucleus test  Species: Mouse  Application Route: Intraperitoneal injection  Result: negative

Germ cell mutagenicity - Assessment:
Weight of evidence does not support classification as a germ cell mutagen.

Abamectin (combination of avermectin B1a and avermectin B1b):
Genotoxicity in vitro:
Test Type: Bacterial reverse mutation assay (AMES)  Result: negative

Test Type: In vitro mammalian cell gene mutation test  Test system: Chinese hamster lung cells  Result: negative

Test Type: Alkaline elution assay  Result: negative

Genotoxicity in vivo:
Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)  Species: Mouse  Application Route: Intraperitoneal injection  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

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
  
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 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: negative

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

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.
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.
Remarks:
- Based on harmonised classification in EU regulation 1272/2008, Annex VI

STOT - repeated exposure
May cause damage to organs (Central nervous system) 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
### SAFETY DATA SHEET

**Abamectin / Fluazuron Formulation**

<table>
<thead>
<tr>
<th>Version</th>
<th>Revision Date:</th>
<th>SDS Number:</th>
<th>Date of last issue:</th>
<th>Date of first issue:</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>09/13/2019</td>
<td>800404-00013</td>
<td>2019/04/24</td>
<td>2016/07/12</td>
</tr>
</tbody>
</table>

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

### Fluazuron:

**Species** : Rat  
**LOAEL** : 240 mg/kg  
**Application Route** : Ingestion  
**Exposure time** : 13 Weeks  
**Target Organs** : Liver, Thyroid, Pituitary gland

**Species** : Rat  
**NOAEL** : 10 mg/kg  
**LOAEL** : 100 mg/kg  
**Application Route** : Skin contact  
**Exposure time** : 3 Weeks

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

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

**Species** : Rat  
**NOAEL** : 1.5 mg/kg  
**Application Route** : Oral  
**Exposure time** : 24 Months  
**Target Organs** : Central nervous system  
**Symptoms** : Tremors, ataxia

**Species** : Mouse  
**NOAEL** : 4.0 mg/kg  
**Application Route** : Oral  
**Exposure time** : 24 Months  
**Target Organs** : Central nervous system  
**Symptoms** : Tremors, ataxia

**Species** : Dog  
**NOAEL** : 0.25 mg/kg  
**LOAEL** : 0.5 mg/kg  
**Application Route** : Oral  
**Exposure time** : 53 Weeks  
**Target Organs** : Central nervous system  
**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:

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

12. ECOLOGICAL INFORMATION

Ecotoxicity

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
Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 600.5 mg/l
Exposure time: 72 h
EC10 (Desmodesmus subspicatus (green algae)): 92.6 mg/l
Exposure time: 72 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 12.5 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
Toxicity to microorganisms: EC50: > 600 mg/l
Exposure time: 30 min
Method: ISO 8192

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

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

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

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

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

Abamectin (combination of avermectin B1a and avermectin B1b):
Toxicity to fish: 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
## Toxicity to daphnia and other aquatic invertebrates
- **LC50** *(Cyprinodon variegatus (sheepshead minnow))*: 15 µg/l  
  Exposure time: 96 h

- **EC50** *(Americamysis)*: 0.022 µg/l  
  Exposure time: 96 h

- **EC50** *(Daphnia magna (Water flea))*: 0.34 µg/l  
  Exposure time: 48 h

## Toxicity to algae/aquatic plants
- **EC50** *(Pseudokirchneriella subcapitata (green algae))*: 100 mg/l  
  Exposure time: 72 h

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

## Toxicity to fish (Chronic toxicity)
- **NOEC** *(Pimephales promelas (fathead minnow))*: 0.52 µg/l  
  Exposure time: 32 d

## Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)
- **NOEC** *(Daphnia magna (Water flea))*: 0.03 µg/l  
  Exposure time: 21 d

- **NOEC** *(Mysidopsis bahia (opossum shrimp))*: 0.0035 µg/l  
  Exposure time: 28 d

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

## Toxicity to microorganisms
- **EC50**: > 1,000 mg/l  
  Exposure time: 3 h  
  Test Type: Respiration inhibition

### 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 fish (Chronic toxicity)
- **NOEC** *(Oryzias latipes (Japanese medaka))*: 0.053 mg/l  
  Exposure time: 30 d  
  Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):

- NOEC (Daphnia magna (Water flea)): 0.316 mg/l
- Exposure time: 21 d

M-Factor (Chronic aquatic toxicity):

- 1

Toxicity to microorganisms:

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

**Persistence and degradability**

**Components:**

**Propan-2-ol:**

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

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

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

**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

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

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

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

- Biodegradability: Result: Not readily biodegradable.
  - Biodegradation: 4.5%
  - Exposure time: 28 d
  - Method: OECD Test Guideline 301C

**Bioaccumulative potential**

**Components:**

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

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

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

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

Mobility in soil

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

Hazardous to the ozone layer
Not applicable

Other adverse effects
No data available

13. DISPOSAL CONSIDERATIONS

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

14. TRANSPORT INFORMATION

International Regulations

UNRTDG
UN number : UN 1993
Proper shipping name : FLAMMABLE LIQUID, N.O.S.
                  (Propan-2-ol)
Class : 3
Packing group : III
Labels : 3

IATA-DGR
UN/ID No. : UN 1993
Proper shipping name : Flammable liquid, n.o.s. (Propan-2-ol)
Class : 3
Packing group : III
Labels : Flammable Liquids
Packing instruction (cargo aircraft) : 366
Packing instruction (passenger aircraft) : 355

IMDG Code
UN number : UN 1993
Proper shipping name : FLAMMABLE LIQUID, N.O.S. (Propan-2-ol, Fluazuron, Abamectin (combination of avermectin B1a and avermectin B1b))
Class : 3
Packing group : III
Labels : 3
EmS Code : F-E, S-E
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations
Refer to section 15 for specific national regulation.

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.

15. REGULATORY INFORMATION

Related Regulations

Fire Service Law
Group 4, Type 2 petroleum, Water insoluble liquid, (1000 litre), Hazardous rank III

Chemical Substance Control Law
Priority Assessment Chemical Substance

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isopropyl alcohol</td>
<td>102</td>
</tr>
<tr>
<td>N-Methyl-2-pyrrolidone</td>
<td>136</td>
</tr>
<tr>
<td>2,6-Di-tert-butyl-4-methylphenol</td>
<td>64</td>
</tr>
</tbody>
</table>

Industrial Safety and Health Law

Harmful Substances Prohibited from Manufacture
Not applicable
Harmful Substances Required Permission for Manufacture
Not applicable

Substances Prevented From Impairment of Health
Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 2: Information on Existing Chemicals having Mutagenicity
Not applicable

Circular concerning Information on Chemicals having Mutagenicity - Annex 1: Information on Notified Substances having Mutagenicity
Not applicable

Substances Subject to be Notified Names
Article 57-2 (Enforcement Order Table 9)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propyl alcohol</td>
<td>494</td>
<td>&gt;=30 - &lt;40</td>
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<tr>
<td>1-Methyl-2-pyrrolidone</td>
<td>588 2</td>
<td>&gt;=30 - &lt;40</td>
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<tr>
<td>2,6-Di-tert-butyl-4-cresol</td>
<td>262</td>
<td>&gt;=0.1 - &lt;1</td>
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</tbody>
</table>

Substances Subject to be Indicated Names
Article 57 (Enforcement Order Article 18)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Number</th>
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<tbody>
<tr>
<td>Propyl alcohol</td>
<td>494</td>
</tr>
<tr>
<td>1-Methyl-2-pyrrolidone</td>
<td>588 2</td>
</tr>
</tbody>
</table>

Ordinance on Prevention of Hazards Due to Specified Chemical Substances
Not applicable

Ordinance on Prevention of Lead Poisoning
Not applicable

Ordinance on Prevention of Tetraalkyl Lead Poisoning
Not applicable

Ordinance on Prevention of Organic Solvent Poisoning
Organic Solvents Class 2

Enforcement Order of the Industrial Safety and Health Law - Attached table 1 (Dangerous Substances)
Inflammable Substance

Poisonous and Deleterious Substances Control Law
Deleterious substance

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Cabinet Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abamectin and preparations containing it</td>
<td>4.2</td>
</tr>
</tbody>
</table>

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof
Not applicable

High Pressure Gas Safety Act
Not applicable

Explosive Control Law
Not applicable
Vessel Safety Law
Flammable liquids (Article 2 and 3 of rules on shipping and storage of dangerous goods and its Attached Table 1)

Aviation Law
Flammable liquid (Article 194 of The Enforcement Rules of Aviation Law and its Attached Table 1)

Marine Pollution and Sea Disaster Prevention etc Law
Bulk transportation : Noxious liquid substance (Category Y)
Pack transportation : Classified as marine pollutant

Narcotics and Psychotropics Control Act
Narcotic or Psychotropic Raw Material (Export / Import Permission)
Not applicable
Specific Narcotic or Psychotropic Raw Material (Export / Import permission)
Not applicable

Waste Disposal and Public Cleansing Law
Specially Controlled Industrial Waste

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

16. OTHER INFORMATION

Further information

Date format : yyyy/mm/dd

Full text of other abbreviations
ACGIH : USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
JP OEL ISHL : Japan. Administrative Control Levels

ACGIH / TWA : 8-hour, time-weighted average
ACGIH / STEL : Short-term exposure limit
JP OEL ISHL / ACL : Administrative Control level
JP OEL JSOH / OEL-M : Occupational Exposure Limit-Mean
JP OEL JSOH / OEL-C : Occupational Exposure Limit-Ceiling

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR -
Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECl - 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (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; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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.