

## Abamectin / Fluazuron Formulation

Version 6.1      Revision Date: 10.10.2020      SDS Number: 800394-00015      Date of last issue: 23.03.2020  
Date of first issue: 12.07.2016

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### SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Abamectin / Fluazuron Formulation

#### Manufacturer or supplier's details

Company : MSD

Address : Rua Coronel Bento Soares, 530  
Cruzeiro - Sao Paulo - Brazil CEP 12730-340

Telephone : 908-740-4000

Emergency telephone : 1-908-423-6000

E-mail address : EHSDATASTEWARD@msd.com

#### Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

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### SECTION 2. HAZARDS IDENTIFICATION

#### GHS Classification in accordance with ABNT NBR 14725 Standard

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

Skin irritation : Category 2

Eye irritation : Category 2A

Skin sensitization : 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

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**GHS label elements in accordance with ABNT NBR 14725 Standard**

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : H226 Flammable liquid and vapor.  
 H302 + H332 Harmful if swallowed or if inhaled.  
 H315 Causes skin irritation.  
 H317 May cause an allergic skin reaction.  
 H319 Causes serious eye irritation.  
 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.  
 P210 Keep away from heat/ sparks/ open flames/ hot surfaces. 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.

**Other hazards which do not result in classification**

Vapors may form explosive mixture with air.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture

**Components**

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Propan-2-ol	67-63-0	Flammable liquids, Category 2 Eye irritation, Category 2A Specific target organ toxicity - single exposure, Category 3	>= 30 -< 50
N-Methyl-2-pyrrolidone	872-50-4	Flammable liquids, Category 4 Acute toxicity (Oral),	>= 30 -< 50

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		Category 5 Skin irritation, Category 2 Eye irritation, Category 2A Reproductive toxicity, Category 1B Specific target organ toxicity - single expo- sure, Category 3	
Poly[oxy(methyl-1,2-ethanediy)], $\alpha$ -(1-oxotetradecyl)- $\omega$ -(phenylmethoxy)-	642443-86-5	Skin irritation, Category 3	$\geq 20$ -< 30
Fluazuron	86811-58-7	Short-term (acute) aquatic hazard, Category 1 Long-term (chronic) aquatic hazard, Category 1	$\geq 2,5$ -< 5
Abamectin (combination of avermectin B1a and avermectin B1b)	71751-41-2	Acute toxicity (Oral), Category 2 Acute toxicity (Inhalation), Category 1 Acute toxicity (Dermal), Category 3 Reproductive toxicity, Category 2 Specific target organ toxicity - repeated exposure (Oral) (Central nervous system), Category 1 Short-term (acute) aquatic hazard, Category 1 Long-term (chronic) aquatic hazard, Category 1	$\geq 1$ -< 2,5
7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate	2386-87-0	Acute toxicity (Oral), Category 5 Skin sensitization, Category 1 Short-term (acute) aquatic hazard, Category 3	$\geq 1$ -< 2,5
2,6-Di-tert-butyl-p-cresol	128-37-0	Short-term (acute) aquatic hazard, Category 1 Long-term (chronic) aquatic hazard,	$\geq 0,1$ -< 0,25

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		Category 1	
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**SECTION 4. FIRST AID MEASURES**

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.  
If not breathing, give artificial respiration.  
If breathing is difficult, give oxygen.  
Get medical attention.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
Get medical attention.  
Wash clothing before reuse.  
Thoroughly clean shoes before reuse.
- In case of eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.  
If easy to do, remove contact lens, if worn.  
Get medical attention.
- 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.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed or if inhaled.  
Causes skin irritation.  
May cause an allergic skin reaction.  
Causes serious eye irritation.  
May cause respiratory irritation.  
May cause drowsiness or dizziness.  
May damage the unborn child.  
May cause damage to organs through prolonged or repeated exposure.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8).
- Notes to physician : Treat symptomatically and supportively.

**SECTION 5. FIRE-FIGHTING MEASURES**

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting : Do not use a solid water stream as it may scatter and spread fire.  
Flash back possible over considerable distance.  
Vapors may form explosive mixtures with air.

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Exposure to combustion products may be a hazard to health.

- Hazardous combustion products : Carbon oxides  
Nitrogen oxides (NO<sub>x</sub>)  
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 fire-fighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition.  
Use personal protective equipment.  
Follow safe handling advice (see section 7) and personal protective equipment recommendations (see section 8).
- Environmental precautions : Avoid release to the environment.  
Prevent further leakage or spillage if safe to do so.  
Prevent spreading over a wide area (e.g., by containment or oil barriers).  
Retain and dispose of contaminated wash water.  
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Non-sparking tools should be used.  
Soak up with inert absorbent material.  
Suppress (knock down) gases/vapors/mists with a water spray jet.  
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.  
Clean up remaining materials from spill with suitable absorbent.  
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

**SECTION 7. HANDLING AND STORAGE**

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.

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- Advice on safe handling : Use explosion-proof electrical, ventilating and lighting equipment.  
Do not get on skin or clothing.  
Do not breathe mist or vapors.  
Do not swallow.  
Do not get in eyes.  
Wash skin thoroughly after handling.  
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment  
Non-sparking tools should be used.  
Keep container tightly closed.  
Already sensitized individuals should consult their physician regarding working with respiratory irritants or sensitizers.  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Take precautionary measures against static discharges.  
Do not eat, drink or smoke when using this product.  
Take care to prevent spills, waste and minimize release to the environment.
- Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place.  
When using do not eat, drink or smoke.  
Contaminated work clothing should not be allowed out of the workplace.  
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.
- Conditions for safe storage : Keep in properly labeled containers.  
Store locked up.  
Keep tightly closed.  
Keep in a cool, well-ventilated place.  
Store in accordance with the particular national regulations.  
Keep away from heat and sources of ignition.
- Materials to avoid : Do not store with the following product types:  
Strong oxidizing agents  
Organic peroxides  
Flammable solids  
Pyrophoric liquids  
Pyrophoric solids  
Self-heating substances and mixtures  
Substances and mixtures which in contact with water emit flammable gases  
Explosives  
Gases

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### SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Ingredients with workplace control parameters

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Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Propan-2-ol	67-63-0	LT	310 ppm 765 mg/m <sup>3</sup>	BR OEL
Further information: Absorption through the skin, Degree of harmfulness: medium				
		TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
Fluazuron	86811-58-7	TWA	60 µg/m <sup>3</sup> (OEB 3)	Internal
		Wipe limit	600 µg/ 100cm <sup>2</sup>	Internal
Abamectin (combination of avermectin B1a and avermectin B1b)	71751-41-2	TWA	30 µg/m <sup>3</sup> (OEB 3)	Internal
		Wipe limit	300 µg/100 cm <sup>2</sup>	Internal
2,6-Di-tert-butyl-p-cresol	128-37-0	TWA (Inhalable fraction and vapor)	2 mg/m <sup>3</sup>	ACGIH

**Biological occupational exposure limits**

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
N-Methyl-2-pyrrolidone	872-50-4	5-Hydroxy-N-methyl-2-pyrrolidone	Urine	End of shift (As soon as possible after exposure ceases)	100 mg/l	ACGIH BEI
Propan-2-ol	67-63-0	Acetone	Urine	End of shift at end of work-week	40 mg/l	ACGIH BEI

**Engineering measures** : Use explosion-proof electrical, ventilating and lighting equipment.

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

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

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

Minimize open handling.

**Personal protective equipment**

Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the

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Filter type	:	recommended guidelines, use respiratory protection.
Hand protection	:	Combined particulates and organic vapor type
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.

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**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance	:	liquid
Color	:	No data available
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	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
Vapor pressure	:	No data available



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Relative vapor 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

Autoignition 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

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**SECTION 10. STABILITY AND REACTIVITY**

Reactivity : Not classified as a reactivity hazard.

Chemical stability : Stable under normal conditions.

Possibility of hazardous reactions : Flammable liquid and vapor.  
Vapors may form explosive mixture with air.  
Can react with strong oxidizing agents.

Conditions to avoid : Heat, flames and sparks.

Incompatible materials : Oxidizing agents

Hazardous decomposition products : No hazardous decomposition products are known.

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**SECTION 11. TOXICOLOGICAL INFORMATION**

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

**Acute toxicity**

Harmful if swallowed or if inhaled.

**Product:**

Acute oral toxicity : Acute toxicity estimate: 1.824 mg/kg  
Method: Calculation method

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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: > 5.000 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: vapor

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 (Rat): > 5.000 mg/kg

**Poly[oxy(methyl-1,2-ethanediyl)],  $\alpha$ -(1-oxotetradecyl)- $\omega$ -(phenylmethoxy)-:**

Acute oral toxicity      :    LD50 (Rat): > 16.000 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

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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

**Poly[oxy(methyl-1,2-ethanediyl)],  $\alpha$ -(1-oxotetradecyl)- $\omega$ -(phenylmethoxy)-:**

Species      :    Rabbit  
Result      :    Mild skin irritation

**Fluazuron:**

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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:**

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

**Poly[oxy(methyl-1,2-ethanediyl)], α-(1-oxotetradecyl)-ω-(phenylmethoxy)-:**

Species : Rabbit  
Result : No eye irritation

**Fluazuron:**

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

**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  
Result : No eye irritation  
Method : OECD Test Guideline 405

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

Species : Rabbit  
Result : No eye irritation  
Method : OECD Test Guideline 405  
Remarks : Based on data from similar materials

**Respiratory or skin sensitization****Skin sensitization**

May cause an allergic skin reaction.

**Respiratory sensitization**

Not classified based on available information.

**Components:****Propan-2-ol:**

Test Type : Buehler Test  
Routes of exposure : Skin contact  
Species : Guinea pig  
Method : OECD Test Guideline 406  
Result : negative

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

Test Type : Local lymph node assay (LLNA)  
Routes of exposure : Skin contact  
Species : Mouse  
Method : OECD Test Guideline 429  
Result : negative  
Remarks : Based on data from similar materials

**Poly[oxy(methyl-1,2-ethanediyl)],  $\alpha$ -(1-oxotetradecyl)- $\omega$ -(phenylmethoxy)-:**

Test Type : Human repeat insult patch test (HRIPT)  
Routes of exposure : Skin contact  
Result : negative

**Fluazuron:**

Routes of exposure : Skin contact  
Species : Guinea pig  
Result : negative

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

Test Type : Maximization Test  
Routes of exposure : 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 : Maximization Test  
Routes of exposure : Skin contact  
Species : Guinea pig

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Result : positive

Assessment : Probability or evidence of skin sensitization in humans

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

Test Type : Human repeat insult patch test (HRIPT)

Routes of exposure : 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

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

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Result: negative

**Poly[oxy(methyl-1,2-ethanediyl)],  $\alpha$ -(1-oxotetradecyl)- $\omega$ -(phenylmethoxy)-:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
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

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

**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

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

**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 (vapor)  
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

Species : Rat  
Application Route : inhalation (vapor)  
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



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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 fetal development    : Test Type: Embryo-fetal 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 fetal development    : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Ingestion  
Method: OECD Test Guideline 414  
Result: positive

Test Type: Fertility/early embryonic development  
Species: Rat  
Application Route: inhalation (vapor)

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Result: positive

Test Type: Embryo-fetal 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 fetal development : Test Type: Embryo-fetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

Test Type: Embryo-fetal development  
Species: Rabbit  
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 fetal development : Test Type: Embryo-fetal 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-fetal development  
Species: Rabbit  
Application Route: Oral  
Developmental Toxicity: LOAEL: 2 mg/kg body weight  
Result: Cleft palate, Teratogenic effects., Reduced embryonic survival

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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 fetal development : Test Type: Embryo-fetal 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 fetal development : Test Type: Embryo-fetal 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 (Central nervous system) through prolonged or repeated exposure.

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

Routes of exposure : Ingestion  
Target Organs : Central nervous system  
Assessment : Causes damage to organs through prolonged or repeated

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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 (vapor)  
 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

Species : Rat  
 NOAEL : 0,5 mg/l  
 LOAEL : 1 mg/l  
 Application Route : inhalation (dust/mist/fume)  
 Exposure time : 96 Days  
 Method : OECD Test Guideline 413

Species : Rabbit  
 NOAEL : 826 mg/kg  
 LOAEL : 1.653 mg/kg  
 Application Route : Skin contact  
 Exposure time : 20 Days

**Fluazuron:**

Species : Rat  
 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

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

Skin contact : Symptoms: Skin irritation

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

Ingestion : Symptoms: May cause, Tremors, Diarrhea, central nervous system effects, Salivation, tearing

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## SECTION 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

**Poly[oxy(methyl-1,2-ethanediyl)],  $\alpha$ -(1-oxotetradecyl)- $\omega$ -(phenylmethoxy)-:**

- Toxicity to fish : LC50: 540 mg/l  
 Exposure time: 96 h  
 Test substance: Water Accommodated Fraction
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Ceriodaphnia dubia (water flea)): 221 mg/l  
 Exposure time: 48 h  
 Test substance: Water Accommodated Fraction
- Toxicity to algae/aquatic plants : NOEC (Selenastrum capricornutum (fresh water algae)): 78 mg/l  
 Exposure time: 72 h  
 Method: OECD Test Guideline 201

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**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

**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
- LC50 (Cyprinodon variegatus (sheepshead minnow)): 15 µg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : 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

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

**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  
Method: Directive 67/548/EEC, Annex V, C.1.

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



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toxicity)  
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

**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

**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

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**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

**Mobility in soil****Components:****Abamectin (combination of avermectin B1a and avermectin B1b):**

Distribution among environmental compartments : log Koc: &gt; 3,6

**Other adverse effects**

No data available

**SECTION 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.

**SECTION 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.

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(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.

**Domestic regulation****ANTT**

UN number : UN 1993  
Proper shipping name : FLAMMABLE LIQUID, N.O.S.  
(Propan-2-ol)  
Class : 3  
Packing group : III  
Labels : 3  
Hazard Identification Number : 30

**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.

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**SECTION 15. REGULATORY INFORMATION****Safety, health and environmental regulations/legislation specific for the substance or mixture**

National List of Carcinogenic Agents for Humans - (LINACH) : Not applicable

Brazil. List of chemicals controlled by the Federal Police : Propan-2-ol

**International Regulations****The ingredients of this product are reported in the following inventories:**

AICS : not determined

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DSL : not determined

IECSC : not determined

## SECTION 16. OTHER INFORMATION

## Further information

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

## Full text of other abbreviations

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
 ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)  
 BR OEL : Brazil. NR 15 - Unhealthy activities and operations

ACGIH / TWA : 8-hour, time-weighted average  
 ACGIH / STEL : Short-term exposure limit  
 BR OEL / LT : Up to 48 hours /week

AIIIC - Australian Inventory of Industrial Chemicals; 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; 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; 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

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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.

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