

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
Date of first issue: 12.07.2016

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Abamectin / Fluazuron Formulation

Manufacturer or supplier's details

Company : MSD

Address : Briahnager - Off Pune Nagar Road
Wagholi - Pune - India 412 207

Telephone : +1-908-740-4000

Emergency telephone number : +1-908-423-6000

E-mail address : EHSDATASTEWARD@msd.com

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

Restrictions on use :
Not applicable

2. HAZARDS IDENTIFICATION**Manufacture, Storage and Import of Hazardous Chemicals Rules 1989****Classification**

Highly flammable liquids

GHS Classification

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

Skin corrosion/irritation : Category 2

Serious eye damage/eye irritation : Category 2A

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)

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
 Date of first issue: 12.07.2016

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H226 Flammable liquid and vapour.
 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:**
 P203 Obtain, read and follow all safety instructions before use.
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P260 Do not breathe mist or vapours.
 P264 Wash skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 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:
 P301 + P317 + P330 IF SWALLOWED: Get medical help. Rinse mouth.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water.
 P304 + P340 + P317 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P318 IF exposed or concerned, get medical advice.
 P333 + P317 If skin irritation or rash occurs: Get medical help.
 P337 + P317 If eye irritation persists: Get medical help.
 P362 + P364 Take off contaminated clothing and wash it before reuse.

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
 Date of first issue: 12.07.2016

P391 Collect spillage.

Storage:

P405 Store locked up.

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

Chemical name	CAS-No.	Concentration (% w/w)
Propan-2-ol	67-63-0	>= 30 - < 50
N-Methyl-2-pyrrolidone	872-50-4	>= 30 - < 50
Poly[oxy(methyl-1,2-ethanediyl)], α -(1-oxotetradecyl)- ω -(phenylmethoxy)-	642443-86-5	>= 20 - < 30
Fluazuron	86811-58-7	>= 2.5 - < 5
abamectin (combination of avermectin B1a and avermectin B1b) (ISO)	71751-41-2	>= 1 - < 2.5
7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate	2386-87-0	>= 1 - < 2.5
2,6-Di-tert-butyl-p-cresol	128-37-0	>= 0.1 - < 0.25

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.

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

- 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.
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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 fire-fighting : Do not use a solid water stream as it may scatter and spread fire.
Flash back possible over considerable distance.
Vapours may form explosive mixtures with air.
Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
Nitrogen oxides (NO_x)
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.
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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

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

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

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

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.
Use explosion-proof electrical, ventilating and lighting equipment.

Advice on safe handling : Do not get on skin or clothing.
Do not breathe mist or vapours.
Do not swallow.
Do not get in eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Non-sparking tools should be used.
Keep container tightly closed.
Already sensitised individuals, and those susceptible to asthma, allergies, chronic or recurrent respiratory disease, should consult their physician regarding working with respiratory irritants or sensitisers.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Take precautionary measures against static discharges.
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the environment.

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

Materials to avoid : Do not store with the following product types:
Self-reactive substances and mixtures

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
 Date of first issue: 12.07.2016

Organic peroxides
 Oxidizing agents
 Flammable gases
 Pyrophoric liquids
 Pyrophoric solids
 Self-heating substances and mixtures
 Poisonous gases
 Explosives

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Propan-2-ol	67-63-0	TWA	200 ppm	ACGIH
		STEL	400 ppm	ACGIH
Fluazuron	86811-58-7	TWA	60 µg/m ³ (OEB 3)	Internal
		Wipe limit	600 µg/ 100cm ²	Internal
abamectin (combination of avermectin B1a and avermectin B1b) (ISO)	71751-41-2	TWA	15 µg/m ³ (OEB 3)	Internal
		Wipe limit	150 µg/100 cm ²	Internal
2,6-Di-tert-butyl-p-cresol	128-37-0	TWA (Inhalable fraction and vapor)	2 mg/m ³	ACGIH

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Propan-2-ol	67-63-0	Acetone	Urine	End of shift at end of work-week	40 mg/l	ACGIH BEI
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

Engineering measures : Use appropriate engineering controls and manufacturing technologies to control airborne concentrations (e.g., drip-less quick connections).
 All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment.
 Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

the compound to uncontrolled areas (e.g., open-face containment devices).

Minimize open handling.

Use explosion-proof electrical, ventilating and lighting equipment.

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 : Combined particulates and organic vapour 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.
- 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Colour : No data available
- Odour : No data available
- Odour Threshold : No data available
- pH : No data available

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
Date of first issue: 12.07.2016

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
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 reac-	:	Flammable liquid and vapour.

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

tions	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 swallowed or if inhaled.

Product:

Acute oral toxicity	: Acute toxicity estimate: 1,824 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: > 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: vapour
Acute dermal toxicity	: LD50 (Rabbit): > 5,000 mg/kg

N-Methyl-2-pyrrolidone:

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

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

Acute oral toxicity	: LD50 (Rat): > 16,000 mg/kg
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Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
Date of first issue: 12.07.2016

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) (ISO):

- Acute oral toxicity : LD50 (Rat): 24 mg/kg
LD50 (Mouse): 10 mg/kg
LDLo (Monkey): 24 mg/kg
Symptoms: Dilatation of the pupil
- Acute inhalation toxicity : LC50 (Rat): 0.023 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
- Acute dermal toxicity : LD50 (Rat): 330 mg/kg
LD50 (Rabbit): 2,000 mg/kg

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

- Acute oral toxicity : LD50 (Rat, male): 2,959 - 5,000 mg/kg
Method: OECD Test Guideline 401
- Acute inhalation toxicity : LC50 (Rat): >= 5.19 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 436
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

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

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

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
Date of first issue: 12.07.2016

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)], α -(1-oxotetradecyl)- ω -(phenylmethoxy)-:

Species : Rabbit
Result : Mild skin irritation

Fluazuron:

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

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

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

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

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

Species	:	Rabbit
Result	:	No eye irritation

Fluazuron:

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

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

Species	:	Rabbit
Result	:	Mild eye irritation

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

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	No eye irritation

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

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

Respiratory or skin sensitisation**Skin sensitisation**

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

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

Test Type	:	Buehler Test
Exposure routes	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	negative

N-Methyl-2-pyrrolidone:

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

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

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
 Date of first issue: 12.07.2016

Test Type : Human repeat insult patch test (HRIPT)
 Exposure routes : Skin contact
 Result : negative

Fluazuron:

Exposure routes : Skin contact
 Species : Guinea pig
 Result : negative

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

Test Type : Maximisation Test
 Exposure routes : Skin contact
 Result : Not a skin sensitizer.

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

Test Type : Maximisation Test
 Exposure routes : Skin contact
 Species : Guinea pig
 Result : positive

Assessment : Probability or evidence of skin sensitisation in humans

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

Test Type : Human repeat insult patch test (HRIPT)
 Exposure routes : Skin contact
 Species : Humans
 Result : negative

Germ cell mutagenicity

Not classified based on available information.

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

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

Test Type: In vitro mammalian cell gene mutation test
 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

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

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

Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
 Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
 Species: Mouse
 Application Route: Ingestion
 Method: OECD Test Guideline 474
 Result: negative

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

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

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)

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

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

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 (vapour)
 Exposure time : 104 weeks
 Method : OECD Test Guideline 451
 Result : negative

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
Date of first issue: 12.07.2016

N-Methyl-2-pyrrolidone:

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

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

Fluazuron:

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

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

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

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 develop- : Test Type: Embryo-foetal development

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

ment
 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

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

Effects on fertility : Test Type: Fertility
 Species: Rat, male
 Application Route: Oral
 Result: Effects on fertility

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
 Date of first issue: 12.07.2016

- Test Type: Two-generation reproduction toxicity study
 Species: Rat
 Application Route: Oral
 Early Embryonic Development: NOAEL: 0.12 mg/kg body weight
 Result: Fetotoxicity
- Effects on foetal development : Test Type: Embryo-foetal development
 Species: Mouse
 Application Route: Oral
 General Toxicity Maternal: NOAEL: 0.05 mg/kg body weight
 Developmental Toxicity: NOAEL: 0.2 mg/kg body weight
 Result: Cleft palate
 Remarks: Adverse developmental effects were observed
- Test Type: Embryo-foetal development
 Species: Rabbit
 Application Route: Oral
 Developmental Toxicity: LOAEL: 2 mg/kg body weight
 Result: Cleft palate, Teratogenic effects, Reduced embryonic survival
 Remarks: Adverse developmental effects were observed
- Test Type: Development
 Species: Rat
 Application Route: Oral
 Developmental Toxicity: LOAEL: 1.6 mg/kg body weight
 Result: Teratogenic effects
- Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, based on animal experiments., Some evidence of adverse effects on development, based on animal experiments.
- 7-Oxabicyclo[4.1.0]hept-3-ylmethyl 7-oxabicyclo[4.1.0]heptane-3-carboxylate:**
- Effects on foetal development : Test Type: Embryo-foetal development
 Species: Rat
 Application Route: Ingestion
 Method: OECD Test Guideline 414
 Result: negative
- 2,6-Di-tert-butyl-p-cresol:**
- Effects on fertility : Test Type: Two-generation reproduction toxicity study
 Species: Rat
 Application Route: Ingestion
 Result: negative
- Effects on foetal development : Test Type: Embryo-foetal development
 Species: Rat
 Application Route: Ingestion
 Result: negative

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

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) (ISO):**

Exposure routes : Ingestion
Target Organs : Central nervous system
Assessment : Causes damage to organs through prolonged or repeated exposure.

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

Assessment : No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

Repeated dose toxicity**Components:****Propan-2-ol:**

Species : Rat
NOAEL : 12.5 mg/l
Application Route : inhalation (vapour)
Exposure time : 104 Weeks

N-Methyl-2-pyrrolidone:

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

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

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
Date of first issue: 12.07.2016

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

Fluazuron:

Species : Rat
NOAEL : 240 mg/kg
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) (ISO):

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

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

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) (ISO):

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

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

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

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

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

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) (ISO):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 3.2 μ g/l
Exposure time: 96 h

LC50 (Lepomis macrochirus (Bluegill sunfish)): 9.6 μ g/l
Exposure time: 96 h

LC50 (Ictalurus punctatus (channel catfish)): 24 μ g/l
Exposure time: 96 h

LC50 (Cyprinus carpio (Carp)): 42 μ g/l
Exposure time: 96 h

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

		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 microorganisms	:	EC50: > 1,000 mg/l Exposure time: 3 h Test Type: Respiration inhibition
Toxicity to fish (Chronic toxicity)	:	NOEC: 0.52 µg/l Exposure time: 32 d Species: Pimephales promelas (fathead minnow)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.03 µg/l Exposure time: 21 d Species: Daphnia magna (Water flea)
		NOEC: 0.0035 µg/l Exposure time: 28 d Species: Mysidopsis bahia (opossum shrimp)
M-Factor (Chronic aquatic toxicity)	:	10,000

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

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 24 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 40 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Selenastrum capricornutum (green algae)): > 110 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
		NOEC (Selenastrum capricornutum (green algae)): 30 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC10 (Natural microorganism): 409 mg/l

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
 Date of first issue: 12.07.2016

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 microorganisms : EC50: > 10,000 mg/l
 Exposure time: 3 h
 Method: OECD Test Guideline 209
- Toxicity to fish (Chronic toxicity) : NOEC: 0.053 mg/l
 Exposure time: 30 d
 Species: Oryzias latipes (Japanese medaka)
 Method: OECD Test Guideline 210
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.316 mg/l
 Exposure time: 21 d
 Species: Daphnia magna (Water flea)
- M-Factor (Chronic aquatic toxicity) : 1

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 %

Abamectin / Fluazuron Formulation

Version 5.7 Revision Date: 01.10.2022 SDS Number: 803735-00021 Date of last issue: 09.04.2022
Date of first issue: 12.07.2016

Exposure time: 28 d
Method: OECD Test Guideline 301C

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

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

abamectin (combination of avermectin B1a and avermectin B1b) (ISO):

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

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

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

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

Distribution among environmental compartments : log Koc: > 3.6

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

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

tin B1a and avermectin B1b) (ISO))

Class	:	3
Packing group	:	III
Labels	:	3
EmS Code	:	F-E, <u>S-E</u>
Marine pollutant	:	yes

Transport in bulk according to IMO instruments

Not applicable for product as supplied.

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**Safety, health and environmental regulations/legislation specific for the substance or mixture****The components of this product are reported in the following inventories:**

AICS	:	not determined
DSL	:	not determined
IECSC	:	not determined

16. OTHER INFORMATION**Further information**

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

Date format : dd.mm.yyyy

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	:	ACGIH - Biological Exposure Indices (BEI)

ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit

AIIC - 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

Abamectin / Fluazuron Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 09.04.2022
5.7	01.10.2022	803735-00021	Date of first issue: 12.07.2016

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; TECl - Thailand Existing Chemicals Inventory; 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.

IN / EN