

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Deltamethrin (5%) 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

Telefax : 908-735-1496

Recommended use of the chemical and restrictions on use

Recommended use : Veterinary product

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification in accordance with ABNT NBR 14725 Standard**

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 4

Skin irritation : Category 2

Serious eye damage : Category 1

Skin sensitization : Category 1

Germ cell mutagenicity : Category 1B

Carcinogenicity : Category 1B

Reproductive toxicity : Category 2

Specific target organ toxicity - : Category 3
single exposure

Specific target organ toxicity - : Category 2 (Central nervous system, Immune system)
repeated exposure (Oral)

Specific target organ toxicity - : Category 2 (Central nervous system)
repeated exposure
(Inhalation)

Aspiration hazard : Category 1

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

GHS label elements in accordance with ABNT NBR 14725 Standard

Hazard pictograms :     

Signal Word : Danger

Hazard Statements : H226 Flammable liquid and vapor.
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H336 May cause drowsiness or dizziness.
H340 May cause genetic defects.
H350 May cause cancer.
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.
H373 May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.
H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.
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:
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P391 Collect spillage.

Other hazards which do not result in classification

Vapors may form explosive mixture with air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Deltamethrin (5%) Formulation

Version 5.1 Revision Date: 09.10.2020 SDS Number: 2333314-00010 Date of last issue: 23.03.2020
 Date of first issue: 12.12.2017

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Classification	Concentration (% w/w)
Solvent naphtha (petroleum), light aromatic	64742-95-6	Flammable liquids, Category 3 Skin irritation, Category 2 Germ cell mutagenicity, Category 1B Carcinogenicity, Category 1B Specific target organ toxicity - single exposure, Category 3 Aspiration hazard, Category 1 Short-term (acute) aquatic hazard, Category 2 Long-term (chronic) aquatic hazard, Category 2	>= 30 -< 50
2-Methoxy-1-methylethyl acetate	108-65-6	Flammable liquids, Category 3 Specific target organ toxicity - single exposure, Category 3	>= 20 -< 30
Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts	Not Assigned	Acute toxicity (Oral), Category 5 Skin irritation, Category 2 Serious eye damage, Category 1 Short-term (acute) aquatic hazard, Category 2 Long-term (chronic) aquatic hazard, Category 3	>= 5 -< 10
2-Methyl-1-propanol	78-83-1	Flammable liquids, Category 3 Acute toxicity (Oral), Category 5 Acute toxicity (Dermal), Category 5 Skin irritation, Category 2 Serious eye damage, Category 1 Specific target organ toxicity - single expo-	>= 5 -< 10

Deltamethrin (5%) Formulation

Version 5.1 Revision Date: 09.10.2020 SDS Number: 2333314-00010 Date of last issue: 23.03.2020
 Date of first issue: 12.12.2017

		sure, Category 3 Aspiration hazard, Category 2	
Deltamethrin (ISO)	52918-63-5	Acute toxicity (Oral), Category 3 Acute toxicity (Inhalation), Category 3 Eye irritation, Category 2A Skin sensitization, Sub-category 1A Reproductive toxicity, Category 2 Specific target organ toxicity - single exposure, Category 3 Specific target organ toxicity - repeated exposure (Oral) (Central nervous system, Immune system), Category 1 Specific target organ toxicity - repeated exposure (Inhalation) (Central nervous system), Category 1 Short-term (acute) aquatic hazard, Category 1 Long-term (chronic) aquatic hazard, Category 1	>= 5 -< 10

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.
 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.

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

If swallowed	:	Get medical attention immediately. If swallowed, DO NOT induce vomiting. If vomiting occurs have person lean forward. Call a physician or poison control center immediately. 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. May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause drowsiness or dizziness. May cause genetic defects. May cause cancer. Suspected of damaging fertility. Suspected of damaging the unborn child. May cause damage to organs through prolonged or repeated exposure if swallowed. May cause damage to organs through prolonged or repeated exposure if inhaled.
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 ₂) 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. Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Nitrogen oxides (NO _x) Bromine compounds Sulfur oxides Metal oxides
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

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

- | | | |
|---|---|---|
| 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.
Use explosion-proof electrical, ventilating and lighting equipment. |
| Advice on safe handling | : | 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.
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. |

Deltamethrin (5%) Formulation

Version 5.1 Revision Date: 09.10.2020 SDS Number: 2333314-00010 Date of last issue: 23.03.2020
 Date of first issue: 12.12.2017

- 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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Solvent naphtha (petroleum), light aromatic	64742-95-6	TWA	200 mg/m ³ (total hydrocarbon vapor)	ACGIH
2-Methyl-1-propanol	78-83-1	LT	40 ppm 115 mg/m ³	BR OEL
Further information: Degree of harmfulness: medium				
		TWA	50 ppm	ACGIH
Deltamethrin (ISO)	52918-63-5	TWA	15 µg/m ³ (OEB 3)	Internal
Further information: DSEN, Skin				
		Wipe limit	150 µg/100 cm ²	Internal

- 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).

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

All engineering controls should be implemented by facility design and operated in accordance with GMP principles to protect products, workers, and the environment. Containment technologies suitable for controlling compounds are required to control at source and to prevent migration of the compound to uncontrolled areas (e.g., open-face containment devices). Minimize open handling.

Personal protective equipment

Respiratory protection	:	If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Filter type	:	Combined particulates and organic vapor 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Color	:	yellow
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	3 - 5
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	45 - 51 °C
Evaporation rate	:	No data available

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

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
Relative vapor density	:	No data available
Relative density	:	No data available
Density	:	0,963 - 0,967 g/cm ³
Solubility(ies) Water solubility	:	completely miscible
Partition coefficient: n-octanol/water	:	No data available
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

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.

SECTION 11. TOXICOLOGICAL INFORMATION

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

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

Acute toxicity

Harmful if swallowed.

Product:

Acute oral toxicity : Acute toxicity estimate: 1.269 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 10 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:**Solvent naphtha (petroleum), light aromatic:**

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5,61 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg

2-Methoxy-1-methylethyl acetate:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute inhalation toxicity : LC0 (Rat): 9,48 mg/l
Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rat): > 5.000 mg/kg

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Acute oral toxicity : LD50 (Rat): 4.445 mg/kg

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402
Remarks: Based on data from similar materials

2-Methyl-1-propanol:

Acute oral toxicity : LD50 (Rat): 3.350 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 24,6 mg/l
Exposure time: 4 h

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): 2.460 mg/kg
Method: OECD Test Guideline 402

Deltamethrin (ISO):

Acute oral toxicity : LD50 (Rat): 66,7 mg/kg
LD50 (Rat): 9 - 139 mg/kg
LD50 (Mouse): 19 - 34 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0,8 mg/l
Exposure time: 2 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): 2.000 mg/kg
LD50 (Rat): > 800 mg/kg

Acute toxicity (other routes of administration) : LD50 (Rat): 2,5 mg/kg
Application Route: Intravenous
LD50 (Mouse): 10 mg/kg
Application Route: Intraperitoneal

Skin corrosion/irritation

Causes skin irritation.

Components:**Solvent naphtha (petroleum), light aromatic:**

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

2-Methoxy-1-methylethyl acetate:

Species : Rabbit
Result : No skin irritation

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

2-Methyl-1-propanol:

Species : Rabbit
Method : OECD Test Guideline 404
Result : Skin irritation

Deltamethrin (ISO):

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Species	:	Rabbit
Result	:	No skin irritation

Serious eye damage/eye irritation

Causes serious eye damage.

Components:**Solvent naphtha (petroleum), light aromatic:**

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

2-Methoxy-1-methylethyl acetate:

Species	:	Rabbit
Result	:	No eye irritation

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Method	:	OECD Test Guideline 405

2-Methyl-1-propanol:

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Method	:	OECD Test Guideline 405

Deltamethrin (ISO):

Species	:	Rabbit
Result	:	Moderate eye irritation

Respiratory or skin sensitization**Skin sensitization**

May cause an allergic skin reaction.

Respiratory sensitization

Not classified based on available information.

Components:**Solvent naphtha (petroleum), light aromatic:**

Test Type	:	Buehler Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Result	:	negative

2-Methoxy-1-methylethyl acetate:

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

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Method : OECD Test Guideline 406
Result : negative

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Test Type : Magnusson-Kligman-Test
Routes of exposure : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Remarks : Based on data from similar materials

2-Methyl-1-propanol:

Test Type : Maximization Test
Routes of exposure : Skin contact
Species : Guinea pig
Result : negative
Remarks : Based on data from similar materials

Deltamethrin (ISO):

Test Type : Maximization Test
Routes of exposure : Dermal
Species : Guinea pig
Result : negative

: Human repeat insult patch test (HRIPT)
: Dermal
: Humans
: positive

Germ cell mutagenicity

May cause genetic defects.

Components:

Solvent naphtha (petroleum), light aromatic:

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

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

Genotoxicity in vivo : Test Type: Sister chromatid exchange analysis in spermatogonia
Species: Mouse
Application Route: Intraperitoneal injection
Result: positive

Germ cell mutagenicity - Assessment : Positive result(s) from in vivo heritable germ cell mutagenicity tests in mammals

2-Methoxy-1-methylethyl acetate:

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

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

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

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Result: negative

Remarks: Based on data from similar materials

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: Directive 67/548/EEC, Annex V, B.13/14.
Result: negative
Remarks: Based on data from similar materials

2-Methyl-1-propanol:

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

Test Type: Chromosome aberration test in vitro

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: Ingestion
Method: OECD Test Guideline 474
Result: negative

Deltamethrin (ISO):

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

Test Type: DNA Repair

Test system: Escherichia coli

Result: negative

Test Type: Chromosomal aberration

Test system: Chinese hamster ovary cells

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster lung cells

Concentration: LOAEL: 20 mg/kg

Result: positive

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse
Application Route: Oral
Result: negative

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Test Type: dominant lethal test
Species: Mouse
Application Route: Oral
Result: negative

Test Type: sister chromatid exchange assay
Species: Mouse
Cell type: Bone marrow
Application Route: Oral
Result: negative

Carcinogenicity

May cause cancer.

Components:**Solvent naphtha (petroleum), light aromatic:**

Species : Mouse
Application Route : Skin contact
Exposure time : 2 Years
Result : positive

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in animal experiments

2-Methoxy-1-methylethyl acetate:

Species : Rat
Application Route : inhalation (vapor)
Exposure time : 2 Years
Result : negative
Remarks : Based on data from similar materials

Deltamethrin (ISO):

Species : Mouse, male and female
Application Route : oral (feed)
Exposure time : 104 weeks
NOAEL : 8 mg/kg body weight
LOAEL : 4 mg/kg body weight
Result : positive
Target Organs : Lymph nodes

Species : Rat, male and female
Application Route : oral (feed)
Exposure time : 2 Years
Result : negative

Species : Dog, male and female
Application Route : oral (feed)
Exposure time : 2 Years
NOAEL : 1 mg/kg body weight
Result : negative

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Reproductive toxicity

Suspected of damaging fertility. Suspected of damaging the unborn child.

Components:**Solvent naphtha (petroleum), light aromatic:**

Effects on fertility	:	Test Type: Reproduction/Developmental toxicity screening test Species: Rat Application Route: inhalation (vapor) Result: negative
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: inhalation (vapor) Result: negative

2-Methoxy-1-methylethyl acetate:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: inhalation (vapor) Method: OECD Test Guideline 416 Result: negative Remarks: Based on data from similar materials
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: inhalation (vapor) Result: negative

2-Methyl-1-propanol:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: inhalation (vapor) Method: OPPTS 870.3800 Result: negative
Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: inhalation (vapor) Method: OECD Test Guideline 414 Result: negative

Deltamethrin (ISO):

Effects on fertility	:	Test Type: Three-generation reproduction toxicity study Species: Rat Application Route: oral (feed) Early Embryonic Development: NOAEL: 50 mg/kg body weight Symptoms: No effects on fertility., Embryo-fetal toxicity. Remarks: Significant toxicity observed in testing Test Type: Two-generation reproduction toxicity study
----------------------	---	---

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Species: Rat
Application Route: Oral
Early Embryonic Development: LOAEL: 84 - 149 mg/kg body weight
Symptoms: No effects on fertility., Embryo-fetal toxicity.

Test Type: Fertility
Species: Rat, male
Application Route: Oral
Fertility: LOAEL: 1 mg/kg body weight
Symptoms: Effects on fertility.
Target Organs: Testes

Effects on fetal development : Test Type: Development
Species: Mouse
Application Route: oral (gavage)
Developmental Toxicity: LOAEL: 1 mg/kg body weight
Result: Skeletal malformations.
Remarks: Maternal toxicity observed.

Test Type: Development
Species: Rat, female
Developmental Toxicity: NOAEL: 10 mg/kg body weight
Symptoms: No effects on fetal development.

Test Type: Development
Species: Rabbit, female
Application Route: oral (gavage)
Developmental Toxicity: NOAEL: 16 mg/kg body weight
Symptoms: No effects on fetal development.

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

STOT-single exposure

May cause drowsiness or dizziness.

Components:**Solvent naphtha (petroleum), light aromatic:**

Assessment : May cause drowsiness or dizziness.

2-Methoxy-1-methylethyl acetate:

Assessment : May cause drowsiness or dizziness.

2-Methyl-1-propanol:

Assessment : May cause respiratory irritation.
May cause drowsiness or dizziness.

Deltamethrin (ISO):

Assessment : May cause respiratory irritation.

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

STOT-repeated exposure

May cause damage to organs (Central nervous system, Immune system) through prolonged or repeated exposure if swallowed.

May cause damage to organs (Central nervous system) through prolonged or repeated exposure if inhaled.

Components:**Deltamethrin (ISO):**

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

Routes of exposure	: inhalation (dust/mist/fume)
Target Organs	: Central nervous system
Assessment	: Causes damage to organs through prolonged or repeated exposure.

Repeated dose toxicity**Components:****Solvent naphtha (petroleum), light aromatic:**

Species	: Rat
LOAEL	: 500 mg/kg
Application Route	: Ingestion
Exposure time	: 28 Days

2-Methoxy-1-methylethyl acetate:

Species	: Rat
NOAEL	: > 1.000 mg/kg
Application Route	: Ingestion
Exposure time	: 41 - 45 Days
Method	: OECD Test Guideline 422

Species	: Mouse
NOAEL	: 1,62 mg/l
Application Route	: inhalation (vapor)
Exposure time	: 2 y
Remarks	: Based on data from similar materials

Species	: Rabbit
NOAEL	: > 1.838 mg/kg
Application Route	: Skin contact
Exposure time	: 90 Days
Remarks	: Based on data from similar materials

2-Methyl-1-propanol:

Species	: Rat
NOAEL	: > 1.450 mg/kg
Application Route	: Ingestion
Exposure time	: 90 Days

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Method : OECD Test Guideline 408

Deltamethrin (ISO):

Species : Rat, male and female
NOAEL : 1 mg/kg
LOAEL : 2,5 mg/kg
Application Route : Oral
Exposure time : 13 Weeks
Target Organs : Nervous system
Symptoms : hyperexcitability

Species : Rat
LOAEL : 3 mg/m3
Application Route : inhalation (dust/mist/fume)
Exposure time : 2 wk / 5 d/wk / 6 h/d
Symptoms : Local irritation, respiratory tract irritation

Species : Dog
NOAEL : 0,1 mg/kg
LOAEL : 1 mg/kg
Application Route : Oral
Exposure time : 13 Weeks
Target Organs : Nervous system
Symptoms : Dilatation of the pupil, Vomiting, Tremors, Diarrhea, Salivation

Species : Rat
NOAEL : 14 mg/kg
LOAEL : 54 mg/kg
Application Route : Oral
Exposure time : 91 d
Target Organs : Nervous system

Species : Mouse
LOAEL : 6 mg/kg
Application Route : Oral
Exposure time : 12 Weeks
Target Organs : Immune system
Symptoms : immune system effects

Aspiration toxicity

May be fatal if swallowed and enters airways.

Product:

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Components:**Solvent naphtha (petroleum), light aromatic:**

The substance or mixture is known to cause human aspiration toxicity hazards or has to be regarded as if it causes a human aspiration toxicity hazard.

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

2-Methyl-1-propanol:

The substance or mixture causes concern owing to the assumption that it causes a human aspiration toxicity hazard.

Experience with human exposure

Components:

Deltamethrin (ISO):

Inhalation	:	Symptoms: respiratory tract irritation, Dizziness, Sweating, Headache, Nausea, Vomiting, anorexia, Fatigue, tingling, Palpitation, Blurred vision, muscle twitching
Skin contact	:	Symptoms: Skin irritation, Erythema, pruritis, Headache, Nausea, Vomiting, Dizziness, tingling, Sweating, muscle twitching, Blurred vision, Fatigue, anorexia, Allergic reactions
Ingestion	:	Symptoms: muscle pain, Small pupils

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Solvent naphtha (petroleum), light aromatic:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 8,2 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): 4,5 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	EL50 (Pseudokirchneriella subcapitata (microalgae)): 3,1 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201
		NOELR (Pseudokirchneriella subcapitata (microalgae)): 0,5 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOELR (Daphnia magna (Water flea)): 2,6 mg/l Exposure time: 21 d Test substance: Water Accommodated Fraction Method: OECD Test Guideline 211

2-Methoxy-1-methylethyl acetate:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 - 180 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
------------------	---	--

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 500 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1.000 mg/l Exposure time: 96 h Method: OECD Test Guideline 201 NOEC (Pseudokirchneriella subcapitata (algae)): > 1.000 mg/l Exposure time: 96 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): >= 100 mg/l Exposure time: 21 d Method: OECD Test Guideline 211
Toxicity to microorganisms	:	EC10: > 1.000 mg/l Exposure time: 0,5 h

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Toxicity to fish	:	LC50: > 1 - < 10 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1 - 10 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 10 - 100 mg/l Exposure time: 96 h Remarks: Based on data from similar materials NOEC (Pseudokirchneriella subcapitata (green algae)): > 0,1 - 1 mg/l Exposure time: 96 h Remarks: Based on data from similar materials
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): > 0,1 - 1 mg/l Exposure time: 72 d Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): > 1 mg/l Exposure time: 21 d Remarks: Based on data from similar materials

2-Methyl-1-propanol:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 1.430 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia pulex (Water flea)): 1.100 mg/l Exposure time: 48 h

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 1.799 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
		NOEC (Pseudokirchneriella subcapitata (green algae)): 117 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 20 mg/l Exposure time: 21 d
Deltamethrin (ISO):		
Toxicity to fish	:	LC50 (Cyprinodon variegatus (sheepshead minnow)): 0,00048 mg/l Exposure time: 96 h
		LC50 (Oncorhynchus mykiss (rainbow trout)): 0,00039 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Mysidopsis bahia (opossum shrimp)): 0,0037 µg/l Exposure time: 48 h
		EC50 (Daphnia magna (Water flea)): 0,0035 mg/l Exposure time: 48 h
		LC50 (Gammarus fasciatus (freshwater shrimp)): 0,0003 µg/l Exposure time: 96 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 9,1 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: No toxicity at the limit of solubility.
M-Factor (Acute aquatic toxicity)	:	1.000.000
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 0,000022 mg/l Exposure time: 36 d
		NOEC (Pimephales promelas (fathead minnow)): 0,000017 mg/l Exposure time: 260 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0,0041 µg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	1.000.000

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Persistence and degradability**Components:****Solvent naphtha (petroleum), light aromatic:**

Biodegradability : Result: Inherently biodegradable.
Biodegradation: 94 %
Exposure time: 25 d

2-Methoxy-1-methylethyl acetate:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 90 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301B

2-Methyl-1-propanol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 70 - 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Deltamethrin (ISO):

Stability in water : Hydrolysis: 0 % (30 d)

Bioaccumulative potential**Components:****2-Methoxy-1-methylethyl acetate:**

Partition coefficient: n-octanol/water : log Pow: 1,2

Benzenesulfonic acid, C10-13-alkyl derivs., calcium salts:

Partition coefficient: n-octanol/water : log Pow: 2,89

2-Methyl-1-propanol:

Partition coefficient: n-octanol/water : log Pow: 1

Deltamethrin (ISO):

Bioaccumulation : Species: *Lepomis macrochirus* (Bluegill sunfish)
Bioconcentration factor (BCF): 1.800

Partition coefficient: n-octanol/water : log Pow: 4,6

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Mobility in soil**Components:****Deltamethrin (ISO):**

Distribution among environmental compartments : log K_{oc}: 7,2

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.
(Solvent naphtha (petroleum), light aromatic, 2-Methoxy-1-methylethyl acetate)
Class : 3
Packing group : III
Labels : 3

IATA-DGR

UN/ID No. : UN 1993
Proper shipping name : Flammable liquid, n.o.s.
(Solvent naphtha (petroleum), light aromatic, 2-Methoxy-1-methylethyl acetate)
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.
(Solvent naphtha (petroleum), light aromatic, 2-Methoxy-1-methylethyl acetate, Deltamethrin (ISO))
Class : 3

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

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.
(Solvent naphtha (petroleum), light aromatic, 2-Methoxy-1-methylethyl acetate)
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.

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

National List of Carcinogenic Agents for Humans - (LINACH)

Group 2B: Possibly carcinogenic to humans
Solvent naphtha (petroleum), light aromatic 64742-95-6

Brazil. List of chemicals controlled by the Federal Police : Solvent naphtha (petroleum), light aromatic

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

AICS : not determined
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/>

Deltamethrin (5%) Formulation

Version	Revision Date:	SDS Number:	Date of last issue: 23.03.2020
5.1	09.10.2020	2333314-00010	Date of first issue: 12.12.2017

Full text of other abbreviations

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

ACGIH / TWA : 8-hour, time-weighted average
BR OEL / LT : Up to 48 hours /week

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 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 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.

BR / Z8