

SAFETY DATA SHEET

according to GB/T 16483 and GB/T 17519



BIFENTHRIN 100 G/L EC

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	2024/03/11	50001970	Date of first issue: 2024/03/11

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : BIFENTHRIN 100 G/L EC

Recommended use of the chemical and restrictions on use

Recommended use : Can be used as insecticide only.

Restrictions on use : Use as recommended by the label.

Manufacturer or supplier's details

Company : FMC (Suzhou) Crop care co., ltd

Address : 99 Jiepu Road, Suzhou Industrial Park, Jiang Su, China
215126
China

Telephone : 0512-62863988

Telefax : 0512-62863900

E-mail address : SDS-Info@fmc.com

Emergency telephone : For leak, fire, spill or accident emergencies, call:
0086-0532 8388 9090 (National Registration Center for Chemicals)

Medical emergency:
86 532 8388 9090

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance : liquid
Color : light yellow

Flammable liquid and vapor. Toxic if swallowed. May be fatal if swallowed and enters airways. May be harmful in contact with skin. Causes mild skin irritation. Causes serious eye irritation. Suspected of causing cancer. May cause damage to organs (Central nervous system). May cause damage to organs (Central nervous system) through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

GHS Classification

Flammable liquids : Category 3

Acute toxicity (Oral) : Category 3

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Acute toxicity (Dermal)	: Category 5
Skin corrosion/irritation	: Category 3
Serious eye damage/eye irritation	: Category 2A
Carcinogenicity	: Category 2
Specific target organ toxicity - single exposure	: Category 2 (Central nervous system)
Specific target organ toxicity - repeated exposure	: Category 2 (Central nervous system)
Aspiration hazard	: Category 1
Short-term (acute) aquatic hazard	: Category 1
Long-term (chronic) aquatic hazard	: Category 1

GHS label elements

Hazard pictograms	:	   
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Signal Word	:	Danger
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Hazard Statements	:	H226 Flammable liquid and vapor. H301 Toxic if swallowed. H304 May be fatal if swallowed and enters airways. H313 May be harmful in contact with skin. H316 Causes mild skin irritation. H319 Causes serious eye irritation. H351 Suspected of causing cancer. H371 May cause damage to organs (Central nervous system). H373 May cause damage to organs (Central nervous system) through prolonged or repeated exposure. H410 Very toxic to aquatic life with long lasting effects.
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Precautionary Statements	:	Prevention: P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking. P233 Keep container tightly closed. P240 Ground/bond container and receiving equipment. P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
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P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391 Collect spillage.

Storage:

P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:

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

Physical and chemical hazards

Flammable liquid and vapor.

Health hazards

Toxic if swallowed. May be harmful in contact with skin. Causes mild skin irritation. Causes serious eye irritation. Suspected of causing cancer. May cause damage to organs. May cause damage to organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways.

Environmental hazards

Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

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Components

Chemical name	CAS-No.	Concentration (% w/w)
Bifenthrin	82657-04-3	10.1
Solvent naphtha, petroleum, heavy aromatic	64742-94-5	≥ 70 -< 90
calcium dodecylbenzenesulphonate	26264-06-2	≥ 1 -< 2.5
2-methylpropan-1-ol	78-83-1	≥ 1 -< 3

4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Symptoms of poisoning may appear several hours later.
Do not leave the victim unattended.
- If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Do NOT induce vomiting.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : Toxic if swallowed.
May be fatal if swallowed and enters airways.
May be harmful in contact with skin.
Causes mild skin irritation.
Causes serious eye irritation.
Suspected of causing cancer.
May cause damage to organs.
May cause damage to organs through prolonged or repeated exposure.
- Notes to physician : Treat symptomatically.

5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)

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Dry chemical

- | | | |
|--|---|---|
| Unsuitable extinguishing media | : | High volume water jet |
| Specific hazards during fire fighting | : | Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : | Thermal decomposition can lead to release of toxic and irritating vapors.
Carbon oxides
Fluorinated compounds
Sulfur oxides
Chlorinated compounds |
| Specific extinguishing methods | : | Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers. |
| Special protective equipment for fire-fighters | : | Wear self-contained breathing apparatus for firefighting if necessary. |

6. ACCIDENTAL RELEASE MEASURES

- | | | |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Use personal protective equipment.
Ensure adequate ventilation.
Remove all sources of ignition.
Evacuate personnel to safe areas.
Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. |
| Environmental precautions | : | Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities. |
| Methods and materials for containment and cleaning up | : | Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). |

7. HANDLING AND STORAGE

Handling

- | | | |
|---|---|---|
| Advice on protection against fire and explosion | : | Do not spray on a naked flame or any incandescent material.
Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors).
Keep away from open flames, hot surfaces and sources of |
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ignition.

Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapors/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Provide sufficient air exchange and/or exhaust in work rooms.
Open drum carefully as content may be under pressure.
Dispose of rinse water in accordance with local and national regulations.

Avoidance of contact : Strong oxidizing agents
Strong acids and strong bases

Storage

Conditions for safe storage : Prevent unauthorized access.
No smoking.
Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

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, heavy aromatic	64742-94-5	TWA	200 mg/m ³ (total hydrocarbon vapor)	ACGIH
2-methylpropan-1-ol	78-83-1	TWA	50 ppm	ACGIH

Personal protective equipment

Respiratory protection : In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

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Skin and body protection	: Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hand protection Material	: Wear chemical resistant gloves, such as barrier laminate, butyl rubber or nitrile rubber.
Remarks	: The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Hygiene measures	: Avoid contact with skin, eyes and clothing. When using do not eat or drink. When using do not smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid
Form	: liquid
Color	: light yellow
pH	: No data available
Melting point/freezing point	: No data available
Boiling point/boiling range	: No data available
Flash point	: 43 °C
Flammability (liquids)	: Will not burn
Self-ignition	: No data available
Density	: 0.9 - 0.92 g/cm ³ (20 °C)
Solubility(ies) Water solubility	: No data available
Partition coefficient: n-octanol/water	: Not applicable
Explosive properties	: Not explosive

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Oxidizing properties	: Non-oxidizing
Metal corrosion rate	: Not corrosive to metals.

10. STABILITY AND REACTIVITY

Reactivity	: No decomposition if stored and applied as directed.
Chemical stability	: No decomposition if stored and applied as directed.
Possibility of hazardous reactions	: No decomposition if stored and applied as directed. Vapors may form explosive mixture with air.
Conditions to avoid	: Heat, flames and sparks.
Incompatible materials	: Strong oxidizing agents Strong acids and strong bases
Hazardous decomposition products	: Stable under recommended storage conditions.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Toxic if swallowed.
May be harmful in contact with skin.

Product:

Acute oral toxicity	: LD50 (Rat, female): 215 mg/kg LD50 (Rat, male): 261 mg/kg
Acute inhalation toxicity	: LC50 (Rat, male and female): > 5 mg/l Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	: LD50 (Rat, male and female): 2,150 mg/kg

Components:

Bifenthrin:

Acute oral toxicity	: LD50 (Rat, male and female): 56.7 mg/kg Symptoms: Convulsions, Tremors, ataxia LD50 (Mouse, female): 42.5 mg/kg Method: OPPTS 870.1100
Acute inhalation toxicity	: LC50 (Rat, female): 0.6 - 1.2 mg/l Exposure time: 4 h

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Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Symptoms: Tremors, Convulsions

LC50 (Rat, male): 1.10 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Symptoms: Tremors, Fatality

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Remarks: no mortality

Solvent naphtha, petroleum, heavy aromatic:

Acute oral toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC50 (Rat): > 4.778 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

calcium dodecylbenzenesulphonate:

Acute oral toxicity : LD50 (Rat, male and female): 1,300 mg/kg
Remarks: Based on data from similar materials

Acute inhalation toxicity : Remarks: Not classified

Acute dermal toxicity : LD50 (Rat, male and female): > 2000 milligram per kilogram
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

2-methylpropan-1-ol:

Acute oral toxicity : LD50 (Rat): 3,350 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 18.18 mg/l
Exposure time: 6 h
Test atmosphere: vapor
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): 2,460 mg/kg

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Skin corrosion/irritation

Causes mild skin irritation.

Product:

Species	: Rabbit
Result	: Mild skin irritation

Remarks	: May cause skin irritation and/or dermatitis.
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Components:

Bifenthrin:

Species	: Rabbit
Method	: OECD Test Guideline 404
Result	: slight or no skin irritation.
GLP	: yes

Solvent naphtha, petroleum, heavy aromatic:

Species	: Rabbit
Result	: No skin irritation

calcium dodecylbenzenesulphonate:

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

2-methylpropan-1-ol:

Species	: Rabbit
Result	: Skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Product:

Species	: Rabbit
Result	: Moderate eye irritation

Remarks	: May cause irreversible eye damage.
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Components:

Bifenthrin:

Species	: Rabbit
Result	: Slight or no eye irritation
Method	: OECD Test Guideline 405
GLP	: yes

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Solvent naphtha, petroleum, heavy aromatic:

Species	:	Rabbit
Result	:	No eye irritation
Remarks	:	Based on data from similar materials

calcium dodecylbenzenesulphonate:

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Method	:	OECD Test Guideline 405
Remarks	:	Based on data from similar materials

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

2-methylpropan-1-ol:

Species	:	Rabbit
Result	:	Irreversible effects on the eye

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Product:

Species	:	Guinea pig
Result	:	Not a skin sensitizer.

Components:

Bifenthrin:

Test Type	:	Maximization Test
Routes of exposure	:	Skin contact
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	May cause sensitization by skin contact.
GLP	:	yes

Solvent naphtha, petroleum, heavy aromatic:

Test Type	:	Maximization Test
Species	:	Guinea pig
Result	:	Not a skin sensitizer.
Remarks	:	Based on data from similar materials

calcium dodecylbenzenesulphonate:

Test Type	:	Maximization Test
Species	:	Guinea pig

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Method	:	OECD Test Guideline 406
Result	:	Not a skin sensitizer.
Remarks	:	Based on data from similar materials

2-methylpropan-1-ol:

Routes of exposure	:	Skin contact
Result	:	Not a skin sensitizer.

Germ cell mutagenicity

Not classified based on available information.

Components:

Bifenthrin:

Genotoxicity in vitro	:	Test Type: gene mutation test Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Result: negative Test Type: reverse mutation assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Result: negative
Genotoxicity in vivo	:	Test Type: Sex-linked Recessive Lethal Test Species: Drosophila melanogaster (vinegar fly) Result: negative Test Type: unscheduled DNA synthesis assay Species: Rat Method: OECD Test Guideline 486 Result: negative

Solvent naphtha, petroleum, heavy aromatic:

Genotoxicity in vitro	:	Test Type: reverse mutation assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Remarks: Based on data from similar materials Test Type: Chromosome aberration test in vitro Test system: Chinese hamster ovary cells Metabolic activation: with and without metabolic activation Result: negative Remarks: Based on data from similar materials
Genotoxicity in vivo	:	Test Type: Micronucleus test Species: Mouse Application Route: Ingestion

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Result: negative

calcium dodecylbenzenesulphonate:

Genotoxicity in vitro : Test Type: reverse mutation assay
Method: OECD Test Guideline 471
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: chromosome aberration assay
Species: Rat (male and female)
Application Route: Oral
Exposure time: 90 d
Result: negative
Remarks: Based on data from similar materials

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

2-methylpropan-1-ol:

Genotoxicity in vitro : Result: negative

Genotoxicity in vivo : Result: negative

Carcinogenicity

Suspected of causing cancer.

Components:

Bifenthrin:

Species : Rat, female
Application Route : Oral
Exposure time : 2 Years
NOAEL : 3 mg/kg bw/day
Result : negative

Species : Mouse, male
Application Route : Oral
Exposure time : 18 month(s)
NOAEL : 7.6 mg/kg bw/day
Result : positive
Symptoms : malignant tumors

Solvent naphtha, petroleum, heavy aromatic:

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

calcium dodecylbenzenesulphonate:

Species : Rat, male and female
Application Route : Oral
Exposure time : 720 d
NOAEL : 250 mg/kg body weight

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Result	: negative
Remarks	: Based on data from similar materials
Carcinogenicity - Assessment	: Weight of evidence does not support classification as a carcinogen

Reproductive toxicity

Not classified based on available information.

Components:

Bifenthrin:

Effects on fertility	: Test Type: Two-generation study Species: Rat Application Route: Oral General Toxicity Parent: NOAEL: 3 mg/kg bw/day General Toxicity F1: NOAEL: 5 mg/kg bw/day Result: negative
Effects on fetal development	: Test Type: Embryo-fetal development Species: Rabbit Application Route: Oral General Toxicity Maternal: NOAEL: 2.7 mg/kg bw/day Teratogenicity: NOAEL: 2.7 mg/kg bw/day Symptoms: Maternal effects. Result: No teratogenic effects. Test Type: Embryo-fetal development Species: Rat Application Route: Oral General Toxicity Maternal: NOAEL: 1 mg/kg bw/day Teratogenicity: NOAEL: 2 mg/kg bw/day Result: No teratogenic effects. Species: Rat Application Route: Oral General Toxicity Maternal: LOAEL: 7.2 mg/kg bw/day Developmental Toxicity: LOAEL: 7.2 mg/kg bw/day Embryo-fetal toxicity.: NOEL: 9.0 mg/kg bw/day Method: OECD Test Guideline 426 Result: Animal testing did not show any effects on fertility., Some evidence of adverse effects on development, based on animal experiments.

Solvent naphtha, petroleum, heavy aromatic:

Effects on fertility	: Test Type: Three-generation study Species: Rat, male and female Application Route: Inhalation Result: negative
Effects on fetal development	: Test Type: Pre-natal Species: Rat Application Route: Ingestion

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Symptoms: Maternal effects.
Method: OECD Test Guideline 414
Result: negative

calcium dodecylbenzenesulphonate:

Effects on fertility : Test Type: Fertility/early embryonic development
Species: Rat, male and female
Application Route: Ingestion
General Toxicity Parent: NOAEL: 400 mg/kg body weight
Method: OECD Test Guideline 422
Result: negative

Effects on fetal development : Test Type: reproductive and developmental toxicity study
Species: Rat
Application Route: Ingestion
General Toxicity Maternal: NOAEL: 300 mg/kg body weight
Developmental Toxicity: NOAEL: 600 mg/kg body weight
Method: OECD Test Guideline 422
Result: negative

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity

2-methylpropan-1-ol:

Effects on fertility : Species: Rat
Application Route: Inhalation
Fertility: NOAEC Mating/Fertility: 7.5 mg/l

STOT-single exposure

May cause damage to organs (Central nervous system).

Components:

Bifenthrin:

Target Organs : Central nervous system
Assessment : Causes damage to organs.

2-methylpropan-1-ol:

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

STOT-repeated exposure

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

Components:

Bifenthrin:

Target Organs : Central nervous system
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

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Solvent naphtha, petroleum, heavy aromatic:

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Components:

Bifenthrin:

Species : Rat, male and female
NOEL : 100 ppm
Application Route : Oral - feed
Exposure time : 90 d
Remarks : No toxicologically significant effects were found.

Species : Dog, male and female
NOEL : 2.5 mg/kg bw/day
Application Route : Oral - feed
Exposure time : 13 w
Symptoms : Tremors

Solvent naphtha, petroleum, heavy aromatic:

Species : Rat
NOAEL : 300 mg/kg
Application Route : Oral - gavage
Exposure time : 13 weeks
Remarks : mortality

calcium dodecylbenzenesulphonate:

Species : Rat, male and female
NOAEL : 85 mg/kg
LOAEL : 145 mg/kg
Application Route : Oral
Exposure time : 9 Months
Remarks : Based on data from similar materials

Species : Rat, male
LOAEL : 286 mg/kg
Application Route : Skin contact
Exposure time : 15 Days
Remarks : Based on data from similar materials

Species : Rat, male and female
NOAEL : 100 mg/kg bw/day
LOAEL : 200 mg/kg bw/day
Application Route : Oral - gavage
Exposure time : 28 - 54 Days
Method : OECD Test Guideline 422
Remarks : Based on data from similar materials

2-methylpropan-1-ol:

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Species	:	Rat
	:	1450 mg/kg
Application Route	:	Oral
Species	:	Rat
	:	7.5 mg/l
Application Route	:	Inhalation

Aspiration toxicity

May be fatal if swallowed and enters airways.

Components:

Bifenthrin:

The substance does not have properties associated with aspiration hazard potential.

Solvent naphtha, petroleum, heavy aromatic:

May be fatal if swallowed and enters airways.

Further information

Product:

Remarks : Solvents may degrease the skin.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 4.61 µg/l
Exposure time: 48 h

Toxicity to daphnia and other : EC50 (Daphnia): 0.48 mg/l
aquatic invertebrates Exposure time: 48 h

Toxicity to algae/aquatic : EC50 (algae): 1.98 mg/l
plants Exposure time: 72 h

Toxicity to terrestrial organ- : LD50 (Birds): > 500 mg/kg
isms End point: Acute oral toxicity

LD50 (Apis mellifera (bees)): 2.6 mg/l
Exposure time: 48 h
End point: Acute oral toxicity

LD50 (Apis mellifera (bees)): 0.044 µg/bee
Exposure time: 48 h
End point: Acute contact toxicity

LC50 (Bombyx mori): 0.05 mg/kg

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Components:

Bifenthrin:

Toxicity to fish	:	LC50 (<i>Salmo gairdneri</i>): 0.00015 mg/l Exposure time: 96 h Test Type: flow-through test LC50 (<i>Lepomis macrochirus</i> (Bluegill sunfish)): 0.00035 mg/l Exposure time: 96 h Test Type: flow-through test LC50 (<i>Oncorhynchus mykiss</i> (rainbow trout)): 0.000256 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203 GLP: yes LC50 (<i>Pimephales promelas</i> (fathead minnow)): 0.000234 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (<i>Daphnia</i>): 0.00011 mg/l Exposure time: 48 h LC50 (<i>Daphnia</i>): 0.0016 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (algae): 0.822 mg/l Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	:	1,000
Toxicity to fish (Chronic toxicity)	:	NOEC (<i>Oncorhynchus mykiss</i> (rainbow trout)): 0.00012 mg/l Exposure time: 21 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (<i>Daphnia magna</i> (Water flea)): 0.0013 µg/l Exposure time: 21 d NOEC (<i>Daphnia magna</i> (Water flea)): 0.00095 µg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	100,000
Toxicity to soil dwelling organisms	:	LD50 (<i>Eisenia fetida</i> (earthworms)): > 16 mg/kg Exposure time: 14 d
Toxicity to terrestrial organisms	:	LD50 (<i>Colinus virginianus</i> (Bobwhite quail)): 1,800 mg/kg

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LD50 (Anas platyrhynchos (Mallard duck)): > 2,150 mg/kg

LD50 (Apis mellifera (bees)): 0.1 - 0.35 µg/bee

Exposure time: 24 h

End point: Acute oral toxicity

Method: OECD Test Guideline 213

LD50 (Apis mellifera (bees)): 0.1 - 0.3 µg/bee

Exposure time: 24 h

End point: Acute contact toxicity

Method: OECD Test Guideline 214

Solvent naphtha, petroleum, heavy aromatic:

Toxicity to fish : LL50 (Oncorhynchus mykiss (rainbow trout)): 3 mg/l
Exposure time: 96 h
Method: EPA OPP 72-1

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 1.1 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : NOELR (Pseudokirchneriella subcapitata (green algae)): 0.22 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

EL50 (Pseudokirchneriella subcapitata (green algae)): 7.9 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOELR (Oncorhynchus mykiss (rainbow trout)): 0.103 mg/l
Exposure time: 28 d
Method: QSAR

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOELR (Daphnia magna (Water flea)): 0.18 mg/l
Exposure time: 21 d
Method: QSAR

calcium dodecylbenzenesulphonate:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 10 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

LC50 (Pimephales promelas (fathead minnow)): 4.6 mg/l

Exposure time: 96 h

Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.5 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

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Toxicity to algae/aquatic plants : NOEC (Pseudokirchneriella subcapitata (green algae)): 7.9 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

EC50 (Pseudokirchneriella subcapitata (green algae)): 65.4 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 1.65 mg/l
Exposure time: 21 d
Remarks: Based on data from similar materials

NOEC (Daphnia magna (Water flea)): 1.18 mg/l
Exposure time: 21 d
Remarks: Based on data from similar materials

Toxicity to microorganisms : EC50 (activated sludge): 500 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): 1,000 mg/kg
Exposure time: 14 d
Method: OECD Test Guideline 207

Toxicity to terrestrial organisms : LD50 (Colinus virginianus (Bobwhite quail)): 1,356 mg/kg
Exposure time: 14 d
Method: OECD Test Guideline 223

2-methylpropan-1-ol:

Toxicity to fish : LC50 : 1,430 mg/l
Exposure time: 4 d

Toxicity to daphnia and other aquatic invertebrates : EC50: 1,100 mg/l
Exposure time: 48 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 20 mg/l
Exposure time: 21 d

Toxicity to microorganisms : EC50 (Anabaena flos-aquae (cyanobacterium)): 593 - 1,799 mg/l
Exposure time: 72 h

IC50 (Natural microorganism): 1,000 mg/l
Exposure time: 16 h

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Persistence and degradability

Components:

Bifenthrin:

Biodegradability : Result: Not readily biodegradable.

Solvent naphtha, petroleum, heavy aromatic:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 60.74 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

calcium dodecylbenzenesulphonate:

Biodegradability : Result: Readily biodegradable.
Method: OECD Test Guideline 301E

2-methylpropan-1-ol:

Biodegradability : Result: Readily biodegradable.

Bioaccumulative potential

Components:

Bifenthrin:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 1,709
Remarks: Due to the distribution coefficient n-octanol/water, accumulation in organisms is possible.
See section 9 for octanol-water partition coefficient.

Partition coefficient: n-octanol/water : log Pow: 6.6

Solvent naphtha, petroleum, heavy aromatic:

Partition coefficient: n-octanol/water : log Pow: 3.17 - 5.6
Method: QSAR

calcium dodecylbenzenesulphonate:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 70.79
Method: QSAR

Partition coefficient: n-octanol/water : log Pow: 4.77 (25 °C)

2-methylpropan-1-ol:

Bioaccumulation : Remarks: No bioaccumulation is to be expected (log Pow <= 4).

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Partition coefficient: n-octanol/water : Pow: 10 (25 °C)

Mobility in soil

Components:

Bifenthrin:

Distribution among environmental compartments : Koc: 236610 ml/g, log Koc: 5.37
Remarks: immobile

Other adverse effects

Product:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 2903
Proper shipping name : PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S.
(Bifenthrin, Isobutyl Alcohol)
Class : 6.1
Subsidiary risk : 3
Packing group : III
Labels : 6.1 (3)
Environmentally hazardous : yes

IATA-DGR

UN/ID No. : UN 2903
Proper shipping name : Pesticide, liquid, toxic, flammable, n.o.s.
(Bifenthrin, Isobutyl Alcohol)
Class : 6.1

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Subsidiary risk	: 3
Packing group	: III
Labels	: Toxic, Flammable Liquids
Packing instruction (cargo aircraft)	: 663
Packing instruction (passenger aircraft)	: 655
Environmentally hazardous	: yes

IMDG-Code

UN number	: UN 2903
Proper shipping name	: PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S. (Bifenthrin, Isobutyl Alcohol)
Class	: 6.1
Subsidiary risk	: 3
Packing group	: III
Labels	: 6.1 (3)
EmS Code	: F-E, S-D
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

GB 6944/12268

UN number	: UN 2903
Proper shipping name	: PESTICIDE, LIQUID, TOXIC, FLAMMABLE, N.O.S. (Bifenthrin, Isobutyl Alcohol)
Class	: 6.1
Subsidiary risk	: 3
Packing group	: III
Labels	: 6.1 (3)
Marine pollutant	: no

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

National regulatory information

Law on the Prevention and Control of Occupational Diseases

Regulations on Safety Management of Hazardous Chemicals

Catalogue of Hazardous Chemicals : Listed

Identification of Major Hazard Installations for Hazardous Chemicals (GB 18218)

No. / Code	Chemical name / Category	Threshold quantity
W5.4	Flammable liquids	5,000 t

Yangtze River Protection Law

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This product does not contain any dangerous chemicals prohibited for inland river transport.

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

TCSI	: Not in compliance with the inventory
TSCA	: Product contains substance(s) not listed on TSCA inventory.
AIIC	: Not in compliance with the inventory
DSL	: This product contains the following components that are not on the Canadian DSL nor NDSL. 2-METHYLBIPHENYL-3-YLMETHYL (Z)-(1RS,3RS)-3-(2-CHLORO-3,3,3-TRIFLUOROPROP-1-ENYL)-2,2-DIMETHYLCYCLOPROPANECARBOXYLATE
ENCS	: Not in compliance with the inventory
ISHL	: Not in compliance with the inventory
KECI	: Not in compliance with the inventory
PICCS	: Not in compliance with the inventory
IECSC	: Not in compliance with the inventory
NZIoC	: Not in compliance with the inventory
TECI	: Not in compliance with the inventory

16. OTHER INFORMATION

Revision Date	: 2024/03/11
Date format	: yyyy/mm/dd

Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
ACGIH / TWA	: 8-hour, time-weighted average

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 Chemi-

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cal 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; TECI - 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

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