SAFETY DATA SHEET

MARSHAL®

Version	Revision Date:	SDS Number:	Date of last issue: -
3.0	12.04.2023	50000174	Date of first issue: 19/12/2017

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : MARSHAL®

Other means of identification : Marshal® 400 SC

Manufacturer or supplier's details

Company : FMC QUÍMICA DO BRASIL LTDA.

Address : AVENIDA DR. JOSÉ BONIFÁCIO COUTINHO NOGUEIRA 150 - 1º ANDAR - JARDIM MADALENA, AMPINAS SP BRASIL

Telephone : (19) 2042-4500

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

Emergency telephone : Brazil: (34) 3319 3019 or 0800 34 35 450
+55-2139581449 (CHEMTREC)

Recommended use of the chemical and restrictions on use

Recommended use : Insecticide

Restrictions on use : Use as recommended by the label.

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification in accordance with ABNT NBR 14725 Standard

Acute toxicity (Oral) : Category 2

Acute toxicity (Inhalation) : Category 3

Acute toxicity (Dermal) : Category 3

Specific target organ toxicity - single exposure : Category 1 (Nervous system, Bladder, Gastro-intestinal system, Blood)

Specific target organ toxicity - repeated exposure : Category 1 (Nervous system, Bladder, Gastro-intestinal system, Blood)

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic : Category 1

hazard

GHS label elements in accordance with ABNT NBR 14725 Standard

Hazard pictograms :

Signal Word : Danger

Hazard Statements :
H300 Fatal if swallowed.
H311 + H331 Toxic in contact with skin or if inhaled.
H370 Causes damage to organs (Nervous system, Bladder, Gastro-intestinal system, Blood).
H372 Causes damage to organs (Nervous system, Bladder, Gastro-intestinal system, Blood) through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements :

Prevention:

P260 Do not breathe mist or vapors.
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.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing.

Response:

P301 + P310 + P330 IF SWALLOWED: Immediately call a POISON CENTER/ doctor. Rinse mouth.
P302 + P352 + P312 IF ON SKIN: Wash with plenty of water.Call a POISON CENTER/ doctor if you feel unwell.
P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
P361 + P364 Take off immediately all contaminated clothing and wash it before reuse.
P391 Collect spillage.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal:

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

Other hazards which do not result in classification

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Classification	Concentration (% w/w)
carbosulfan (ISO)	55285-14-8	Acute toxicity (Oral), Category 3 Acute toxicity (Inhalation), Category 2 Acute toxicity (Dermal), Category 5 Specific target organ toxicity - single exposure (Nervous system, Bladder, Gastro-intestinal system, Blood), Category 1 Specific target organ toxicity - repeated exposure (Nervous system, Bladder, Gastro-intestinal system, Blood), Category 1 Short-term (acute) aquatic hazard, Category 1 Long-term (chronic) aquatic hazard, Category 1	>= 30 -< 50
Silicic acid, aluminum sodium salt	1344-00-9	Not Classified	>= 1 -< 5
1,2-Benzisothiazolin-3-one	2634-33-5	Acute toxicity (Oral), Category 4 Serious eye damage, Category 1 Skin sensitization, Category 1 Short-term (acute) aquatic hazard, Category 1 Long-term (chronic) aquatic hazard, Category 2	>= 0,025 -< 0,1

SECTION 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	:	Remove source exposure source or move the victim to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER. If breathing has stopped, trained personnel should begin rescue breathing, or if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Avoid mouth-to-mouth contact by using a barrier device.
In case of skin contact	:	Immediately remove all contaminated clothing, shoes, and leather goods, for example watchbands and belts. Wash with plenty of lukewarm water and mild soap. Immediately call a POISON CENTER. If breathing has stopped, trained personnel should begin rescue breathing, or if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Avoid mouth-to-mouth contact by using a barrier device.
In case of eye contact	:	Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Immediately call a POISON CENTER. Rinse mouth with water. If breathing has stopped, trained personnel should begin rescue breathing, or if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Avoid mouth-to-mouth contact by using a barrier device.
Most important symptoms and effects, both acute and delayed	:	Contains a cholinesterase inhibitor. Symptoms may include nausea, diarrhea, vomiting, decreased appetite, indigestion, muscle cramps, fatigue, insomnia, dizziness, headache, and lack of energy. Fatal if swallowed. Toxic in contact with skin or if inhaled. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.
Protection of first-aiders	:	Avoid inhalation, ingestion and contact with skin and eyes. Use an intermediary or manual resuscitation device to perform artificial respiration.

Notes to physician	:	Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	:	Dry chemical, CO2, water spray or regular foam.
Unsuitable extinguishing media	:	Do not spread spilled material with high-pressure water streams.
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	Fire may produce irritating, corrosive and/or toxic gases. Carbon oxides Sulfur oxides Nitrogen oxides (NOx) Hydrogen cyanide
Specific extinguishing methods	:	Remove undamaged containers from fire area if it is safe to do so. Use a water spray to cool fully closed containers. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. 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.
Special protective equipment for fire-fighters	:	Firefighters should wear protective clothing and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Evacuate personnel to safe areas. Use personal protective equipment. Ensure adequate ventilation. If it can be safely done, stop the leak. Do not touch or walk through the spilled material.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Never return spills in original containers for re-use. Collect as much of the spill as possible with a suitable absorbent material. Pick up and transfer to properly labeled containers. Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Do not breathe vapors/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Hygiene measures	:	Avoid contact with skin, eyes and clothing. Do not inhale aerosol. When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.
Conditions for safe storage	:	Prevent unauthorized access. 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.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Silicic acid, aluminum sodium salt	1344-00-9	TWA (Respirable particulate matter)	1 mg/m3 (Aluminum)	ACGIH

Personal protective equipment

Respiratory protection	:	In the case of dust or aerosol formation use respirator with an approved filter.
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.
Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Protective measures	:	Plan first aid action before beginning work with this product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	liquid
Color	:	beige
Odor	:	characteristic
Odor Threshold	:	No data available
pH	:	8,37 (20 °C)
Melting point/range	:	No data available
Boiling point/boiling range	:	72,4 °C
Flash point	:	136,7 - 158,9 °C
Evaporation rate	:	No data available
Flammability (liquids)	:	Will not burn
Self-ignition	:	360 °C
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	13,33 hPa (25 °C)

Relative vapor density	:	No data available
Relative density	:	No data available
Density	:	1,041 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: 3,162
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	738 mPa.s
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
		Not explosive
Oxidizing properties	:	Non-oxidizing
Molecular weight	:	Not applicable

SECTION 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.
Conditions to avoid	:	Avoid extreme temperatures. Avoid formation of aerosol.
Incompatible materials	:	Avoid strong acids, bases, and oxidizers.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Fatal if swallowed.
Toxic in contact with skin or if inhaled.

Product:

Acute oral toxicity : LD50 (Rat, female): 5 - 50 mg/kg
Method: OECD Test Guideline 423
Assessment: The component/mixture is highly toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, male): 0,91 - 2,05 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Symptoms: Fatality, Breathing difficulties, apathy

Acute dermal toxicity : LD50 (Rat, male): 562,5 mg/kg

Components:

carbosulfan (ISO):

Acute oral toxicity : LD50 (Rat, female): 185 mg/kg

Acute inhalation toxicity : LC50 (Rat, female): 0,15 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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

Silicic acid, aluminum sodium salt:

Acute oral toxicity : LD50 (Rat, male and female): 10.000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC0 (Rat, male and female): > 2,08 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Remarks: Based on data from similar materials
no mortality

Acute dermal toxicity : LD50 (Rabbit): > 5.000 mg/kg
Method: OECD Test Guideline 402

1,2-Benzisothiazolin-3-one:

Acute oral toxicity : LD50 (Rat, male and female): 490 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified based on available information.

Product:

Species	:	Rabbit
Assessment	:	Not classified as irritant
Result	:	slight irritation

Components:

carbosulfan (ISO):

Species	:	Rabbit
Result	:	slight irritation

Silicic acid, aluminum sodium salt:

Species	:	Rabbit
Result	:	No skin irritation

1,2-Benzisothiazolin-3-one:

Species	:	Rabbit
Exposure time	:	72 h
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Species	:	Rabbit
Result	:	slight irritation
Assessment	:	Not classified as irritant
Method	:	OECD Test Guideline 405

Components:

carbosulfan (ISO):

Species	:	Rabbit
Result	:	slight irritation

Silicic acid, aluminum sodium salt:

Species	:	Rabbit
Result	:	No eye irritation

1,2-Benzisothiazolin-3-one:

Species	:	Bovine cornea
Result	:	No eye irritation
Method	:	OECD Test Guideline 437

Species	:	Rabbit
Result	:	Irreversible effects on the eye
Method	:	EPA OPP 81-4

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Product:

Species	:	Guinea pig
Assessment	:	Did not cause sensitization on laboratory animals.
Method	:	OECD Test Guideline 406
Result	:	Does not cause skin sensitization.

Components:

carbosulfan (ISO):

Test Type	:	Buehler Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	Not a skin sensitizer.

1,2-Benzisothiazolin-3-one:

Test Type	:	Maximization Test
Species	:	Guinea pig
Method	:	OECD Test Guideline 406
Result	:	May cause sensitization by skin contact.

Species	:	Guinea pig
Method	:	FIFRA 81.06
Result	:	May cause sensitization by skin contact.

Germ cell mutagenicity

Not classified based on available information.

Product:

Genotoxicity in vitro	:	Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative GLP: yes
Genotoxicity in vivo	:	Test Type: Micronucleus test Species: Mouse Result: negative

Components:

carbosulfan (ISO):

Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Result: negative

Test Type: reverse mutation assay
Test system: Escherichia coli
Result: negative

Test Type: gene mutation test
Test system: Chinese hamster cells
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster cells
Result: negative

Genotoxicity in vivo : Test Type: chromosome aberration assay
Species: mice
Result: negative

Silicic acid, aluminum sodium salt:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

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

1,2-Benzisothiazolin-3-one:

Genotoxicity in vitro : Test Type: gene mutation test
Test system: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Ames test
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: positive

Genotoxicity in vivo : Test Type: unscheduled DNA synthesis assay
Species: Rat (male)
Cell type: Liver cells
Application Route: Ingestion

Exposure time: 4 h
Method: OECD Test Guideline 486
Result: negative

Test Type: Micronucleus test
Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 474
Result: negative

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

Carcinogenicity

Not classified based on available information.

Components:

carbosulfan (ISO):

Species	:	Mouse
Exposure time	:	2 Years
NOAEL	:	2,5 mg/kg bw/day
Result	:	negative

Species	:	Rat
Exposure time	:	2 Years
NOAEL	:	1 mg/kg bw/day
Result	:	negative

Carcinogenicity - Assessment : Weight of evidence does not support classification as a carcinogen

Silicic acid, aluminum sodium salt:

Species	:	Rat, male and female
Application Route	:	Oral
Exposure time	:	103 weeks
Result	:	negative
Remarks	:	Based on data from similar materials

Reproductive toxicity

Not classified based on available information.

Components:

carbosulfan (ISO):

Effects on fertility : Test Type: Three-generation study
Species: Rat
Application Route: Oral
General Toxicity Parent: NOAEL: 1,2 mg/kg bw/day
Fertility: NOAEL: 1,2 mg/kg bw/day
Result: negative

Effects on fetal development	:	Test Type: Embryo-fetal development Species: Rat Application Route: Oral General Toxicity Maternal: NOAEL: 2 mg/kg bw/day Developmental Toxicity: NOAEL: 2 Result: negative Test Type: Embryo-fetal development Species: Rabbit Application Route: Oral General Toxicity Maternal: NOAEL: 5 mg/kg bw/day Developmental Toxicity: NOAEL: 10 Result: negative
Reproductive toxicity - Assessment	:	Weight of evidence does not support classification for reproductive toxicity

1,2-Benzisothiazolin-3-one:

Effects on fertility	:	Species: Rat, male Application Route: Ingestion General Toxicity Parent: NOAEL: 18,5 mg/kg body weight General Toxicity F1: NOAEL: 48 mg/kg body weight Fertility: NOAEL: 112 mg/kg bw/day Symptoms: No effects on reproduction parameters. Method: OPPTS 870.3800 Result: negative
Reproductive toxicity - Assessment	:	Weight of evidence does not support classification for reproductive toxicity

STOT-single exposure

Causes damage to organs (Nervous system, Bladder, Gastro-intestinal system, Blood).

Components:

carbosulfan (ISO):

Target Organs	:	Nervous system, Bladder, Gastro-intestinal system, Blood
Assessment	:	The substance or mixture is classified as specific target organ toxicant, single exposure, category 1.

STOT-repeated exposure

Causes damage to organs (Nervous system, Bladder, Gastro-intestinal system, Blood) through prolonged or repeated exposure.

Components:

carbosulfan (ISO):

Target Organs	:	Nervous system, Bladder, Gastro-intestinal system, Blood
Assessment	:	The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 1.

1,2-Benzisothiazolin-3-one:

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

Repeated dose toxicity

Components:

carbosulfan (ISO):

Species : Rat
NOAEL : 2 mg/kg bw/day
Application Route : Oral
Exposure time : 90 days

Species : Dog
NOAEL : 1.6 mg/kg bw/day
Application Route : Oral
Exposure time : 6 months

Silicic acid, aluminum sodium salt:

Species : Rat, male and female
NOAEL : 2.500 - 3.200 mg/kg
Application Route : Oral
Exposure time : 2 years
Remarks : Based on data from similar materials

Species : Rat, male and female
NOAEL : 0,0013 mg/l
Application Route : Inhalation
Exposure time : 13 weeks
Remarks : Based on data from similar materials

1,2-Benzisothiazolin-3-one:

Species : Rat, male and female
NOAEL : 15 mg/kg
Application Route : Ingestion
Exposure time : 28 d
Method : OECD Test Guideline 407
Symptoms : Irritation

Species : Rat, male and female
NOAEL : 69 mg/kg
Application Route : Ingestion
Exposure time : 90 d
Symptoms : Irritation, Reduced body weight

Aspiration toxicity

Not classified based on available information.

Components:

carbosulfan (ISO):

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

Further information

Product:

Remarks : No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): 2,87 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0,00344 mg/l Exposure time: 48 h
Toxicity to terrestrial organisms	:	LD50 (Coturnix japonica (Japanese quail)): 15,76 mg/kg
		LD50 (Apis mellifera (bees)): 0,00092 mg/kg Exposure time: 48 h

Components:

carbosulfan (ISO):

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 0,015 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0,0015 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (microalgae)): > 20 mg/l Exposure time: 96 h
M-Factor (Acute aquatic toxicity)	:	100
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 0,00828 mg/l Exposure time: 21 d
Toxicity to daphnia and other aquatic invertebrates	:	NOEC (Daphnia magna (Water flea)): 0,0032 mg/l Exposure time: 21 d

(Chronic toxicity)

M-Factor (Chronic aquatic toxicity) : 10

Toxicity to terrestrial organisms : (Apis mellifera (bees)): 1,035 µg/bee
Remarks: Oral

(Apis mellifera (bees)): 0,18 µg/bee
Remarks: Contact

LD50 (Anas platyrhynchos (Mallard duck)): 10 mg/kg

Silicic acid, aluminum sodium salt:

Toxicity to fish : LL50 (Danio rerio (zebra fish)): 10.000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EL50 (Daphnia magna (Water flea)): 10.000 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EL50 (Desmodesmus subspicatus (green algae)): 10.000 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

1,2-Benzisothiazolin-3-one:

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): 16,7 mg/l
Exposure time: 96 h
Test Type: static test

LC50 (Oncorhynchus mykiss (rainbow trout)): 2,15 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2,9 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 0,070 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 0,04 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

M-Factor (Acute aquatic toxicity)	:	10
Toxicity to microorganisms	:	EC50 (activated sludge): 24 mg/l Exposure time: 3 h Test Type: Respiration inhibition Method: OECD Test Guideline 209 EC50 (activated sludge): 12,8 mg/l Exposure time: 3 h Test Type: Respiration inhibition Method: OECD Test Guideline 209

Persistence and degradability

Product:

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: 50 % Exposure time: 30 d

Components:

carbosulfan (ISO):

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: 28 % Exposure time: 28 d
Stability in water	:	Remarks: Hydrolyzes readily.

Silicic acid, aluminum sodium salt:

Biodegradability	:	Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

1,2-Benzisothiazolin-3-one:

Biodegradability	:	Result: rapidly biodegradable Method: OECD Test Guideline 301C

Bioaccumulative potential

Product:

Bioaccumulation	:	Bioconcentration factor (BCF): 990

Components:

carbosulfan (ISO):

Bioaccumulation	:	Species: Fish Bioconcentration factor (BCF): 990 Remarks: Can accumulate in aquatic organisms.

Partition coefficient: n-octanol/water : log Pow: 7,42

Silicic acid, aluminum sodium salt:

Partition coefficient: n-octanol/water : Remarks: No data available

1,2-Benzisothiazolin-3-one:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 6,62
Exposure time: 56 d
Method: OECD Test Guideline 305
Remarks: This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

Partition coefficient: n-octanol/water : log Pow: 0,7 (20 °C)
pH: 7

log Pow: 0,99 (20 °C)
pH: 5

Mobility in soil

Components:

carbosulfan (ISO):

Distribution among environmental compartments : Remarks: Slightly mobile in soils

Stability in soil :

1,2-Benzisothiazolin-3-one:

Distribution among environmental compartments : Koc: 9,33 ml/g, log Koc: 0,97
Method: OECD Test Guideline 121
Remarks: Highly mobile in soils

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.

SECTION 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.

It is prohibited to reuse, bury, burn or sell packaging.

Washable packaging: Triple wash packs of less than 20 liters and pressure wash packs of 20 liters or more. Triple Wash (Manual Wash): Completely empty the contents of the package into the sprayer tank, keeping it in an upright position for 30 seconds; Add clean water to the package up to ¼ of its volume; Cover the package well and shake it for 30 seconds; Pour the wash water into the spray tank; Do this operation three times; Make the plastic or metal packaging unusable by perforating the bottom.

Pressure wash: Fit the empty package in the appropriate place of the funnel installed on the sprayer; Activate the mechanism to release the water jet; Direct the water jet to all the inside walls of the package, for 30 seconds; Wash water must be transferred to the sprayer tank; Make the plastic or metal packaging unusable by perforating the bottom. In both procedures, puncture the container at its base without damaging the label. Within a period of up to one year from the date of purchase, the user must return the empty packaging, with lid, to the establishment where the product was purchased or to the place indicated on the invoice, issued at the time of purchase.Activate the mechanism to release the water jet. Direct the water jet to all the inside walls of the package, for 30 seconds. Wash water must be transferred to the sprayer tank. Make the plastic or metal packaging unusable by perforating the bottom.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 2992
Proper shipping name	:	CARBAMATE PESTICIDE, LIQUID, TOXIC (Carbosulfan)
Class	:	6.1
Packing group	:	II
Labels	:	6.1

IATA-DGR

UN/ID No.	:	UN 2992
Proper shipping name	:	Carbamate pesticide, liquid, toxic (Carbosulfan)
Class	:	6.1
Packing group	:	II
Labels	:	Toxic
Packing instruction (cargo aircraft)	:	662
Packing instruction (passenger aircraft)	:	654

IMDG-Code

UN number	:	UN 2992
Proper shipping name	:	CARBAMATE PESTICIDE, LIQUID, TOXIC (Carbosulfan)
Class	:	6.1
Packing group	:	II
Labels	:	6.1
EmS Code	:	F-A, S-A
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 2992
Proper shipping name	:	CARBAMATE PESTICIDE, LIQUID, TOXIC CARBAMATE PESTICIDE, LIQUID, TOXIC (Carbosulfan)
Class	:	6.1
Packing group	:	II
Labels	:	6.1
Hazard Identification Number	:	60

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

Law No. 7802 of July 11, 1989. Decree No. 4074 of January 4, 2002 and its regulatory rules. ANTT Resolution nº 5.998/22 of November 3, 2022. This FISPQ was prepared in accordance with the criteria of ABNT NBR 14725. It is recommended that the user pay attention to local regulations

National List of Carcinogenic Agents for Humans - : Not applicable

(LINACH)

Brazil. List of chemicals controlled by the Federal Police : Not applicable

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. 2,3-DIHYDRO-2,2-DIMETHYLBENZOFURAN-7-YL (DIBUTYLAMINTHIO)METHYLCARBAMATE Sulfurous acid, monosodium salt, reaction products with cresol-formaldehyde-nonylphenol polymer Oxirane, methyl-, polymer with oxirane, monobutyl ether
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

SECTION 16. OTHER INFORMATION

Revision Date	:	12.04.2023
Date format	:	dd.mm.yyyy

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 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; 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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