

SAFETY DATA SHEET



GALBEN M®

Version	Revision Date:	SDS Number:	Date of last issue: -
4.0	24.06.2025	50000176	Date of first issue: 08.12.2017

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : GALBEN M®

Manufacturer or supplier's details

Company : FMC QUÍMICA DO BRASIL LTDA.

Address : AVENIDA DR. JOSÉ BONIFÁCIO
COUTINHO NOGUEIRA 150 - 1º
ANDAR - JARDIM MADALENA,
CAMPINAS SP BRASIL
TELEFONE: (19) 2042.4500

Emergency telephone : Brazil: 0800 34 35 450 (24 hours)
+55-2139581449 (CHEMTREC)

Medical Emergency Number : 0800 7010 450

Recommended use of the chemical and restrictions on use

Recommended use : Fungicide

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 5

Acute toxicity (Inhalation) : Category 5

Acute toxicity (Dermal) : Category 5

Skin sensitization : Category 1

Carcinogenicity : Category 2

Reproductive toxicity : Category 1B

Specific target organ toxicity - : Category 3 (Respiratory system)
single exposure

Specific target organ toxicity - : Category 2 (Nervous system, Endocrine system)
repeated exposure

Short-term (acute) aquatic : Category 1
hazard

Long-term (chronic) aquatic : Category 1
hazard

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GHS label elements in accordance with ABNT NBR 14725 Standard

Hazard pictograms

:



Signal Word

: DANGER

Hazard Statements

: H303 + H313 + H333 May be harmful if swallowed, in contact with skin or if inhaled.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H351 Suspected of causing cancer.
H360D May damage the unborn child.
H373 May cause damage to organs (Nervous system, Endocrine system) through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements

:

Prevention:

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe dust.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P301 + P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P302 + P312 IF ON SKIN: Call a POISON CENTER/ doctor if you feel unwell.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off 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:

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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)
mancozeb (ISO)	8018-01-7	Skin Sens., 1 Carc., 2 Repr., 1B STOT RE, (Nervous system, Endocrine system) , 2 Aquatic Acute, 1 Aquatic Chronic, 1	≥ 50 -< 70
benalaxyl (ISO)	71626-11-4	Acute Tox. (Oral), 5 Aquatic Acute, 1 Aquatic Chronic, 1	≥ 5 -< 10
kaolin (alternate CAS 1318-74-7)	1332-58-7	Acute Tox. (Inhalation), 5	≥ 5 -< 10
Benzenesulfonic acid, hydroxy-, polymer with formaldehyde, phenol and urea, sodium salt	102980-04-1	Acute Tox. (Oral), 5 Serious eye damage/eye irritation, 2A Aquatic Acute, 3 Aquatic Chronic, 3	≥ 1 -< 2,5

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Show this material safety data sheet to the doctor in attendance.
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 : Wash off with soap and water.
If symptoms persist, call a physician.
Wash contaminated clothing before re-use.

In case of eye contact : Flush eyes with water as a precaution.
Remove contact lenses.

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- Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Do not induce vomiting without medical advice.
Keep respiratory tract clear.
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 : May be harmful if swallowed, in contact with skin or if inhaled.
May cause an allergic skin reaction.
May cause respiratory irritation.
Suspected of causing cancer.
May damage the unborn child.
May cause damage to organs through prolonged or repeated exposure.
Exposure to skin may result in mild symptoms include itching, hives or rash, and skin redness. More severe symptoms include sneezing, itchy watery eyes, and difficulty breathing.
- Protection of first-aiders : Avoid inhalation, ingestion and contact with skin and eyes.
- 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.
Nitrogen oxides (NO_x)
Carbon oxides
Hydrogen cyanide
Hydrogen chloride
Sulfur oxides
- Specific extinguishing methods : Use a water spray to cool fully closed containers.
Remove undamaged containers from fire area if it is safe to do so.
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 : Firefighters should wear protective clothing and self-contained

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for fire-fighters breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : If it can be safely done, stop the leak.
Do not touch or walk through the spilled material.
Use personal protective equipment.
Evacuate personnel to safe areas.
Avoid dust formation.
Avoid breathing dust.
Ensure adequate ventilation.
- 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 : Never return spills in original containers for re-use. Pick up and transfer the spilled material to a properly labeled container without creating dust. For spills on concrete or other non-porous surfaces, the area can be cleaned using a small quantity of soap and water. Do not allow the cleaning solution to enter drains. Use an inert absorbent material to soak up the cleaning solution and transfer it to the properly labeled container. When the spill occurs on soil, the only effective way to decontaminate the area is to remove the top 5 to 7 centimeters of soil.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Avoid dust formation.
Provide appropriate exhaust ventilation at places where dust is formed.
- Advice on safe handling : Avoid formation of respirable particles.
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.
Provide sufficient air exchange and/or exhaust in work rooms.
Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
- Hygiene measures : Avoid contact with skin, eyes and clothing.
Do not breathe dust.
When using do not eat or drink.

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When using do not smoke.
Wash hands before breaks and at the end of workday.

Conditions for safe storage : 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
kaolin	1332-58-7	LT	8,5 mppcd / (% quartz+10) (Silica)	BR OEL
		LT (Respirable dust)	8 mg/m ³ / (% quartz+2) (Silica)	BR OEL
		LT (Total dust)	24 mg/m ³ / (% quartz+3) (Silica)	BR OEL
		TWA (Respirable particulate matter)	2 mg/m ³	ACGIH

Personal protective equipment

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Filter type : Particulates type

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 : Dust impervious protective suit
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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Protective measures : Plan first aid action before beginning work with this product.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: solid
Form	: solid
Color	: light yellow, cream
Odor	: characteristic
Odor Threshold	: No data available
pH	: 7,35 (20 °C) Concentration: 1 %
Melting point/ range	: No data available
Boiling point/boiling range	: No data available
Flash point	: > 150 °C
Evaporation rate	: Not applicable
Flammability (solid, gas)	: The product is not flammable.
Self-ignition	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Vapor pressure	: Not applicable
Relative vapor density	: Not applicable
Relative density	: No data available
Density	: 0,427 g/cm3 Tap density
Solubility(ies) Water solubility	: partly soluble

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Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	Non-oxidizing
Surface tension	:	40,6 mN/m, 22 °C
Molecular weight	:	Not applicable
Metal corrosion rate	:	Not corrosive to metals.
Particle size	:	0,053 - 1,19 mm

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 dust formation.
Incompatible materials	:	Avoid strong acids, bases, and oxidizers.
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

May be harmful if swallowed, in contact with skin or if inhaled.

Product:

Acute oral toxicity	:	LD50 (Rat, male and female): 4.700 mg/kg
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Symptoms: lethargy

Acute inhalation toxicity : LC50 (Rat): > 5,148 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Symptoms: Breathing difficulties

Acute dermal toxicity : LD50 (Rat): > 4.000 mg/kg

Components:

mancozeb (ISO):

Acute oral toxicity : LD50 (Rat, male and female): > 2.000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male and female): > 1,766 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

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

benalaxyl (ISO):

Acute oral toxicity : LD50 (Rat, male and female): 4.200 mg/kg
GLP: no
Assessment: The component/mixture is minimally toxic after single ingestion.
Remarks: mortality

LD50 (Rat, female): > 2.000 mg/kg
Method: OECD Test Guideline 425
Symptoms: hypoactivity, Breathing difficulties, nasal discharge
GLP: yes
Assessment: The component/mixture is minimally toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat): > 4,2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Highest attainable concentration.

Acute dermal toxicity : LD50 (Rat, male and female): > 5.000 mg/kg

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Assessment: The substance or mixture has no acute dermal toxicity

kaolin:

Acute oral toxicity	:	LD50 (Rat): > 5.000 mg/kg Method: OECD Test Guideline 401 LD50: > 2.000 mg/kg Method: OECD Test Guideline 420 Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	LC50: 5,07 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 436
Acute dermal toxicity	:	LD50 (Rat): > 5.000 mg/kg LD50: > 2.000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity

Benzenesulfonic acid, hydroxy-, polymer with formaldehyde, phenol and urea, sodium salt:

Acute oral toxicity	:	LD50 (Rat): > 2.000 mg/kg Remarks: no mortality
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Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Product:

Species	:	Rabbit
Result	:	No skin irritation

Components:

mancozeb (ISO):

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

benalaxyl (ISO):

Species	:	Rabbit
Assessment	:	Not classified as irritant
Result	:	slight or no skin irritation.

kaolin:

Method	:	OECD Test Guideline 404
Result	:	No skin irritation

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Benzenesulfonic acid, hydroxy-, polymer with formaldehyde, phenol and urea, sodium salt:

Species	: Rabbit
Result	: No skin irritation

Serious eye damage/eye irritation

Based on available data, the classification criteria are not met.

Product:

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

Remarks	: Product dust may be irritating to eyes, skin and respiratory system.
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Components:

mancozeb (ISO):

Assessment	: No eye irritation
Remarks	: Minimal effects that do not meet the threshold for classification.

benalaxyl (ISO):

Species	: Rabbit
Result	: Slight or no eye irritation
Assessment	: Not classified as irritant
Method	: OECD Test Guideline 405
GLP	: yes

kaolin:

Result	: No eye irritation
Method	: OECD Test Guideline 405

Benzenesulfonic acid, hydroxy-, polymer with formaldehyde, phenol and urea, sodium salt:

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

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Based on available data, the classification criteria are not met.

Product:

Routes of exposure	: Dermal
Species	: Guinea pig
Assessment	: May cause sensitization by skin contact.

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Result	: May cause sensitization by skin contact.
Test Type	: Buehler Test
Routes of exposure	: Dermal
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: Not a skin sensitizer.
GLP	: yes
Remarks	: Causes sensitization.

Components:

mancozeb (ISO):

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

benalaxyl (ISO):

Routes of exposure	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 429
Result	: Not a skin sensitizer.
GLP	: yes

kaolin:

Method	: OECD Test Guideline 429
Result	: Does not cause skin sensitization.

Benzenesulfonic acid, hydroxy-, polymer with formaldehyde, phenol and urea, sodium salt:

Test Type	: Maximization Test
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: Does not cause skin sensitization.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Product:

Genotoxicity in vitro	: Test Type: Ames test Metabolic activation: with and without metabolic activation Result: negative
Genotoxicity in vivo	: Test Type: Micronucleus test Species: Mouse Result: negative

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Components:

mancozeb (ISO):

Genotoxicity in vitro : Test Type: Micronucleus test
Test system: Human lymphocytes
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 487
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: mice
Method: OECD Test Guideline 474
Result: negative

benalaxyl (ISO):

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Result: negative

kaolin:

Genotoxicity in vitro : Test Type: Ames test
Method: OECD Test Guideline 471
Result: negative

Genotoxicity in vivo : Remarks: No data available

Benzenesulfonic acid, hydroxy-, polymer with formaldehyde, phenol and urea, sodium salt:

Genotoxicity in vitro : Remarks: No data available

Genotoxicity in vivo : Remarks: No data available

Carcinogenicity

Suspected of causing cancer.

Components:

mancozeb (ISO):

Species : Rat, male and female
Exposure time : 2 Years
LOAEL : 750 ppm
Result : positive

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

Reproductive toxicity

May damage the unborn child.

Components:

mancozeb (ISO):

Effects on fertility : Test Type: Two-generation study

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Species: Rat
Application Route: Oral
Method: OECD Test Guideline 416
Result: negative

Effects on fetal development : Test Type: Pre-natal
Species: Rat
Application Route: Oral
Duration of Single Treatment: 6 - 15 d
Developmental Toxicity: LOAEL: 512 mg/kg bw/day
Method: EPA OPP 83-3
Result: positive

Reproductive toxicity - Assessment : Clear evidence of adverse effects on development, based on animal experiments.

benalaxyl (ISO):

Effects on fertility : Remarks: No data available

Reproductive toxicity - Assessment : Animal testing showed no reproductive toxicity.
Animal testing showed no developmental toxicity.

kaolin:

Effects on fertility : Remarks: No data available

Effects on fetal development : Remarks: No data available

Benzenesulfonic acid, hydroxy-, polymer with formaldehyde, phenol and urea, sodium salt:

Effects on fertility : Remarks: No data available

Effects on fetal development : Remarks: No data available

STOT-single exposure

May cause respiratory irritation.

Product:

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Components:

kaolin:

Remarks : No significant adverse effects were reported

STOT-repeated exposure

May cause damage to organs (Nervous system, Endocrine system) through prolonged or repeated exposure.

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Components:

mancozeb (ISO):

Target Organs	:	Nervous system, Endocrine system
Assessment	:	The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

kaolin:

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

Components:

mancozeb (ISO):

Species	:	Rat, male and female
LOAEL	:	750 ppm
Application Route	:	Oral - feed
Exposure time	:	2 years
Method	:	OECD Test Guideline 453

benalaxyl (ISO):

Remarks	:	No data available
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kaolin:

Remarks	:	No data available
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Aspiration toxicity

Based on available data, the classification criteria are not met.

Further information

Product:

Remarks	:	No data available
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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0,81 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 GLP: yes
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Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia): 0,26 mg/l Exposure time: 48 h
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	:	EC50 (Daphnia similis (Water flea)): 0,82 mg/l Exposure time: 48 h
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Toxicity to algae/aquatic plants : EC50 (*Scenedesmus subspicatus*): 10,6 mg/l
Exposure time: 72 h

EC50 (*Selenastrum capricornutum* (green algae)): 0,115 mg/l
Exposure time: 96 h

NOEC (*Scenedesmus subspicatus*): 2 mg/l
Exposure time: 72 h

Toxicity to fish (Chronic toxicity) : NOEC (*Oncorhynchus mykiss* (rainbow trout)): 0,12 mg/l
Exposure time: 21 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 0,033 mg/l
Exposure time: 23 d

Toxicity to soil dwelling organisms : EC50 (*Eisenia fetida* (earthworms)): 2.435,83 mg/kg
Exposure time: 14 d

Remarks: No significant adverse effect on Nitrogen mineralization.

Remarks: No significant adverse effect on Carbon mineralization.

Toxicity to terrestrial organisms : LD50 (*Apis mellifera* (bees)): > 100
Exposure time: 24 h

LD50 (Birds): > 5.000 mg/kg

Ecotoxicology Assessment

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Components:

mancozeb (ISO):

Toxicity to fish : LC50 (*Lepomis macrochirus* (Bluegill sunfish)): 1 mg/l
Exposure time: 48 h

LC50 (*Cyprinus carpio* (Carp)): 2,57 mg/l
Exposure time: 96 h

LC50 (*Oncorhynchus mykiss* (rainbow trout)): 0,074 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia*): 0,01 mg/l
Exposure time: 24 h

EC50 (*Daphnia magna* (Water flea)): 0,073 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

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Toxicity to algae/aquatic plants	:	EC10 (Raphidocelis subcapitata (freshwater green alga)): 0,0035 mg/l Exposure time: 120 h EC50 (Raphidocelis subcapitata (freshwater green alga)): 0,008 mg/l Exposure time: 120 h
M-Factor (Acute aquatic toxicity)	:	10
Toxicity to fish (Chronic toxicity)	:	EC10 (Pimephales promelas (fathead minnow)): 0,0013 mg/l Exposure time: 215 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 0,0073 mg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	10
Toxicity to terrestrial organisms	:	(Apis mellifera (bees)): 0,1868 mg/kg Exposure time: 24 h (Apis mellifera (bees)): 0,1652 mg/kg Exposure time: 48 h (Apis mellifera (bees)): 0,1406 mg/kg Exposure time: 72 h

benalaxyl (ISO):

Toxicity to fish	:	LC50 (Lepomis macrochirus (Bluegill sunfish)): 5,94 mg/l Exposure time: 96 h LC50 (Cyprinus carpio (Carp)): 6 mg/l Exposure time: 96 h LC50 (Salmo trutta (brown trout)): 3,75 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0,59 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Selenastrum capricornutum (green algae)): 2,4 mg/l Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to fish (Chronic toxicity)	:	NOEC (Oncorhynchus mykiss (rainbow trout)): 0,49 mg/l Exposure time: 21 d
Toxicity to daphnia and other aquatic invertebrates (Chronic)	:	NOEC (Daphnia magna (Water flea)): 0,03 mg/l Exposure time: 21 d

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ic toxicity)

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to soil dwelling organisms : Remarks: No significant adverse effect on Nitrogen mineralization.
No significant adverse effect on Carbon mineralization.

kaolin:

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

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1.000 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Raphidocelis subcapitata (freshwater green alga)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: No data available

Toxicity to microorganisms : Remarks: No data available

Benzenesulfonic acid, hydroxy-, polymer with formaldehyde, phenol and urea, sodium salt:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 10 - 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : Remarks: No data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: No data available

Toxicity to microorganisms : Remarks: No data available

Persistence and degradability

Product:

Biodegradability : Result: Not biodegradable

Components:

mancozeb (ISO):

Biodegradability : Result: Not readily biodegradable.

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Biodegradation: 5 - 6 %
Exposure time: 36 d
Method: OECD Test Guideline 301B

benalaxyl (ISO):

Biodegradability : Remarks: Primary degradation half-lives are usually several months in aerobic soil and water.

Not readily biodegradable.

kaolin:

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

Benzenesulfonic acid, hydroxy-, polymer with formaldehyde, phenol and urea, sodium salt:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 20 - 70 %
Exposure time: 28 d
Method: OECD Test Guideline 302B

Bioaccumulative potential

Product:

Bioaccumulation : Remarks: The product may be accumulated in organisms.

Components:

mancozeb (ISO):

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

benalaxyl (ISO):

Bioaccumulation : Remarks: The product may be accumulated in organisms.

Partition coefficient: n-octanol/water : log Pow: 3,54 (20 °C)

kaolin:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water : Remarks: Not applicable

Benzenesulfonic acid, hydroxy-, polymer with formaldehyde, phenol and urea, sodium salt:

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

Mobility in soil

Product:

Distribution among environ- : Remarks: Highly mobile in soils

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mental compartments

Components:

mancozeb (ISO):

Distribution among environmental compartments : Medium: Soil
Remarks: Moderately mobile in soils

benalaxyl (ISO):

Distribution among environmental compartments : Medium: Soil
Remarks: immobile

kaolin:

Distribution among environmental compartments : Remarks: Low mobility in soil.

Other adverse effects

Product:

Results of PBT and vPvB assessment : Product contains substances which are very persistent and very bioaccumulative (vPvB).

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 : 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

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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.

Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	: UN 3077
Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Mancozeb, Benalaxyl)
Class	: 9
Subsidiary risk	: ENVIRONM.
Packing group	: III
Labels	: 9 (ENVIRONM.)
Environmentally hazardous	: yes

IATA-DGR

UN/ID No.	: UN 3077
Proper shipping name	: Environmentally hazardous substance, solid, n.o.s. (Mancozeb, Benalaxyl)
Class	: 9
Packing group	: III
Labels	: Miscellaneous
Packing instruction (cargo aircraft)	: 956
Packing instruction (passenger aircraft)	: 956
Environmentally hazardous	: yes

IMDG-Code

UN number	: UN 3077
Proper shipping name	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Mancozeb, Benalaxyl)
Class	: 9
Packing group	: III
Labels	: 9

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EmS Code : F-A, S-F
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 3077
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Mancozeb, Benalaxyl)

Class : 9
Packing group : III
Labels : 9
Hazard Identification Number : 90

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. 14,785 of December 27, 2023. Decree 4,074 of January 4, 2002 and its regulatory standards. ANTT Resolution No. 5,998/22 of November 3, 2022. This MSDS was prepared in accordance with the criteria of ABNT NBR 14725. The user is recommended to pay attention to local regulations.

National List of Carcinogenic Agents for Humans - (LINACH)

Group 1: Carcinogenic to humans
kaolin 1332-58-7

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.
mancozeb (ISO)
benalaxyl (ISO)
phenol

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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	:	24.06.2025
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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 - Trans-

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portation of Dangerous Goods; TECl - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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