

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard



Zironar™ biofungicide/bionematicide

Version	Revision Date:	SDS Number:	Date of last issue: 04/05/2023
1.2	02/28/2024	50002324	Date of first issue: 03/31/2023

SECTION 1. IDENTIFICATION

Product identifier

Product name Zironar™ biofungicide/bionematicide

Other means of identification

Product code 50002324

Recommended use of the chemical and restrictions on use

Recommended use Biological fungicide/nematicide

Restrictions on use Use as recommended by the label.

Details of the supplier of the safety data sheet

Manufacturer FMC Corporation
2929 WALNUT ST
PHILADELPHIA PA 19104
USA
(215) 299-6000
SDS-Info@fmc.com

Supplier Address FMC Corporation
2929 Walnut Street
Philadelphia PA 19104
USA

Emergency telephone

For leak, fire, spill or accident emergencies, call:
1 800 / 424-9300 (CHEMTREC - U.S.A.)
1 703 / 741-5970 (CHEMTREC - International)
1 703 / 527-3887 (CHEMTREC - Alternate)

Medical emergency:
U.S.A. & Canada: +1 800 / 331-3148
All other countries: +1 651 / 632-6793 (Collect)

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

Other hazards

None known.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
Bacillus subtilis strain FMCH002	Not Assigned	4
BLI (FMCH001) BIOLOGICAL TECHNICAL (CHR. HANSEN)	Not Assigned	3.5
glycerol	56-81-5	>= 30 - < 50
sodium hydrogensulphate	7681-38-1	>= 1 - < 5
pentasodium triphosphate	7758-29-4	>= 1 - < 5

SECTION 4. FIRST AID MEASURES

- General advice : 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.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.
- If swallowed : Rinse mouth with water.
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.
- Most important symptoms and effects, both acute and delayed : None known.
- 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.
- Hazardous combustion prod- : Thermal decomposition can lead to release of irritating gases

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- ucts and vapors.
Carbon oxides
Ammonia
phosphorus oxides
- 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.
- Further information : Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Special protective equipment for fire-fighters : Firefighters should wear protective clothing and self-contained breathing apparatus.
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SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Evacuate personnel to safe areas.
Use personal protective equipment.
If it can be safely done, stop the leak.
Do not touch or walk through the spilled material.
Never return spills in original containers for re-use.
For disposal considerations see section 13.
Only qualified personnel equipped with suitable protective equipment may intervene.
Mark the contaminated area with signs and prevent access to unauthorized personnel.
- Environmental precautions : Prevent further leakage or spillage if safe to do so.
Try to prevent the material from entering drains or water courses.

If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Neutralize with chalk, alkali solution or ammonia.
Wipe up with absorbent material (e.g. cloth, fleece).
Keep in suitable, closed containers for disposal.
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SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
- Conditions for safe storage : Store in original container.

Electrical installations / working materials must comply with
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the technological safety standards.

Materials to avoid : Do not store near acids.

Recommended storage temperature : > 39 °F / > 4 °C

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
glycerol	56-81-5	TWA (mist, respirable fraction)	5 mg/m ³	OSHA Z-1
		TWA (mist, total dust)	15 mg/m ³	OSHA Z-1
		TWA (Mist - total dust)	10 mg/m ³	OSHA P0
		TWA (Mist - respirable fraction)	5 mg/m ³	OSHA P0
urea	57-13-6	TWA	10 mg/m ³	US WEEL

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 : Safety glasses

Skin and body protection : Protective suit

Protective measures : Plan first aid action before beginning work with this product. Wear suitable protective equipment. Ensure that eye flushing systems and safety showers are located close to the working place. Always have on hand a first-aid kit, together with proper instructions.

Hygiene measures : General industrial hygiene practice. Avoid contact with skin, eyes and clothing.

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Do not inhale aerosol.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : liquid

Form : liquid

Color : No data available

Odor : No data available

Odor Threshold : No data available

pH : 4

Melting point/range : No data available

Boiling point/boiling range : No data available

Flash point : > 302 °F / 150 °C

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

Relative density : 1.8 (68 °F / 20 °C)

Density : No data available

Solubility(ies)
Water solubility : soluble

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

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity
Viscosity, dynamic : No data available

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Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The product is not oxidizing.

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	:	Stable under recommended storage conditions. No hazards to be specially mentioned.
Conditions to avoid	:	Avoid extreme temperatures. Avoid formation of aerosol. Protect from frost.
Incompatible materials	:	Avoid strong acids, bases, and oxidizers.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified based on available information.

Product:

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	Acute toxicity estimate: 20 mg/l Exposure time: 4 h Test atmosphere: vapor Method: Calculation method Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method Assessment: The substance or mixture has no acute dermal toxicity

Components:

glycerol:

Acute oral toxicity	:	LD50 (Rat, female): 11,500 mg/kg
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Acute inhalation toxicity : LC0 (Rat, male): 11 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Guinea pig, male and female): 56,750 mg/kg

sodium hydrogensulphate:

Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 423
Remarks: Based on data from similar materials

Acute inhalation toxicity : LC0 (Rat, male and female): > 2.4 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 436
Remarks: Based on data from similar materials
no mortality

pentasodium triphosphate:

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 : LC0 (Rat, male and female): > 0.39 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: EPA OPP 81 - 3
Remarks: no mortality

Acute dermal toxicity : LD50 (Rabbit): > 4,640 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified based on available information.

Product:

Species : Rabbit
Result : slight or no skin irritation.
Remarks : May cause skin irritation in susceptible persons.

Components:

glycerol:

Species : Rabbit
Result : No skin irritation

sodium hydrogensulphate:

Species : Rabbit

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Method : OECD Test Guideline 404
Result : No skin irritation

pentasodium triphosphate:

Species : Rabbit
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 or no eye irritation
Remarks : Not expected to be irritating to eyes.

Components:

glycerol:

Species : Rabbit
Result : No eye irritation

sodium hydrogensulphate:

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

pentasodium triphosphate:

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

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Components:

sodium hydrogensulphate:

Test Type : Maximization Test
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitization.
Remarks : Based on data from similar materials

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pentasodium triphosphate:

Test Type : Local lymph node assay (LLNA)
Species : Mouse
Method : OECD Test Guideline 429
Result : Does not cause skin sensitization.

Germ cell mutagenicity

Not classified based on available information.

Components:

glycerol:

Genotoxicity in vitro : Test Type: reverse mutation assay
Result: negative

sodium hydrogensulphate:

Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: TA100
Result: negative
Remarks: Based on data from similar materials

Test Type: gene mutation test
Test system: mouse lymphoma cells
Method: OECD Test Guideline 476
Result: negative
Remarks: Based on data from similar materials

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster fibroblasts
Method: OECD Test Guideline 473
Remarks: Based on data from similar materials

Germ cell mutagenicity - Assessment : In vitro tests did not show mutagenic effects

pentasodium triphosphate:

Genotoxicity in vitro : Test Type: reverse mutation assay
Method: Regulation (EC) No. 440/2008, Annex, B.13/14 (Ames test)
Result: negative

Test Type: Chromosome aberration test in vitro
Result: negative

Genotoxicity in vivo : Test Type: chromosome aberration assay
Species: Rat (male)
Application Route: Oral
Method: OECD Test Guideline 475
Result: negative

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Carcinogenicity

Not classified based on available information.

Components:

glycerol:

Species : Rat
Application Route : Oral
Exposure time : 2 years Years
Result : negative

pentasodium triphosphate:

Species : Rat, male and female
Application Route : Oral
Exposure time : 104 weeks
Dose : 500,5,000,50,000 ppm
Method : OECD Test Guideline 453

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

Components:

glycerol:

Effects on fertility : Test Type: Two-generation study
Species: Rat
Application Route: Oral
Result: negative

Effects on fetal development : Test Type: Two-generation study
Species: Rat
Application Route: Oral
Result: negative

sodium hydrogensulphate:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Dose: 100, 300, 1000 mg/kg bw/day
General Toxicity Parent: NOEL: 1,000 mg/kg body weight
Method: OECD Test Guideline 421

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Result: negative
Remarks: Based on data from similar materials

Effects on fetal development : Test Type: reproductive and developmental toxicity study
Species: Mouse
Application Route: Oral
Dose: 2800 mg/kg/day
General Toxicity Maternal: NOAEL: 2,800 mg/kg body weight
Developmental Toxicity: NOAEL: 2,800 mg/kg body weight
Result: negative
Remarks: Based on data from similar materials

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

pentasodium triphosphate:

Effects on fertility : Test Type: Three-generation study
Species: Rat, male and female
Application Route: Oral
Dose: 0.5%

Effects on fetal development : Species: Rabbit
Application Route: Oral
Dose: 0, 2.5, 11.6, 54, 250 mg/kg
Duration of Single Treatment: 12 d
Teratogenicity: NOEC: 250 mg/kg body weight
Target Organs: Musculo-skeletal system
Method: OECD Test Guideline 414
Result: No teratogenic effects.

Species: Mouse
Application Route: Oral
Dose: 0, 2.4, 11.0, 52.0, 238.0 mg/
Duration of Single Treatment: 17 d
Teratogenicity: NOEC: 238 mg/kg body weight
Target Organs: Musculo-skeletal system
Method: OECD Test Guideline 414
Result: No teratogenic effects.

Species: Rat
Application Route: Oral
Dose: 0, 1.7, 8.0, 37.0, 170.0 mg/k
Duration of Single Treatment: 20 d
Teratogenicity: NOEC: 170 mg/kg body weight
Target Organs: Musculo-skeletal system
Method: OECD Test Guideline 414
Result: No teratogenic effects.

Species: Hamster
Application Route: Oral
Dose: 0, 1.41, 6.5, 30.0, 141.0 mg/
Duration of Single Treatment: 14 d
Teratogenicity: NOEC: 141 mg/kg body weight

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Target Organs: Musculo-skeletal system
Method: OECD Test Guideline 414
Result: No teratogenic effects.

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

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

Components:

sodium hydrogensulphate:

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

pentasodium triphosphate:

Routes of exposure : Oral
Target Organs : Kidney
Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Repeated dose toxicity

Components:

glycerol:

Species : Rat
LOAEL : 1 mg/kg
Application Route : Inhalation
Exposure time : 14 d
Dose : 0, 1, 1.93, 3.91 mg/L
Symptoms : respiratory tract irritation, Fatality

Species : Rat
NOAEL : 0.165 mg/l
LOAEL : 0.662 mg/l
Application Route : Inhalation
Exposure time : 13 w
Dose : 0, 0.033, 0.165, 0.662 mg/L
Symptoms : respiratory tract irritation

sodium hydrogensulphate:

Species : Rat, male and female
NOAEL : 1,000 mg/kg
Application Route : Oral
Exposure time : 7 weeks
Dose : 100, 300, 1000 mg/kg bw/day
Method : OECD Test Guideline 421

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Remarks : Based on data from similar materials

Species : Rabbit, male and female
LOAEL : 2 mL/kg/day(16% w/w)
Application Route : Dermal
Exposure time : 91 d
Dose : 2 ml/kg/day-16 % w/w aq.- Sodi
Method : OECD Test Guideline 411
Remarks : Based on data from similar materials

pentasodium triphosphate:

Species : Rat, male
Application Route : Oral
Exposure time : 28 d
Dose : >2%
Target Organs : Kidney

Species : Dog, male and female
NOAEL : 100 mg/kg
Application Route : Oral
Exposure time : 1 - 5 months

Species : Rat, male and female
Application Route : Oral
Exposure time : 2 years
Dose : 0.05%, 0.5% and 5%
Target Organs : Kidney

Aspiration toxicity

Not classified based on available information.

Further information

Product:

Remarks : No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

glycerol:

Toxicity to fish : LC50 (Fish): 885 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,955 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Scenedesmus capricornutum (fresh water algae)): 2,900 mg/l
Exposure time: 192 h

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Toxicity to microorganisms : EC10 (*Pseudomonas putida*): 10,000 mg/l
Exposure time: 16 h

sodium hydrogensulphate:

Toxicity to fish : LC50 (*Pimephales promelas* (fathead minnow)): 7,960 mg/l
Exposure time: 96 h
Test Type: static test
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : LC50 (*Daphnia magna* (Water flea)): 1,766 mg/l
Exposure time: 48 h
Test Type: static test
Remarks: Based on data from similar materials

Toxicity to algae/aquatic plants : EC50 (Marine Diatom): 1,900 mg/l
Exposure time: 120 h
Test Type: static test
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : LOEC (*Ceriodaphnia dubia* (water flea)): 1,329 mg/l
Exposure time: 7 d
Test Type: semi-static test
Remarks: Based on data from similar materials

Toxicity to microorganisms : NOEC (activated sludge): 8 g/l
Exposure time: 37 d
Remarks: Based on data from similar materials

pentasodium triphosphate:

Toxicity to fish : LC50 (*Danio rerio* (zebra fish)): > 1,850 mg/l
Exposure time: 24 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test

Toxicity to algae/aquatic plants : EC50 (*Skeletonema costatum* (marine diatom)): > 900 mg/l
Exposure time: 96 h

EC50 (*Desmodesmus subspicatus* (green algae)): 160 mg/l
Exposure time: 96 h

Toxicity to fish (Chronic toxicity) : LOEC (*Danio rerio* (zebra fish)): 5 mg/l
Exposure time: 4 d
Test Type: static test
Method: OECD Test Guideline 212

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Persistence and degradability

Components:

glycerol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 94 %
Exposure time: 24 h

Bioaccumulative potential

Components:

glycerol:

Partition coefficient: n-octanol/water : log Pow: -1.75 (77 °F / 25 °C)
pH: 7.4

sodium hydrogensulphate:

Bioaccumulation : Bioconcentration factor (BCF): 0.5
Method: QSAR
Remarks: Bioaccumulation is unlikely.

Mobility in soil

No data available

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

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 containers should be taken to an approved waste handling site for recycling or disposal.

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SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR Road

Not regulated as a dangerous good

Special precautions for user

Remarks : Not classified as dangerous in the meaning of transport regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Serious eye damage or eye irritation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

glycerol	56-81-5	>= 30 - < 50 %
urea	57-13-6	>= 1 - < 5 %

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Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

glycerol	56-81-5
pentasodium triphosphate	7758-29-4

Pennsylvania Right To Know

water	7732-18-5
glycerol	56-81-5
Bacillus subtilis strain FMCH002	Not Assigned
BLI (FMCH001) BIOLOGICAL TECHNICAL (CHR. HANSEN)	Not Assigned
pentasodium triphosphate	7758-29-4

Maine Chemicals of High Concern

octamethylcyclotetrasiloxane [D4]	556-67-2
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Vermont Chemicals of High Concern

octamethylcyclotetrasiloxane [D4]	556-67-2
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Washington Chemicals of High Concern

Product does not contain any listed chemicals

California List of Hazardous Substances

pentasodium triphosphate	7758-29-4
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California Permissible Exposure Limits for Chemical Contaminants

glycerol	56-81-5
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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.
AIC	: Not in compliance with the inventory
DSL	: This product contains the following components that are not on the Canadian DSL nor NDSL. BLI (FMCH001) BIOLOGICAL TECHNICAL (CHR. HANSEN) Bacillus subtilis strain FMCH002
ENCS	: Not in compliance with the inventory
ISHL	: Not in compliance with the inventory
KECI	: Not in compliance with the inventory

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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

TSCA list

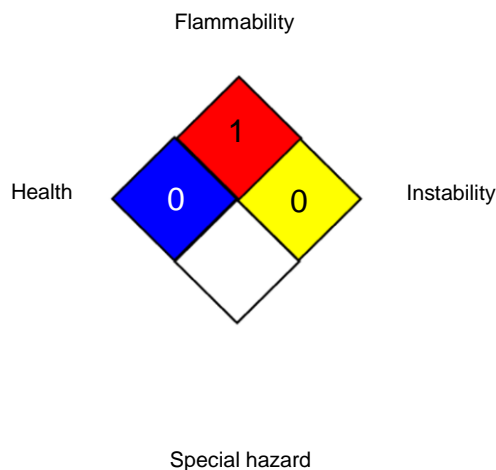
No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



0 No health threat, 1 Slightly Hazardous, 2 Hazardous, 3 Extreme danger, 4 Deadly

HMIS® IV:

HEALTH	/	0
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

OSHA P0 : USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)
OSHA P0 / TWA : 8-hour time weighted average
OSHA Z-1 / TWA : 8-hour time weighted average
US WEEL / TWA : 8-hr TWA

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AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; 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; HMIS - Hazardous Materials Identification System; 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; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; 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

Disclaimer

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Prepared by:

FMC Corporation

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End of Material Safety Data Sheet