


 Safety Data Sheet: *Moniliformin (Sodium salt)*

1. Identification of the substance/mixture and of the Company

1.1. Product identifiers

Product name	<u>Moniliformin (Sodium salt)</u>	Formula	C_4HO_3Na
Product Code	<i>MO</i>	RTECS	<u>GU1815000</u>
CAS #	<u>71376-34-6</u>	Molecular weight	<i>120.0</i>
EC Number #	<u>636-113-2</u>	Substance? Mixture?	<i>Substance</i>
Synonyms	<ul style="list-style-type: none"> <i>1-Hydroxycyclobut-1-ene-3,4-dione Sodium salt</i> <i>Squaric acid Sodium salt</i> 		
UPAC Name	<i>Sodium 2,3,4-trioxocyclobutanide</i>		
Source		Date of version	<i>23 October, 2022</i>

1.2. Intended uses of the substance or mixture and uses advised against

Intended use:	Uses advised against:
<ul style="list-style-type: none"> Research and development. Laboratory reagent. To be used by professionals only 	<ul style="list-style-type: none"> Not for drug, Not to be used in humans or animals. Not food additive

1.3. Details of the supplier of the SDS

FERMENTEK Ltd
 4 Yatziv street, POB 47120
 Jerusalem 97800,
 Israel

Tel: +972 2 5853953
 Fax: +972 2 5853943
 eMail:
 fermentek@fermentek.com
 Website: www.fermentek.com

1.4. Emergency Telephone number

For chemical emergency spill, leak, fire, exposure, or accident calls
 CHEMTREC day or night:
 Within USA and Canada: 1-800-424-9300. Outside USA and
 Canada: +1 703-527-3887

This company is the manufacturer of the product, and the supplier of the safety data sheet

1.5. Reach:

Number:	<i>Not listed</i>
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2. Hazards' identification

2.1. Classification of the substance

GHS Classification According to EU Reg. 1272/2008 and US OSHA 1910.1200)

<i>Acute tox (O)</i>	<i>(Category 3)</i>	<i>H301 Toxic if swallowed</i>
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2.2. GHS Label

elements, including precautionary statements

Pictogram



Signal word {Danger}

GHS Hazard Statements

H301	Toxic if swallowed
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GHS Precautionary Statements

P201	<i>Obtain special instructions before use.</i>
P202	<i>Do not handle until all safety precautions have been read and understood.</i>
P264	<i>Wash {hands} thoroughly after handling.</i>
P270	<i>Do not eat, drink, or smoke when using this product</i>
P301+P312	<i>IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.</i>



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P330	Rinse mouth
GHS Response Phrases	
P301+P312	If swallowed: call a poison center/doctor

2.3. Other hazards

Other hazards	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
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3. Composition/information on ingredients

Substance	
Substance name:	Moniliformin (Sodium salt)
Concentration	100%
CAS Registry#:	71376-34-6
EC#:	636-113-2
Molecular Formula:	C_4HO_3Na
Molecular Weight:	120.0
Classification	Acute Tox (O) . 3; H301
Mixture?	Substance.

4. First Aid Measures

4.1. Description of First Aid Measures

General advice:	If medical attention is required, show this safety data sheet to the doctor/physician.
Inhalation:	Inhalation may cause nausea and vomiting. May cause dizziness and headache. Seek medical attention. If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion:	Toxic if swallowed. Ingestion may cause nausea and vomiting. Ingestion is irritating to the respiratory tract and may cause damage to the central nervous system. DO NOT INDUCE VOMITING. If swallowed, seek medical advice immediately and show this container or label. Never give anything by mouth to an unconscious person. Clean mouth with water
Skin Contact:	May cause irritation to skin. May cause dermatitis. Wash off immediately with plenty of soap and water. Remove contaminated clothing. Seek medical attention if irritation or symptoms persist.
Eye contact:	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

4.2. Most important symptoms and effects, both acute and delayed

4.2.1.	No information available
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4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians

No information available

5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media

Use water foam Carbon dioxide (CO₂); Dry powder

Unsuitable extinguishing media

Water stream may be ineffective

5.2. Other information

Hazardous combustion products

Carbon oxides

More information

None

Advice for firefighters

Wear self-contained breathing apparatus for fire fighting if necessary. Wear protective suit.

6. Accidental release measures

6.1. Personal precautions, protective equipment, and emergency procedures

Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Environmental precautions

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment:

Prevent further leakage or spillage if safe to do so. Cover powder spill with plastic sheet or tarp to minimize spreading. Dike far ahead of liquid spill for later disposal.

Methods for cleaning up:

Clean-up should be dealt with only by qualified personnel familiar with the specific substance. Cover liquid spill with sand, earth or other non-combustible absorbent material (e.g. sand, earth, diatomaceous earth, and vermiculite). Cover powder spill with plastic sheet or tarp to minimize spreading. Sweep up and shovel into suitable containers for disposal.

7. Handling and storage

7.1. Precautions for safe handling

Advice on safe handling:

Avoid contact with skin, eyes, or clothing. Use personal protective equipment as required. Wash contaminated clothing before reuse. Do not breathe dust/fume/gas/mist/vapors/spray. Do not eat, drink, or smoke when using this product.



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7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions:	Keep container tightly closed in a dry and well-ventilated place. Store at -20 °C. Some other manufacturers may advise storing temperature 2-8°C.
Suitable packaging	
Incompatible materials:	None known based on information available.

8. Exposure Controls/Personal Protection

8.1. Control parameters

Control parameters	No occupational exposure limits are listed for this material.
OSHA Permissible Exposure Limits	No Data Available
NIOSH Recommended Exposure Limits	No Data Available
ACGIH Threshold Limit Values	No Data Available

8.2. Exposure controls

Appropriate engineering controls	Showers, Eyewash stations, Ventilation systems Avoid contact with skin, eyes, and clothing. Wash hands before breaks and immediately after handling the product. Use fumehood for routine work.
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8.3. Personal protective equipment

[PPE=Personal Protection Equipment]

PPE: Respiratory protection	Where risk assessment shows air-purifying respirators are appropriate use a fullface particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).
PPE: Hand Protection:	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal techniques to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices, and wash and dry hands
PPE: Eye Protection:	Use a face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU)



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PPE: Skin and Body Protection:	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves must satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.
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9. Physical and chemical properties

9.1. Physical / chemical properties

<i>Physical State at room temperature</i>	<i>Solid / powder</i>
<i>Color</i>	<i>Yellowish to tan-yellow</i>
<i>Solubility</i>	<i>Soluble in MeOH, Water, DMSO</i>
No further safety relevant data are available	

10. Stability and reactivity

Reactivity:	<i>No information available.</i>
Chemical stability:	<i>Stable under normal conditions.</i>
Conditions to avoid	<i>Heat, flames, and sparks. Sunlight.</i>
Reactivity:	<i>No information available.</i>
Chemical stability:	<i>Stable under normal conditions.</i>
Conditions to avoid	<i>Heat, flames, and sparks. Sunlight.</i>

11. Toxicological information


11.1. Information on toxicological effects

The toxicological effects of this product have not been thoroughly studied.

Acute Toxicity	<i>LD50 Oral - (Rodent, Mouse) -50 mg/kg;</i>
<i>Information on likely routes of exposure</i>	
Inhalation	<i>No data available</i>
Skin corrosion/irritation:	<i>No data available</i>
Serious eye damage/eye irritation:	<i>No data available</i>
Respiratory or skin sensitization/corrosion:	<i>No data available</i>



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CMR hazards  (Carcinogenic, mutagenic, reprotoxic)	
Mutagenicity	No data available
Germ cell mutagenicity:	No data available
Carcinogenicity:	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.
Reproductive toxicity /	No data available
STOT-SE - single exposure (GHS):	No data available
STOT-SE - repeated exposure	No data available
Aspiration hazard:	No data available

11.2. Additional information

Symptoms	Behavioral - altered sleep time (including change in righting reflex) Data Source: AEMIDF Applied and Environmental Microbiology. (American Soc.for Microbiology) V.31- 1976- Volume(issue)/page/year: 37,11,1979
RTECS number	GU1815000

12. Ecological Information

Persistence and degradability	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Other adverse effects	No further relevant information available.

13. Disposal Considerations

13.1. Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations
Contaminated packaging	Dispose of as unused product


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14. Transport information

14.1. UN number, Proper Shipping Name, Transport Hazard Class, packing group

	US DOT	IATA	IMDG	ADR/RID
UN Number UN proper shipping name	ADR/RID: 3172. Toxins extracted from living sources (Moniliformin (Sodium salt))	ADR/RID: 3172. Toxins extracted from living sources (Moniliformin (Sodium salt))	ADR/RID: 3172. Toxins extracted from living sources (Moniliformin (Sodium salt))	ADR/RID: 3172. Toxins extracted from living sources (Moniliformin (Sodium salt))
Transport Hazard Class & Packing Group	Class 6.1 PG II	Class 6.1 PG II	Class 6.1 PG II	Class 6.1 PG II
			Not marine pollutant	

14.2. Additional information

Excepted quantities (EQ)	Not applicable
De Minimis exemption	Not applicable

Regulatory information

15. Product-specific safety, health, and environmental regulations/legislation

USA EPA / TSCA	This product is not listed on the USA EPA TSCA (it is for research)
California proposition 65	This product is not listed on California proposition 65 as on Jan 3, 2020
EU ECHA Status	This product is registered with the EU ECHA, 636-113-2 REACH: pre-registered; ANNEX III: exempted from registration due to low tonnage. but is Listed nevertheless
Canada	This product is not listed on the Canadian DSL/NDSL

16. Other information

16.1. Department issuing this SDS

- Quality systems and regulatory affairs

16.2. General Disclaimer

- The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication.
- The information given here is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification.
- The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

16.3. The users'/employers' responsibility:

- A risk assessment should be performed by the employer/user prior to use of this product.
- All recommendations included in this document, are advisory in nature.
- The type of protective equipment must be selected based on the amount and concentration of all dangerous materials being used in the workplace.



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16.4. No-Copyright statement



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This sort of document is but a compendium of common knowledge, published facts, and even the writing style is standard.

16.5. Abbreviations and acronyms:

Acute Tox.: Acute toxicity

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DOT: US Department of Transportation

EINECS: European Inventory of Existing Commercial Chemical Substances

Eye Dam.: Serious eye damage/eye irritation

HMIS: Hazardous Materials Identification System (USA)

IATA: International Air Transport Association

IMDG: International Maritime Code for Dangerous Goods

LC50: Lethal concentration, Median

LD50: Lethal dose, Median

NFPA: National Fire Protection Association (USA)

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

PBT: Persistent, Bioaccumulative and Toxic

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Repr.: Reproductive toxicity

Skin Irrit: Skin corrosion/irritation

STOT RE: Specific target organ toxicity (repeated exposure)

TLV: Threshold Limit Value

vPvB: very Persistent and very Bioaccumulative

16.6. End of SDS