









Safety Data Sheet:

Enniatin A

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1. Identification of the Substance and the Manufacturer

1.1. Product identifiers

Product name	Enniatin A 	Formula	C ₃₆ H ₆₃ N ₃ O ₉
Product Code	ENA-001	RTECS	GX6200000
CAS#	2503-13-1 	Molecular weight	681.9 g/mol
ECHA#	695-563-8 	Substance? Mixture?	Substance
Comptox-EPA	90891863 		
ChEBI	CHEBI:64651 		
PubChem	57339252 	T3DB#	T3D3756 
Synonyms	<ul style="list-style-type: none"> Isoleucine, N-(d-2-hydroxy-3-methylbutyryl)-N-methyl-, trimol. cyclic ester Cyclo((2R)-2-hydroxy-3-methylbutanoyl-N-methyl-L-isoleucyl-(2R)-2-hydroxy-3-methylbutanoyl-N-methyl-L-isoleucyl-(2R)-2-hydroxy-3-methylbutanoyl-N-methyl-L-isoleucyl) 		
Source	Fusarium sp	Version Date	17 September, 2024

1.2. Intended uses of the Substance and uses advised against

1.2.1. Intended use:	1.2.2. Uses advised against:
Research and development. Laboratory reagent. Reference material. Manufacturing of substances. To be used by professionals only	Not a drug, Not a food additive Not to be used in humans or animals.

1.3. Contacts

1.3.1. Details of the supplier of the SDS
<div> FERMENTEK ltd 4 Yatziv street, POB 47120 Jerusalem 97800, Israel </div> <div> Tel: +972 2 5853953 Fax: +972 2 5853943 eMail: Fermentek@Fermentek.com Safety@Fermentek.com Website: Fermentek.com </div>

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

1.3.2. 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

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2. Hazards' identification.

2.1. Classification of the Substance.

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

Acute toxicity, Oral	Cat.3	H301	Acute toxicity, Oral
Acute toxicity, Inhalation	Cat.3	H331	Acute toxicity, Inhalation
Acute toxicity, Dermal	Cat.3	H311	Acute toxicity, Dermal

2.2. GHS Label elements, including precautionary statements

2.2.1. Pictogram:  Signal word: {Danger}

2.2.2. Hazard Statements

H301+H311+H331	Toxic if swallowed, in contact with skin or if inhaled.
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2.2.3. GHS Precautionary Statements

P203	Obtain, read and follow all safety instructions before use.
P261	Avoid breathing dust or mist.
P264	Wash {hands} thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection

2.2.4. GHS Response Phrases:

P301+P310,	IF SWALLOWED: Immediately call a POISON CENTER/ doctor
P330	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 the person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor
P308+313	If exposed or concerned: Get medical advice/attention

3. Composition/information on ingredients

Substance	
Substance Name:	Enniatin A
Concentration	<=100%
CAS Registry#:	2503-13-1
EC#:	695-563-8
Molecular Formula:	C ₃₆ H ₆₃ N ₃ O ₉
Molecular Weight:	681.9 g/mol
Classification	Acc tox 3 (H301,H311;H331))
Mixture?	Substance



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4. First Aid Measures.

4.1. Description of First Aid Measures.

General advice:	First-aiders need to protect themselves. If medical attention is required, show this safety data sheet to the doctor in attendance.
Eye contact:	Flush with plenty of water as a precaution
Skin Contact:	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
Ingestion:	After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise
Inhalation:	If inhaled, move person into fresh air. If breathing stops: immediately apply artificial respiration, if necessary also oxygen. Call a doctor

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

General symptoms	None known
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4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians	No data available
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5. Fire-fighting measures.

5.1. Extinguishing media.

Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media	None known

5.2. Other information

Hazardous combustion products	Carbon oxides, Nitrogen oxides, Sulfur oxides, Sulfur dihydrogene, Formula C ₃₆ H ₆₃ N ₃ O ₉
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	Use personal protective equipment as required. Keep people away from and upwind of spill/leak.
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6.2. Environmental precautions

Environmental precautions	Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.
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6.3. Methods and material for containment and cleaning up

Methods for containment:	Prevent further leakage or spillage if safe to do so. Cover the powder spill with a 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 the powder spill with a plastic sheet or tarp to



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	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.
7.2. Conditions for safe storage, including any incompatibilities	
Storage Conditions:	Keep container tightly closed in a dry and well-ventilated place. Keep out of the reach of children. Store at -20 °C.
Suitable packaging	Must only be kept in original packaging.
Incompatible materials:	None known based on information available.
8. Exposure Controls/Personal Protection	
8.1. Control parameters	
Control parameters	Components with workplace control parameters
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 fume-hood for routine work.
8.3. Personal protective equipment	
[PPE=Personal Protection Equipment]	
PPE: Respiratory protection	Where risk assessment shows air-purifying respirators are appropriate use a full-face 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)
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 have to 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

Physical State at room temperature	Solid
Appearance	Powder, White
No further safety relevant data are available	

10. Stability and reactivity

Reactivity:	No information available.
Chemical stability:	Stable under normal conditions.
Conditions to avoid	Heat, flames and sparks. Sunlight.
Incompatible materials	Strong reducers and oxidizers
Possibility of Hazardous Reactions	None under normal processing
Hazardous combustion products	See section 5

11. Toxicological information

11.1. Information on toxicological effects

To the best of our knowledge, the toxicological effects of this product have not been thoroughly studied yet.

11.1.1. Acute Toxicity

Acute toxicity:	Only in-vitro information is available. Oral, Mouse; LD50 = 100 mg/kg (estimate) Dermal Mouse, LD50 = 300 mg/kg (estimate)
Skin corrosion/irritation:	No data available
Serious eye damage/eye irritation:	No data available
Respiratory or skin sensitization/corrosion:	No data available

11.1.2. Chronic toxicity

Chronic toxicity	No data available
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11.1.3. CRM (Carcinogene, Mutagen, Reproductive hazards)

Germ cell mutagenicity:	DNA damage in Human Cells has been reported
Carcinogenicity:	Not classified by IARC
Reproductive toxicity / Teratogenicity:	No data available

11.2. Additional information

RTECS number	GX6200000
General symptoms	Blood - changes in other cell count (unspecified) Immunological Including Allergic - decreased immune response

12. Ecological Information

Eco-Toxicity	No data available
Other adverse effects	No data available



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13. Disposal Considerations

13.1. Waste treatment methods

Waste Disposal	Dispose of in accordance with local regulations
Contaminated packaging	Dispose of as unused product

14. Transport information

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

	US DOT	ADR/RID	IATA	IMDG
UN Number UN proper shipping name	UN 3462 Toxins, Extracted from Living Sources, Solid, N.O.S. (Enniatin A)	UN 3462 Toxins, Extracted from Living Sources, Solid, N.O.S. (Enniatin A)	UN 3462 Toxins, Extracted from Living Sources, Solid, N.O.S. (Enniatin A)	UN 3462 Toxins, Extracted from Living Sources, Solid, N.O.S. (Enniatin A)
Transport Hazard Class & Packing Group	Class 6.1 (Poison) Packing group III	Class 6.1 (Poison) Packing group III	Class 6.1 (Poison) Packing group III	Class 6.1 (Poison) Packing group III
Additional information				Not marine pollutant

15. Regulatory information

15.1. Safety, health, and environmental regulations/legislation

USA EPA / TSCA	This product is not listed on the USA EPA TSCA (it is for research)
SARA 302 Components	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313	This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.
SARA 311/312 Hazard Categories	No SARA Hazards
California Proposition 65	This product does not contain any Proposition 65 chemicals.
EU ECHA Status	This product is registered with the EU ECHA, Number 695-563-8 REACH: Neither Registered nor PreRegistered. ANNEX III (criteria for 1 - 10 tonne registered substances): Not Listed

16. Other information

16.1. Department issuing this SDS

Quality systems and regulatory affairs
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16.2. General Disclaimer

<p>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.</p> <p>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.</p> <p>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.</p>



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16.3. The users'/employers' responsibility:

A risk assessment should be performed by the employer/user prior to the 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.

16.4. No-Copyright statement

Fermentek does not claim © copyright on this document.
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16.5. Abbreviations and acronyms:

	This symbol means, the text looking like a hyperlink, is a clickable link indeed. Of course, these are only active on glass screens, not on paper.
Synthetic / From	"Synthetic" means this compound has been manufactured by chemical conversion of another product of ours.
DOT:	"From" means the compound was extracted from biomass, whether algal, fungal, microbial or plant material
Mixture/Substance/Complex	Substance means a single compound. , Mixture means there are two or more pure substances mixed purposely. Complex is a mixture of two or more substances which naturally occur together and are sold unseparated
Acute Tox.:	Acute toxicity
CAS:	Chemical Abstracts Service
ChEBI	Chemical Entities of Biological Interest
Comptox	CompTox Chemicals Dashboard Resource Hub (EPA)
DOT:	US Department of Transportation
ECHA	European Chemicals Agency
EINECS:	European Inventory of Existing Commercial Chemical Substances
EPA	United States Environmental Protection Agency
Eye Dam.:	Serious eye damage/eye irritation
HSDB	Hazardous Substances Data Bank
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
LDL0	Letal dose, leatst published
NDG	Not dangerous goods (for transport)
NFPA:	National Fire Protection Association USA
NIOSH:	National Institute for Occupational Safety
NOAEL	No-Observed-Adverse-Effects-Level. Highest dose which yelded no results at toxisity test
OSHA:	Occupational Safety & Health
PBT:	Persistent, Bioaccumulative, and Toxic



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16.6. End of SDS