Safety Data Sheet: *Microcystin [D-Asp³]-LR* from FERMENTEK

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

1.1. *Product identifiers*

Product name	*Microcystin [D-Asp³]-LR*	Formula	$C_{48}H_{72}N_{10}O_{12}$
Product Code	*MCLR*	RTECS	*N.A.*
CAS #	*120011-66-7*	Molecular weight	*981.1*
EC Number #	*NA*	Substance? Mixture?	*Substance*
Synonyms	*Toxin II (Microcystis aeruginosa)*		*Toxin T 16 (Microcystis aeruginosa)*
	4-D-β-Aspartic acid-5-L-arginine microcystin LA		*3-Desmethyl-microcystin LR*
Source	*Microcystis sp.*	Date of version	*26 July, 2021*

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

1.2.1. *Intended use:*	1.2.2. *Uses advised against:*
• Research and development. • Laboratory reagent. • To be used by professionals only	• 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 SDS

1.5. *Reach:*

See section 15

2. *Hazards' identification*

2.1. *Classification of the substance or mixture*

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

Acute Toxicity, Ingestion	*Category 2*	*H300*	*Fatal if swallowed*
Acute Toxicity, Dermal contact	*Category 2*	*H310*	*Fatal if on skin*
Skin irritation	*Category 2*	*H315*	*Causes skin irritation*
Skin Sens	*Category 1*	*H317*	*May cause allergic skin reaction*
EYE Irritation	*Category 2*	*H319*	*Causes serious eye irritation*
Acute Toxicity, Inhalation	*Category 2*	*H330*	*Fatal if inhaled*
STOT SE (Lungs)	*Category 3*	*H335*	*May cause respiratory tract irritation*

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2.2. *GHS Label elements, including precautionary statements*

2.2.1. *Pictogram:*

2.2.2. *Signal word: {Danger}*

2.2.3. *Hazard Statements*

H300+H310+H330	*Fatal if swallowed, inhaled or in contact with skin.*
H315	*Causes skin irritation.*
H317	*May cause an allergic skin reaction.*
H319	*Causes serious eye irritation.*
H335	*May cause respiratory irritation.*

2.2.4. *GHS Precautionary Statements*

P201	*Obtain special instructions before use.*
P202	*Do not handle until all safety precautions have been read and understood.*
P260	*Do not breath dust, fume, gas, mist, vapors and spray.*
P270	*Do not eat, drink, or smoke when using this product.*
P308 + P310	***IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.***
P301+ P310	*IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.*
P320	*Specific treatment is urgent*
P361	*Remove/Take off immediately all contaminated clothing*

3. *Composition/information on ingredients*

Substance		
Substance name:	*Microcystin [D-Asp3]-LR*	
Concentration	*<=100%*	
CAS Registry#:	*120011-66-7*	
EC#:	*NA*	
Molecular Formula:	*C48H72N10O12*	
Molecular Weight:	*981.1*	
Classification	*Acute Tox. 2; H300+H310+H330*	
Mixture?	*Substance.*	

4. *First Aid Measures*

4.1. *Description of First Aid Measures*

General advice:	*Immediately remove any clothing soiled by the product.* *Remove breathing equipment only after contaminated clothing have been completely removed*
Eye contact:	*Flush with water for several minutesRinse out with plenty of water. Remove contact lenses. If symptoms persist, consult a doctor.*
Skin Contact:	*Take off immediately all contaminated clothing. Rinse skin with water/ shower for 15 minutes.*
Ingestion:	*Give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.*
Inhalation:	*If inhalled, move person into fresh air. If not breathing, give artificial respiration. DO NOT INDUCE VOMITING. Never give anything by mouth to an unconscious person. Consult a physician immediately.*

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

General symptoms	No data available

4.3. *Indication of any immediate medical attention and special treatment needed*

	No data available

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*
Advice for firefighters	*Wear self-contained breathing apparatus for fire fighting if necessary. Wear protective suit.*
Unusual Fire Hazards	*May emit toxic fumes.*

6. *Accidental release measures*

6.1. *Personal precautions, protective equipment and emergency procedures*

Personal precautions	*Use personal protective equipment as required. Avoid formation of 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.

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.*

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8. *Exposure Controls/Personal Protection*

8.1. *Control parameters*

Control parameters	*Contains no substances with occupational exposure limit values*

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.*

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)*
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.*

9. *Physical and chemical properties*

9.1. *Physical / chemical properties*

Physical State at room temperature	Solid / powder
Color	
No further safety relevant data are available	

10. *Stability and reactivity*

Reactivity:	*No dangerous decomposition products known.*
Chemical stability:	*No information available.*
Conditions to avoid	*No information available.*
Incompatible materials	*Avoid strong oxidizing agents.*
Possibility of Hazardous Reactions	*No information available.*
Hazardous decomposition products	*Hazardous decomposition products formed under fire conditions.: Carbon oxides, Nitrogen oxides (NOx)*

11. *Toxicological information*

11.1. *Information on toxicological effects*

11.1.1. *Acute Toxicity*

Oral toxicity:	*LD50 oral Rat=8 mg/kg; calculated from LD50 intraperitoneal*
Intraperitoneal	*LD50 intraperitoneal Rat = 50 ug/kg*
Serious eye damage	*No quantitative data available*

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Respiratory or skin sensitization/corrosion:	*No quantitative data available*
Inhalation, Skin contact	*Fatal; No quantitative data available*
STOT SE (Lungs)	*Respiratory tract Irritation; may be fatal*

11.1.2. *CRM (Carciniogene, Mutagene, Reproductive hazards)*

Germ cell mutagenicity:	*No data available*
Carcinogenicity:	*IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed human carcinogen.*
Reproductive toxicity / Teratogenicity:	*No data available*

11.2. *Additional information*

Symptoms (according to *Handbook of Chemical and Biological warfare agents, D. Hank Ellison, 2nd edition, page 481*)	*This material is hazardous through inhalation, penetration through broken skin, and ingestion. Symptoms include shivering, and rapid, deep breathing, progressing to twitching, convulsions, gasping respirations, and death. Shock and death occur within a matter of hours.*
RTECS number	*N.A.*

12. *Ecological Information*

Eco-Toxicity	No further relevant information available
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

14. *Transport information*

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

	US DOT	**US IATA**	**US IMDG**	**US ADR/RID**
UN Number UN proper shipping name	*UN 3642* *Toxins, Extracted from Living Sources, Solid, N.O.S. (Microcystin [D-Asp3]-LR)*	*UN 3642* *Toxins, Extracted from Living Sources, Solid, N.O.S. (Microcystin [D-Asp3]-LR)*	*UN 3642* *Toxins, Extracted from Living Sources, Solid, N.O.S. (Microcystin [D-Asp3]-LR)*	*UN 3642* *Toxins, Extracted from Living Sources, Solid, N.O.S. (Microcystin [D-Asp3]-LR)*
Transport Hazard Class & Packing Group	*6.1* *Pg II*	*6.1* *Pg II*	*6.1* *Pg II*	*6.1* *Pg II*

14.2. *Addional information*

Excepted quantities (EQ)	
De Minimis exemption	*Transported under De Minimis exemption. Code: E5. Maximum net quantity per inner packaging: 1 g. Maximum net quantity per outer packaging: 300 g*

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)*
	S. 304 RQ: NO *S. 313 (TRI): Acute health hazard and chronic health hazard.*
California proposition	*Not listed*

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EU ECHA Status	*This product is registered with the EU ECHA, Number NA* *ANNEX III: Listed (Suspected carcinogen)* *REACH: Not registered*
EU- Substances of very high concern (SVHC)	*This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).*

16. *Other information*

16.1. *Date of revision:*

, 26 July, 2021

16.2. *Department issuing this SDS*

Quality systems and regulatory affairs

16.3. *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.

16.4. *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.

16.5. *Comments:*

16.5.1. *Depreciated CAS Registry number(s):*

- 128657-48-7
- 135258-17-2
- 374589-84-1

16.6. *Copyright statement*

16.7. *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*

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PBT:	*Persistent, Bioaccumulative and Toxic*
PEL:	*Permissible Exposure Limit*
REL:	*Recommended Exposure Limit*
Repr.:	*Reproductive toxicity*
RTECS:	*Registry of Toxic Effects of Chemical Substances*
Skin Irrit:	*Skin corrosion/irritation*
STOT RE:	*Specific target organ toxicity (repeated exposure)*
TLV:	*Threshold Limit Value*
vPvB:	*Very Persistent and Very Bioaccumulative*

16.8. ***End of SDS***

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