



## Safety Data Sheet: Tenuazonic acid (copper salt)

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

#### 1.1. Product identifiers

Product name	<a href="#">Tenuazonic acid Cu salt</a>	Formula	C <sub>20</sub> H <sub>28</sub> N <sub>2</sub> O <sub>6</sub> Cu
Product Code	TNZ	RTECS	<a href="#">UY7425000</a>
CAS #	<a href="#">12427-40-6</a>	Molecular weight	506.5
EC Number #	<a href="#">636-400-2</a>	Substance? Mixture?	Substance
Source	<i>Alternaria sp.</i>	Date of version	12 November, 2022
Synonyms	<ul style="list-style-type: none"> <li>(5S)-3-acetyl-5-[(2S)-butan-2-yl]-4-hydroxy-2,5-dihydro-1H-pyrrol-2-one, copper salt</li> <li>Tenuazonic acid, copper salt</li> </ul>		

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

1.2.1. Intended use:	1.2.2. Uses advised against:
<ul style="list-style-type: none"> <li>Research and development.</li> <li>Laboratory reagent.</li> <li>Reference material.</li> <li>Analytical standard</li> <li>Further processing</li> </ul>	<ul style="list-style-type: none"> <li>Not a drug,</li> <li>Not food additive</li> <li>Not to be used in humans or animals.</li> </ul>

#### 1.3. Contact information

1.3.1. Details of the supplier of the safety data sheet		
<b>FERMENTEK Ltd</b> 4 Yatziv street, POB 47120 Jerusalem 97800, <b>Israel</b>	Tel: +972 2 5853953 Fax: +972 2 5853943 eMail: <a href="mailto:fermentek@fermentek.com">fermentek@fermentek.com</a> Website: <a href="http://www.fermentek.com">www.fermentek.com</a>	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		


### 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 3	H301	Toxic if swallowed
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#### 2.2. GHS Label elements, including precautionary statements

2.2.1. Pictogram:		Signal word: {DANGER}
2.2.2. GHS Hazard Statements		
H301	Toxic if swallowed,	
2.2.3. 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 breathe dust/fume/gas/mist/vapors/spray.	
P262	Do not get in eyes, on skin, or on clothing	



P264	Wash {hands} thoroughly after handling.
P270	Do not eat, drink, or smoke when using this product.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P405	Store locked up

#### 2.2.4. GHS Response Phrases

P308+313	IF EXPOSED OR CONCERNED: Get medical advice/attention
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P302 + P352 + P310	IF ON SKIN: Wash with plenty of water. Immediately call a POISON CENTER/doctor
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

### 3. Composition/information on ingredients

Substance	
Substance name:	Tenuazonic acid Cu salt
Concentration	100%
	CAS Registry #:12427-40-6 EC#:636-400-2
	Molecular Formula: C <sub>20</sub> H <sub>28</sub> N <sub>2</sub> O <sub>6</sub> Cu Molecular Weight: 506.5
Classification	Acute Tox. 3; H301
Mixture?	Substance

### 4. First Aid Measures

#### 4.1. Description of First Aid Measures

General advice:	Consult a physician. Show this safety data sheet to the doctor in attendance.
Eye contact:	Flush eyes with 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.
Skin Contact:	Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
Ingestion:	Never give anything by mouth to an unconscious person. Wash out mouth with water. Do not induce vomiting. If conscious, give half a litre of water to drink immediately. Consult a physician.
Inhalation:	If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

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

Skin Contact:	No information available
Eye contact:	No information available
Ingestion:	No information available
Inhalation:	No information available

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

	Management of patients is symptomatic and supportive.
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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,
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 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. Keep out of the reach of children. Reportedly, Light sensitive. 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
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### 8.2. Exposure controls

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

### 8.3. Personal protective equipment

[PPE=Personal Protection Equipment]	The employer/end user, prior to use of this product should perform all recommendations below are advisory in nature and a risk assessment. The type of protective equipment must be selected based on the amount and concentration of the dangerous material being used in the workplace.
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 must satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

## 9. Physical and chemical properties

Reactivity:	No information available.
Physical State at room temperature	Powder
Color	Blue-green
Odor	Odorless
Melting/freezing point	Not applicable (lyophilized)
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 decomposition products	Carbon oxides, Nitrogen oxides



## 11. Toxicological information

### 11.1. Information on toxicological effects

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

11.1.1. Acute Toxicity	LD50, oral, mouse 225 mg/kg
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. CMR hazards	
Carcinogenicity	Group 3: Not classified as human carcinogen <b>IARC:</b> No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible, or confirmed human carcinogen by IARC.
Germ cell mutagenicity:	Laboratory experiments have shown mutagenic effects
Reproductive toxicity / Teratogenicity:	Laboratory experiments have shown teratogenic effects. Overexposure may cause reproductive disorders (based on experiments on laboratory animals)
11.1.3. Other	
STOT-SE – single exposure (GHS):	No data available
STOT-SE – repeated exposure (GHS):	No data available
Aspiration hazard:	No data available

### 11.2. Additional information

**Comment: RTECS is not available for Tenuazonic acid Copper salt. Record for free acid is given instead.**

RTECS number	UY7425000
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## 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	IATA	IMDG	ADR/RID
UN Number UN proper shipping name	UN 3642 Toxins, Extracted from Living Sources, Solid, N.O.S.(Tenuazonic acid Cu salt)	UN 3642 Toxins, Extracted from Living Sources, Solid, N.O.S.(Tenuazonic acid Cu salt)	UN 3642 Toxins, Extracted from Living Sources, Solid, N.O.S.(Tenuazonic acid Cu salt)	UN 3642 Toxins, Extracted from Living Sources, Solid, N.O.S.(Tenuazonic acid Cu salt)



Transport Hazard Class & Packing Group	Class 6.1, PG III	Class 6.1, PG III	Class 6.1, PG III	Class 6.1, PG III
Additional information			Not marine pollutant	
Excepted quantities (EQ)	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)
EU ECHA Status	This product is not registered with the EU ECHA, Number 636-400-2 ANNEX III: Not Listed REACH: Not preregistered REACH: This product does not contain substances of very high concern (Regulation (EC) No 1907/2006 (REACH), Article 57)
CA: DSL/NDSL Status	This product is not listed on the Canadian DSL/NDSL

### 15.2. Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

For this product a chemical safety assessment was not carried out

## 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.

### 16.4. 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 Acute toxicity hazard categories and (approximate) LD50/LC50 values defining the respective categories.*

### 16.5. No Copyright statement



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### 16.6. End of SDS