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Revision Number 1

## 1. Identification

### Product identifier

**Product Name** PolyAmine Copper Organic

### Other means of identification

### Recommended use of the chemical and restrictions on use

**Recommended use** Fertilizer.

**Restrictions on use** No information available

### Details of the supplier of the safety data sheet

#### Manufacturer Address

Verdesian Life Sciences U.S., LLC  
1001 Winstead Drive, Suite 480  
Cary, NC 27513  
United States  
Telephone: 1-800-868-6446

**E-mail** sds@vlsci.com

### Emergency telephone number

**Emergency Telephone** INFOTRAC 1-800-535-5053 (North America)  
INFOTRAC +1-352-323-3500 (International)

## 2. Hazard(s) identification

### Classification

Serious eye damage/eye irritation	Category 1
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### Hazards not otherwise classified (HNOC)

Not applicable.

### Label elements



Danger

### Hazard statements

Causes serious eye damage.

**Precautionary Statements - Prevention**

Wear eye protection/ face protection.

**Precautionary Statements - Response**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

**Other information**

Causes mild skin irritation. Very toxic to aquatic life with long lasting effects.

**3. Composition/information on ingredients****Substance**

Not applicable.

**Mixture**

Chemical name	CAS No.	Weight-%
Copper sulfate	7758-98-7	5 - <10
Citric acid	77-92-9	3 - <5
Proprietary wetting agent	Trade secret	1 - <3

\*The exact percentage (concentration) of composition has been withheld as a trade secret.

**4. First-aid measures****Description of first aid measures**

<b>General advice</b>	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
<b>Inhalation</b>	Remove to fresh air. Get medical attention immediately if symptoms occur.
<b>Eye contact</b>	Get immediate medical attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Rinse mouth. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.
<b>Self-protection of the first aider</b>	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

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

<b>Symptoms</b>	Burning sensation. Prolonged contact may cause redness and irritation.
<b>Effects of Exposure</b>	No information available.

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

<b>Note to physicians</b>	Treat symptomatically.
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**5. Fire-fighting measures**

<b>Suitable Extinguishing Media</b>	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
<b>Unsuitable extinguishing media</b>	Do not scatter spilled material with high pressure water streams.
<b>Specific hazards arising from the chemical</b>	No information available.
<b>Explosion data</b>	
<b>Sensitivity to mechanical impact</b>	None.
<b>Sensitivity to static discharge</b>	None.
<b>Special protective equipment and precautions for fire-fighters</b>	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

<b>Personal precautions</b>	Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.
<b>Other information</b>	Refer to protective measures listed in Sections 7 and 8.

### Methods and material for containment and cleaning up

<b>Methods for containment</b>	Prevent further leakage or spillage if safe to do so.
<b>Methods for cleaning up</b>	Pick up and transfer to properly labeled containers.
<b>Prevention of secondary hazards</b>	Clean contaminated objects and areas thoroughly observing environmental regulations.

## 7. Handling and storage

### Precautions for safe handling

<b>Advice on safe handling</b>	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product.
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### Conditions for safe storage, including any incompatibilities

<b>Storage Conditions</b>	Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.
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## 8. Exposure controls/personal protection

### Control parameters

<b>Exposure Limits</b>	The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.
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Chemical name	ACGIH TLV	OSHA PEL	NIOSH
Copper sulfate 7758-98-7	TWA: 1 mg/m <sup>3</sup> Cu dust and mist	-	IDLH: 100 mg/m <sup>3</sup> Cu dust and mist

			TWA: 1 mg/m <sup>3</sup> Cu dust and mist
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**Appropriate engineering controls**

**Engineering controls**                      Showers  
 Eyewash stations  
 Ventilation systems.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection**                      Tight sealing safety goggles.

**Hand protection**                              Wear suitable gloves.

**Skin and body protection**                      Wear suitable protective clothing.

**Respiratory protection**                      Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**General hygiene considerations**                      Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

**9. Physical and chemical properties****Information on basic physical and chemical properties**

**Physical state**                                      Liquid  
**Appearance**                                      Dark blue  
**Color**    Dark blue  
**Odor**    No information available  
**Odor threshold**                                      No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	2.7	None known
pH (as aqueous solution)		None known
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	No data available	None known
Flash point	No data available	None known
Evaporation rate	No data available	None known
Flammability	No data available	None known
Flammability Limit in Air		None known
Upper flammability or explosive limits	No data available	
Lower flammability or explosive limits	No data available	
Vapor pressure	No data available	None known
Relative vapor density	No data available	None known
Relative density	1.08	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

**Other information**

**Explosive properties**                              No information available  
**Oxidizing properties**                              No information available

Softening point	No information available
Molecular weight	No information available
VOC content	No information available
Liquid Density	No information available
Bulk density	No information available

## 10. Stability and reactivity

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	None known based on information supplied.
Incompatible materials	Strong acids. Strong bases. Strong oxidizing agents.
Hazardous decomposition products	None known based on information supplied.

## 11. Toxicological information

### Information on likely routes of exposure

#### Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	Specific test data for the substance or mixture is not available. Causes serious eye damage. May cause irreversible damage to eyes.
Skin contact	Specific test data for the substance or mixture is not available. Causes mild skin irritation.
Ingestion	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

### Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	Redness. Burning. May cause blindness. Prolonged contact may cause redness and irritation.
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### Acute toxicity

#### Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	8,896.80 mg/kg
ATEmix (dermal)	32,679.70 mg/kg
ATEmix (inhalation-gas)	99,999.00 ppm
ATEmix (inhalation-vapor)	99,999.00 mg/l
ATEmix (inhalation-dust/mist)	99,999.00 mg/l

#### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Copper sulfate 7758-98-7	= 300 mg/kg ( Rat )	> 2000 mg/kg ( Rat )	-
Citric acid 77-92-9	= 3 g/kg ( Rat )	> 2000 mg/kg ( Rat )	-

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

<b>Skin corrosion/irritation</b>	May cause skin irritation. Classification based on data available for ingredients. Causes mild skin irritation.
<b>Serious eye damage/eye irritation</b>	Classification based on data available for ingredients. Causes burns. Causes serious eye damage.
<b>Respiratory or skin sensitization</b>	No information available.
<b>Germ cell mutagenicity</b>	No information available.
<b>Carcinogenicity</b>	No information available.
<b>Reproductive toxicity</b>	No information available.
<b>STOT - single exposure</b>	No information available.
<b>STOT - repeated exposure</b>	No information available.
<b>Target organ effects</b>	Liver, Kidney, Respiratory system, Eyes, Skin.
<b>Aspiration hazard</b>	No information available.
<b>Other adverse effects</b>	No information available.
<b>Interactive effects</b>	No information available.

## 12. Ecological information

**Ecotoxicity** Very toxic to aquatic life with long lasting effects.

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Copper sulfate 7758-98-7	-	LC50: =0.1mg/L (96h, Oncorhynchus mykiss)	-	EC50: 0.007mg/L (48h, Daphnia magna)
Citric acid 77-92-9	-	LC50: =1516mg/L (96h, Lepomis macrochirus)	-	-

**Persistence and degradability** No information available.

### Bioaccumulation

#### Component Information

Chemical name	Partition coefficient
Citric acid 77-92-9	-1.72

**Other adverse effects** No information available.

### 13. Disposal considerations

#### Disposal methods

<b>Waste from residues/unused products</b>	Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
<b>Contaminated packaging</b>	Do not reuse empty containers.
<b>California Hazardous Waste Status</b>	This product contains one or more substances that are listed with the State of California as a hazardous waste.

### 14. Transport information

#### DOT

<b>UN number or ID number</b>	UN3082
<b>Proper shipping name</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>Transport hazard class(es)</b>	9
<b>Packing group</b>	III
<b>Reportable quantity (lbs)</b>	Copper sulfate: RQ (lb)= 10.00
<b>Special Provisions</b>	8, 146, 173, 335, 441, IB3, T4, TP1, TP29
<b>DOT Marine Pollutant</b>	PP
<b>Marine pollutant</b>	Copper sulfate
<b>Description</b>	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Copper sulfate), 9, III
<b>Emergency Response Guide Number</b>	171

#### IATA

<b>UN number or ID number</b>	UN3082
<b>UN proper shipping name</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>Transport hazard class(es)</b>	9
<b>Packing group</b>	III
<b>Technical Name</b>	Copper sulfate
<b>Description</b>	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Copper sulfate), 9, III
<b>Special Provisions</b>	A97, A158, A197, A215
<b>ERG Code</b>	9L
<b>Notes</b>	<b>May be shipped as not regulated in quantities not more than 5 L / 5 kg in accordance with IATA SP A197.</b>

#### IMDG

<b>UN number or ID number</b>	UN3082
<b>UN proper shipping name</b>	Environmentally hazardous substance, liquid, n.o.s.
<b>Transport hazard class(es)</b>	9
<b>Packing group</b>	III
<b>EmS-No.</b>	F-A, S-F
<b>Special Provisions</b>	274, 335, 375, 969
<b>Marine pollutant</b>	P
<b>Marine pollutant</b>	Copper sulfate
<b>Description</b>	UN3082, Environmentally hazardous substance, liquid, n.o.s. (Copper sulfate), 9, III, Marine pollutant
<b>Notes</b>	<b>May be shipped as not regulated in quantities not more than 5 L / 5 kg in accordance with IMDG Special Provision 375.</b>

### 15. Regulatory information

Contact supplier for inventory compliance status

**16. Other information**

<b>NFPA</b>	<b>Health hazards</b> 3	<b>Flammability</b> 0	<b>Instability</b> 0	<b>Special hazards</b> -
<b>HMIS</b>	<b>Health hazards</b> 3	<b>Flammability</b> 0	<b>Physical hazards</b> 0	<b>Personal protection</b> X

**Key or legend to abbreviations and acronyms used in the safety data sheet****Legend**

SVHC: Substances of Very High Concern for Authorization:  
 PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances  
 vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances  
 STOT: Specific Target Organ Toxicity  
 ATE: Acute Toxicity Estimate  
 LC50: 50% Lethal Concentration  
 LD50: 50% Lethal Dose

**Legend Section 8: Exposure controls/personal protection**

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
Ceiling	Maximum limit value	Sk*	Skin designation
+	Sensitizers		

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 Environmental Protection Agency  
 Acute Exposure Guideline Level(s) (AEGl(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 National Institute of Technology and Evaluation (NITE)  
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 U.S. National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)  
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
 Organization for Economic Co-operation and Development Screening Information Data Set  
 World Health Organization

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<b>Revision Note</b>	No information available.

**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 is designed only as a 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.

**End of Safety Data Sheet**