Safety Data Sheet

Issue Date: 17-Nov-2000 **Revision Date:** 11-Apr-2014 **Version** 1

1. IDENTIFICATION

Product Identifier

Product Name PolyAmine MicroPak

Other means of identification

SDS # VLS-014

Other Information Factory Formula: 5.

Recommended use of the chemical and restrictions on use

Recommended Use Fertilizer.

Details of the supplier of the safety data sheet

Supplier Address

Verdesian Life Sciences, U.S., LLC.
12222 Ave 352
Visalia, CA 93291

Emergency Telephone Number

Company Phone Number Business Phone: (800) 868-6446
Fax Phone: (559) 625-9255

Emergency Telephone (24 hr) INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Appearance Dark brown liquid **Physical State** Liquid **Odor** Sweet

Classification

Serious eye damage/eye irritation	Category 2

Signal Word

Warning

Hazard Statements

Causes serious eye irritation

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Wear eye/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
If eye irritation persists: Get medical advice/attention

Other Hazards
Very toxic to aquatic life with long lasting effects

Unknown Acute Toxicity
6.255% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Citric Acid	77-92-9	1-10
Zinc sulfate	7733-02-0	1.4
Copper sulfate pentahydrate	7758-99-8	1.5
Manganese Sulfate Monohydrate	10034-96-5	1
Magnesium Sulfate heptahydrate	10034-99-8	0.5
Ferrous Sulfate	7782-63-0	0.3

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST-AID MEASURES

First Aid Measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists: Get medical advice/attention.

Skin Contact Wash off immediately with plenty of water.

Inhalation Remove to fresh air. If breathing becomes difficult, call a physician.

Ingestion Drink plenty of water or milk immediately. Follow with milk of magnesia, beaten eggs, or vegetable oil. Do not induce vomiting. Call a physician.

Most important symptoms and effects

Symptoms May cause skin and eye irritation. May cause irritation to the mucous membranes and upper respiratory tract. Ingestion may result in nausea, vomiting, diarrhea, blood in vomit and stools, burning pain in mouth and throat, abdominal pain, lethargy, confusion, edema, leukocytosis, hyperglycemia, acidosis, shock, liver and kidney damage, and other gastrointestinal and neuralgic symptoms and damage. Ingestion by a child of more than 60 ml (2 ounces) or by an adult of more than 150 ml (5 ounces) may be fatal.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical
Non-flammable solution.

Hazardous Combustion Products Zinc oxide. Oxides of sulfur.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions	Use personal protective equipment as required.
Environmental Precautions	See Section 12 for additional Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Clean-Up	Carefully neutralize with a dilute alkaline solution of either baking soda (sodium bicarbonate), soda ash, or lime. Clean up in accordance with all applicable regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling	Wash thoroughly after handling. Use personal protection recommended in Section 8. Avoid contact with skin, eyes or clothing. Avoid breathing mists.

Conditions for safe storage, including any incompatibilities

Storage Conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Store at 32°F - 105°F. Protect from direct sunlight. Store away from incompatible materials. Keep out of the reach of children.
Incompatible Materials	Strong alkalis.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Citric Acid 77-92-9	-	15 mg / m3 (Total)	-
Copper sulfate pentahydrate 7758-99-8	TWA: 1 mg/m^3 Cu dust and mist	TWA: 1 mg/m^3 Cu dust and mist	IDLH: 100 mg/m^3 Cu dust and mist TWA: 1 mg/m^3 Cu dust and mist
Manganese Sulfate Monohydrate 10034-96-5	TWA: 0.2 mg/m^3 Mn	(vacated) Ceiling: 5 mg/m^3 Ceiling: 5 mg/m^3 Mn	IDLH: 500 mg/m^3 Mn TWA: 1 mg/m^3 Mn STEL: 3 mg/m^3 Mn
Ferrous Sulfate 7782-63-0	TWA: 1 mg/m^3 Fe	(vacated) TWA: 1 mg/m^3 Fe	TWA: 1 mg/m^3 Fe

Appropriate engineering controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Safety goggles.

Skin and Body Protection Wear rubber or neoprene gloves. Coveralls, apron or other equipment should be worn to minimize skin contact.

Respiratory Protection Ensure adequate ventilation, especially in confined areas.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Liquid		
Appearance	Dark brown liquid	**Odor**	Sweet
Color	Dark brown	**Odor Threshold**	Not determined

Property	Values	Remarks • Method
pH	2.36	
Melting Point/Freezing Point	Not available	
Boiling Point/Boiling Range	100 °C / 212 °F	
Flash Point	Not available	
Evaporation Rate	Not known	
Flammability (Solid, Gas)	n/a-liquid	
Upper Flammability Limits	Not available	
Lower Flammability Limit	Not available	
Vapor Pressure	Not known	
Vapor Density	Not known	
Specific Gravity	1.22	(1=Water)
Water Solubility	Approx. 98%	
Solubility in other solvents	Not determined	
Partition Coefficient	Not determined	
Auto-ignition Temperature	Not available	
Decomposition Temperature	Not determined	
Kinematic Viscosity	Not determined	
Dynamic Viscosity	Not determined	
Explosive Properties	Not determined	
Oxidizing Properties	Not determined	

10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions.

Chemical Stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
Mildly corrosive to common metals.

Conditions to Avoid
Keep out of reach of children.

Incompatible Materials
Strong alkalis.

Hazardous Decomposition Products
Sulfur oxides. Zinc oxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact Causes serious eye irritation.

Skin Contact Avoid contact with skin.

Inhalation Avoid breathing vapors or mists.

Ingestion Do not taste or swallow.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Citric Acid 77-92-9	= 3000 mg/kg (Rat)	-	-
Glycine 56-40-6	= 7930 mg/kg (Rat)	-	-
Zinc sulfate 7733-02-0	= 500 mg/kg (Rat)	-	-
Copper sulfate pentahydrate 7758-99-8	= 472 mg/kg (Rat)	> 2 g/kg (Rat)	> 2.95 mg/L (Rat)

Information on physical, chemical and toxicological effects

Symptoms Please see section 4 of this SDS for symptoms.

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

Carcinogenicity This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical measures of toxicity
Not determined

Unknown Acute Toxicity 6.255% of the mixture consists of ingredient(s) of unknown toxicity.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Citric Acid 77-92-9		1516: 96 h Lepomis macrochirus mg/L LC50 static		120: 72 h Daphnia magna mg/L EC50
Zinc sulfate 7733-02-0	64.8: 72 h Chlorella vulgaris mg/L EC50 2.4: 96 h Chlorella vulgaris mg/L EC50 0.056: 72 h Pseudokirchneriella subcapitata mg/L EC50 static	0.162: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.03 - 0.05: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 0.34 - 0.93: 96 h Oncorhynchus mykiss mg/L LC50 static 0.218 - 0.42: 96 h Pimephales promelas mg/L LC50 flow-through 0.06: 96 h Pimephales promelas mg/L LC50 static 0.23 - 0.48: 96 h Pimephales promelas mg/L LC50 0.168 - 0.25: 96 h Pimephales promelas mg/L LC50 semi-static 0.15: 96 h Cyprinus carpio mg/L LC50 semi-static 16.85 - 27.18: 96 h Cyprinus carpio mg/L LC50 static 3 - 4.6: 96 h Lepomis macrochirus mg/L LC50 flow-through 3.55 - 6.32: 96 h Lepomis macrochirus mg/L LC50 static 0.63: 96 h Poecilia reticulata mg/L LC50 49.23 - 64.16: 96 h Poecilia reticulata mg/L LC50 semi-static 0.48 - 1.72: 96 h Poecilia reticulata mg/L LC50 static	EC50 = 3.45 mg/L 15 min EC50 = 40.5 mg/L 30 min EC50 = 476 mg/L 5 min EC50 > 700 mg/L 16 h	0.75: 48 h Daphnia magna mg/L EC50 0.538 - 0.908: 48 h Daphnia magna mg/L EC50 Static
Copper sulfate pentahydrate 7758-99-8		0.66 - 1.15: 96 h Lepomis macrochirus mg/L LC50 semi-static 0.96 - 1.8: 96 h Lepomis macrochirus mg/L LC50 static 0.1478 - 0.165: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.09 - 0.19: 96 h Oncorhynchus mykiss mg/L LC50 static 0.6752: 96 h Pimephales promelas mg/L LC50 static		0.147 - 0.227: 48 h Daphnia magna mg/L EC50 Static

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Chemical Name	Partition Coefficient
Citric Acid 77-92-9	-1.72

Other Adverse Effects

Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

California Hazardous Waste Status

Chemical Name	California Hazardous Waste Status
Zinc sulfate 7733-02-0	Toxic
Copper sulfate pentahydrate 7758-99-8	Toxic

14. TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT Not regulated

IATA Not regulated

IMDG

Marine Pollutant This product contains cupric sulfate which is listed as a DOT Marine Pollutant (49 CFR 172.101, Appendix B)

15. REGULATORY INFORMATION

International Inventories

Not determined

US Federal Regulations

CERCLA

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Zinc sulfate 7733-02-0	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
Copper sulfate pentahydrate 7758-99-8	10 lbs	10 lbs	10 lbs
Ferrous Sulfate 7782-63-0	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

SARA 313

Chemical Name	CAS No	Weight-%	SARA 313 - Threshold Values %
Zinc sulfate - 7733-02-0	7733-02-0	1.4	1.0
Copper sulfate pentahydrate - 7758-99-8	7758-99-8	1.5	1.0
Manganese Sulfate Monohydrate - 10034-96-5	10034-96-5	1	1.0

CWA (Clean Water Act)

Component	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Zinc sulfate 7733-02-0 (1.4)	1000 lb	X		X
Copper sulfate pentahydrate 7758-99-8 (1.5)		X		
Ferrous Sulfate 7782-63-0 (0.3)				X

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Zinc sulfate - 7733-02-0	X

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Zinc sulfate 7733-02-0	X	X	X
Copper sulfate pentahydrate 7758-99-8	X		X
Manganese Sulfate Monohydrate 10034-96-5	X		X
Ferrous Sulfate 7782-63-0		X	X

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	Not determined	Not determined	Not determined	Not determined
HMIS	**Health Hazards**	**Flammability**	**Physical Hazards**	**Personal Protection**
	Not determined	Not determined	Not determined	Not determined

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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