

Safety Data Sheet

Issue Date: 10-Apr-2015

Revision Date: 10-Apr-2017

Version 1

1. IDENTIFICATION

Product Identifier

Product Name Emitate 10-45-10

Other means of identification

SDS # VLS-208

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.
1001 Winstead Drive, Suite 480
Cary, NC 27513

Emergency Telephone Number

Company Phone Number Business Phone: (800) 868-6446

Fax: (919) 535-3652

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

2. HAZARDS IDENTIFICATION

Appearance Green-blue crystals

Physical state Solid

Odor Fertilizer-like

Classification

This chemical does not meet the hazardous criteria set forth by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). However, this Safety Data Sheet (SDS) contains valuable information critical to the safe handling and proper use of this product. This SDS should be retained and available for employees and other users of this product.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Please also refer to subsequent sections of this SDS for additional information regarding the components of this product.

Chemical Name	CAS No.	Weight-%
Ammonium Sulfate	7783-20-2	Proprietary
Fe EDTA	15708-41-5	Proprietary
Citric Acid	77-92-9	Proprietary
Inorganic Borate	12280-03-4	Proprietary

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

General Advice	Provide this SDS to medical personnel for treatment.
Eye Contact	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.
Skin Contact	Wash off immediately with plenty of water. Take off contaminated clothing. Wash contaminated clothing before reuse. If skin irritation persists, call a physician.
Inhalation	Remove exposed individual(s) to fresh air for 20 minutes. Consult a physician / poison center if individual's condition declines or if symptoms persist.
Ingestion	Do NOT induce vomiting. Rinse mouth. Drink 1 or 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician immediately.

Most important symptoms and effects

Symptoms	May be harmful if swallowed.
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Indication of any immediate medical attention and special treatment needed

Notes to Physician	Treat symptomatically.
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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

Product is not flammable.

Explosion Data

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	Wear protective clothing as described in Section 8 of this safety data sheet. Ventilate area of leak or spill.
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Environmental precautions

Environmental precautions	See Section 12 for additional Ecological Information.
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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	Avoid creating dust. Sweep up and shovel into suitable containers for disposal. For waste disposal, see section 13 of the SDS.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling

Avoid generation of dust. Wear eye/face protection. Do not breathe dust/fume/gas/mist/vapors/spray. Use personal protection recommended in Section 8. Do not eat, drink or smoke when using this product.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible Materials

Strong oxidizing agents. Strong acids. Strong bases.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Fe EDTA 15708-41-5	TWA: 1 mg/m ³ Fe	(vacated) TWA: 1 mg/m ³ Fe	TWA: 1 mg/m ³ Fe
Citric Acid 77-92-9	-	15 mg / m3 (Total)	-
Manganese EDTA 15375-84-5	-	(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
Ethylenediaminetetraacetic acid copper salt, tetrahydrate 14025-15-1	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
Inorganic Borate 12280-03-4	STEL: 6 mg/m ³ inhalable particulate matter TWA: 2 mg/m ³ inhalable particulate matter	-	-
Synthetic calcium silicate 1344-95-2	-	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 15 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust

Appropriate engineering controls

Engineering Controls

Apply technical measures to comply with the occupational exposure limits. Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area. Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Eye/Face Protection

Chemical safety goggles/faceshield. Refer to 29 CFR 1910.133 for eye and face protection regulations.

Skin and Body Protection

Wear protective gloves and protective clothing. Refer to 29 CFR 1910.138 for appropriate skin and body protection.

Respiratory Protection

If necessary, wear a MSHA/NIOSH-approved respirator. Refer to 29 CFR 1910.134 for respiratory protection requirements.

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	Solid	Odor	Fertilizer-like
Appearance	Green-blue crystals	Odor Threshold	Not determined
Color	Green-blue		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	Not determined	
Melting Point/Freezing Point	Not determined	
Boiling Point/Boiling Range	Not determined	
Flash Point	Not determined	
Evaporation Rate	Not determined	
Flammability (Solid, Gas)	Not determined	
Flammability Limits in Air		
Upper Flammability Limits	Not determined	
Lower Flammability Limit	Not determined	
Vapor Pressure	Not determined	
Vapor Density	Not determined	
Relative Density	Not determined	
Water Solubility	100%	
Solubility in other solvents	Not determined	
Partition Coefficient	Not determined	
Auto-ignition Temperature	Not determined	
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

None under normal processing.

Conditions to Avoid

Avoid generation of dust.

Incompatible Materials

Strong oxidizing agents. Strong acids. Strong bases.

Hazardous Decomposition Products

None known based on information supplied.

11. TOXICOLOGICAL INFORMATION**Information on likely routes of exposure****Product Information**

Eye Contact	May cause mechanical eye irritation.
Skin Contact	May cause temporary irritation on skin contact.

Inhalation Dusts of this product may cause irritation of the nose, throat, and respiratory tract.

Ingestion May be harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Mono-ammonium Phosphate 7722-76-1	= 5750 mg/kg (Rat)	> 7940 mg/kg (Rabbit)	-
Potassium Phosphate 7778-77-0	-	> 4640 mg/kg (Rabbit)	-
Ammonium Sulfate 7783-20-2	= 2840 mg/kg (Rat)	-	-
Potassium Sulfate 7778-80-5	= 6600 mg/kg (Rat)	-	-
Urea 57-13-6	= 8471 mg/kg (Rat)	-	-
Citric Acid 77-92-9	= 3 g/kg (Rat) = 3000 mg/kg (Rat)	-	-
Fe EDTA 15708-41-5	> 5000 mg/kg (Rat) = 5 g/kg (Rat)	> 5000 mg/kg (Rat)	> 2.05 g/m ³ (Rat) 4 h
Zinc EDT 14025-21-9	= 1750 mg/kg (Rat)	-	-
Inorganic Borate 12280-03-4	= 2500 mg/kg (Rat)	-	-
Synthetic calcium silicate 1344-95-2	> 5000 mg/kg (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 Based on the information provided, this product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical measures of toxicity

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

ATEmix (oral) 4,605.00 mg/kg

ATEmix (dermal) 6,204.00 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Component Information

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Ammonium Sulfate 7783-20-2		18: 96 h Cyprinus carpio mg/L LC50 32.2 - 41.9: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 123 - 128: 96 h Poecilia reticulata mg/L LC50 semi-static 420: 96 h Brachydanio rerio mg/L LC50 semi-static 480: 96 h Brachydanio rerio mg/L LC50 flow-through 250: 96 h Brachydanio rerio mg/L LC50 460 - 1000: 96 h Leuciscus idus mg/L LC50 static 100: 96 h Pimephales	14: 48 h Daphnia magna mg/L LC50 423: 24 h Daphnia magna mg/L EC50

		promelas mg/L LC50 126: 96 h Poecilia reticulata mg/L LC50 5.2 - 8.2: 96 h Oncorhynchus mykiss mg/L LC50 static	
Potassium Sulfate 7778-80-5	2900: 72 h Desmodemus subspicatus mg/L EC50	3550: 96 h Lepomis macrochirus mg/L LC50 static 510 - 880: 96 h Pimephales promelas mg/L LC50 static 653: 96 h Lepomis macrochirus mg/L LC50	890: 48 h Daphnia magna mg/L EC50
Urea 57-13-6		16200 - 18300: 96 h Poecilia reticulata mg/L LC50	3910: 48 h Daphnia magna mg/L EC50 Static 10000: 24 h Daphnia magna Straus mg/L EC50
Citric Acid 77-92-9		1516: 96 h Lepomis macrochirus mg/L LC50 static	120: 72 h Daphnia magna mg/L EC50

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Chemical Name	Partition Coefficient
Ammonium Sulfate 7783-20-2	-5.1
Urea 57-13-6	-1.59
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
Ethylenediaminetetraacetic acid copper salt, tetrahydrate 14025-15-1	Toxic
Zinc EDT 14025-21-9	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 Not regulated

15. REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	DSL/NDSL	EINECS/E LINCS	ENCS	IECSC	KECL	PICCS	AICS
Mono-ammonium Phosphate	X	X	X	Present	X	Present	X	X
Potassium Phosphate	X	X	X	Present	X	Present	X	X
Ammonium Sulfate	X	X	X	Present	X	Present	X	X
Potassium Sulfate	X	X	X	Present	X	Present	X	X
Urea	X	X	X	Present	X	Present	X	X
Citric Acid	X	X	X	Present	X	Present	X	X
Fe EDTA	X	X	X		X	Present	X	X
Manganese EDTA	X	X	X	Present	X			X
Ethylenediaminetetraacetic acid copper salt, tetrahydrate	X	X	X	Present	X	Present	X	X
Zinc EDT	X	X	X	Present	X			X
Inorganic Borate	X				X		X	
Synthetic calcium silicate	X	X	X	Present	X	Present	X	X

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

US Federal Regulations

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No.	Weight-%	SARA 313 - Threshold Values %
Mono-ammonium Phosphate - 7722-76-1	7722-76-1	Proprietary	1.0
Ammonium Sulfate - 7783-20-2	7783-20-2	Proprietary	1.0

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ethylenediaminetetraacetic acid copper salt, tetrahydrate		X		
Zinc EDT		X		

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Manganese EDTA 15375-84-5	X		X
Ethylenediaminetetraacetic acid copper salt, tetrahydrate 14025-15-1	X		X
Zinc EDT 14025-21-9	X		X
Inorganic Borate 12280-03-4	X		
Synthetic calcium silicate 1344-95-2	X	X	X

16. OTHER INFORMATION

NFPA**Health Hazards**

Not determined

Flammability

Not determined

Instability

Not determined

Special Hazards

Not determined

HMIS**Health Hazards**

Not determined

Flammability

Not determined

Physical hazards

Not determined

Personal Protection

Not determined

Issue Date:

10-Apr-2015

Revision Date:

10-Apr-2017

Revision Note:

New product

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