Safety Data Sheet

Issue Date: 20-Dec-2017 **Revision Date:** 21-Dec-2017 **Version** 1

1. IDENTIFICATION

Product Identifier

Product Name MicroSync Complete

Other means of identification

SDS # VLS-235
FFN 05079

UN/ID No UN3077

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

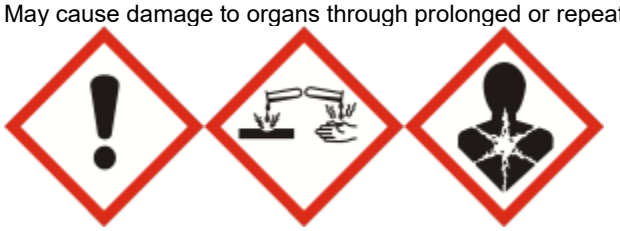
Physical state Solid

Classification

Acute toxicity - Oral	Category 4
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (repeated exposure)	Category 2

Signal Word
Danger

Hazard statements
Harmful if swallowed
Causes serious eye damage
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Wear eye/face protection
Do not eat, drink or smoke when using this product

Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response

Get medical advice/attention if you feel unwell
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
IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell
Rinse mouth

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other hazards

Very toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	Weight-%
Calcium sulfate dihydrate	10101-41-4	20-30
Bentonite Clay	1302-78-9	20-30
Iron (II) Sulfate monohydrate	17375-41-6	10-20
Ammonium Sulfate	7783-20-2	1-10
Zinc Sulfate, monohydrate	7446-19-7	1-10
Sodium tetraborate pentahydrate	12179-04-3	1-10
Manganese Sulfate Monohydrate	10034-96-5	1-10
Manganese Oxide	1344-43-0	<5
Cupric Oxide	1317-38-0	<5
Paraffin Emulsion	8002-74-2	<5
Copper sulfate pentahydrate	7758-99-8	<5
Citric Acid	77-92-9	<5
Maleic-itaconic Copolymer	Proprietary	<1

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 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/physician.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes.

Inhalation Remove to fresh air.

Ingestion IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

Most important symptoms and effects

Symptoms Harmful if swallowed. Causes serious eye damage. May cause damage to organs through prolonged or repeated exposure.

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
Not determined.

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

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 Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Handle in accordance with good industrial hygiene and safety practice. Wash face, hands and any exposed skin thoroughly after handling. Wear eye/face protection. Do not eat, drink or smoke when using this product. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

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

Incompatible Materials None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Calcium sulfate dihydrate 10101-41-4	TWA: 10 mg/m^3 inhalable particulate matter	-	-
Bentonite Clay 1302-78-9	TWA: 1 mg/m^3 respirable particulate matter	-	-
Iron (II) Sulfate monohydrate 17375-41-6	TWA: 1 mg/m^3 Fe	(vacated) TWA: 1 mg/m^3 Fe	TWA: 1 mg/m^3 Fe
Sodium tetraborate pentahydrate 12179-04-3	STEL: 6 mg/m^3 inhalable particulate matter TWA: 2 mg/m^3 inhalable	(vacated) TWA: 10 mg/m^3	TWA: 1 mg/m^3

	particulate matter		
Manganese Sulfate Monohydrate 10034-96-5	TWA: 0.02 mg/m^3 Mn respirable particulate matter TWA: 0.1 mg/m^3 Mn inhalable particulate matter	(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
Manganese Oxide 1344-43-0	TWA: 0.02 mg/m^3 Mn respirable particulate matter TWA: 0.1 mg/m^3 Mn inhalable particulate matter	(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
Cupric Oxide 1317-38-0	TWA: 1 mg/m^3 Cu dust and mist	-	IDLH: 100 mg/m^3 Cu dust and mist TWA: 0.1 mg/m^3 Cu fume TWA: 1 mg/m^3 Cu dust and mist
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
Paraffin Emulsion 8002-74-2	TWA: 2 mg/m^3 fume	(vacated) TWA: 2 mg/m^3	TWA: 2 mg/m^3 fume

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 Refer to 29 CFR 1910.133 for eye and face protection regulations.

Skin and Body Protection Refer to 29 CFR 1910.138 for appropriate skin and body protection.

Respiratory Protection 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		
Appearance	Not determined	**Odor**	Not determined
Color	Not determined	**Odor Threshold**	Not determined

Property	**Values**	**Remarks • Method**
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	Not determined	
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
Keep out of reach of children.

Incompatible Materials
None known based on information supplied.

Hazardous Decomposition Products
None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact Causes serious eye damage.

Skin Contact Avoid contact with skin.

Inhalation Do not inhale.

Ingestion Harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Bentonite Clay 1302-78-9	> 5000 mg/kg (Rat)	-	-
Ammonium Sulfate 7783-20-2	= 2840 mg/kg (Rat)	-	-
Sodium tetraborate pentahydrate 12179-04-3	= 2403 mg/kg (Rat)	-	-
Citric Acid 77-92-9	= 3 g/kg (Rat) = 3000 mg/kg (Rat)	-	-
Copper sulfate pentahydrate 7758-99-8	= 472 mg/kg (Rat)	> 2 g/kg (Rat)	> 2.95 mg/L (Rat)
Paraffin Emulsion 8002-74-2	> 5000 mg/kg (Rat)	> 3600 mg/kg (Rabbit)	-
Maleic-itaconic Copolymer	> 90 mL/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.

STOT - repeated exposure Causes damage to organs through prolonged or repeated exposure.

Numerical measures of toxicity

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

ATEmix (oral) 1,544.00 mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.

Component Information

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Bentonite Clay 1302-78-9		8.0 - 19.0: 96 h Salmo gairdneri g/L LC50 19000: 96 h Oncorhynchus mykiss mg/L LC50 static	
Ammonium Sulfate 7783-20-2		460 - 1000: 96 h Leuciscus idus mg/L LC50 static 18: 96 h Cyprinus carpio mg/L LC50 123 - 128: 96 h Poecilia reticulata mg/L LC50 semi-static 5.2 - 8.2: 96 h Oncorhynchus mykiss mg/L LC50 static 32.2 - 41.9: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 126: 96 h Poecilia reticulata mg/L LC50 250: 96 h Brachydanio rerio mg/L LC50 480: 96 h Brachydanio rerio mg/L LC50 flow-through 420: 96 h Brachydanio rerio mg/L LC50 semi-static 100: 96 h Pimephales promelas mg/L LC50	423: 24 h Daphnia magna mg/L EC50 14: 48 h Daphnia magna mg/L LC50
Citric Acid 77-92-9		1516: 96 h Lepomis macrochirus mg/L LC50 static	120: 72 h Daphnia magna mg/L EC50
Copper sulfate pentahydrate 7758-99-8		0.66 - 1.15: 96 h Lepomis macrochirus mg/L LC50 semi-static 0.6752: 96 h Pimephales promelas mg/L LC50 static 0.09 - 0.19: 96 h Oncorhynchus mykiss mg/L LC50 static 0.1478 - 0.165: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.96 - 1.8: 96 h Lepomis macrochirus 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
Ammonium Sulfate 7783-20-2	-5.1
Citric Acid	-1.72

77-92-9	

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, monohydrate 7446-19-7	Toxic
Cupric Oxide 1317-38-0	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
UN/ID No UN3077
Proper Shipping Name Environmentally hazardous substance, solid, n.o.s. (Copper sulfate pentahydrate)
Hazard Class 9
Packing Group III

IATA
UN/ID No UN3077
Proper Shipping Name Environmentally hazardous substance, solid, n.o.s. (Copper sulfate pentahydrate)
Hazard Class 9
Packing Group III

IMDG
UN/ID No UN3077
Proper Shipping Name Environmentally hazardous substance, solid, n.o.s. (Copper sulfate pentahydrate)
Hazard Class 9
Packing Group III
Marine Pollutant Yes

15. REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	DSL/NDSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Calcium sulfate dihydrate	X				X		X	X
Bentonite Clay	X	X	X		X	Present	X	X
Iron (II) Sulfate monohydrate	X							X
Ammonium Sulfate	X	X	X	Present	X	Present	X	X
Zinc Sulfate, monohydrate	X	X			X		X	X
Sodium tetraborate pentahydrate	X			Present	X		X	
Flue dust, automotive metal recovery	X	X						
Manganese Sulfate Monohydrate				Present	X		X	X
Manganese Oxide	X	X	X	Present	X	Present	X	X
Cupric Oxide	X	X	X	Present	X	Present	X	X
Citric Acid	X	X	X	Present	X	Present	X	X
Copper sulfate pentahydrate	X				X		X	X
Paraffin Emulsion	X	X	X	Present	X	Present	X	X
Maleic-itaconic Copolymer	X	X	X		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, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Zinc Sulfate, monohydrate 7446-19-7	1000 lbs	1000 lbs	1000 lbs
Copper sulfate pentahydrate 7758-99-8	10 lbs	10 lbs	10 lbs

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 %
Ammonium Sulfate - 7783-20-2	7783-20-2	1-10	1.0
Zinc Sulfate, monohydrate - 7446-19-7	7446-19-7	1-10	1.0
Manganese Sulfate Monohydrate - 10034-96-5	10034-96-5	1-10	1.0
Manganese Oxide - 1344-43-0	1344-43-0	<5	1.0
Cupric Oxide - 1317-38-0	1317-38-0	<5	1.0
Copper sulfate pentahydrate - 7758-99-8	7758-99-8	<5	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
Zinc Sulfate, monohydrate		X		
Cupric Oxide		X		
Copper sulfate pentahydrate		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
Sodium tetraborate pentahydrate 12179-04-3	X	X	
Zinc Sulfate, monohydrate 7446-19-7	X		X
Manganese Sulfate Monohydrate 10034-96-5	X		X
Manganese Oxide 1344-43-0	X		X
Cupric Oxide 1317-38-0	X		X
Copper sulfate pentahydrate 7758-99-8	X		X
Paraffin Emulsion 8002-74-2	X	X	X
Maleic-itaconic Copolymer			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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Revision Note: New format

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