

Safety Data Sheet

Issue Date: 03-Jul-2017

Revision Date: 09-Jan-2018

Version 3

1. IDENTIFICATION

Product Identifier

Product Name MicroSync Pro

Other means of identification

SDS # VLS-222
FFN 05070

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 Black course granule

Physical state Solid

Odor None

Classification

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

Signal Word

Danger

Hazard statements

Harmful if swallowed
Harmful if inhaled
Causes skin irritation
Causes serious eye damage
May cause damage to organs through prolonged or repeated exposure



Precautionary Statements - Prevention

Wear protective gloves/protective clothing/eye protection/face protection
 Wash face, hands and any exposed skin thoroughly after handling
 Do not eat, drink or smoke when using this product
 Use only outdoors or in a well-ventilated area
 Do not breathe dust/fume/gas/mist/vapors/spray

Precautionary Statements - Response

If exposed or concerned: Get medical advice/attention
 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 ON SKIN: Wash with plenty of water and soap
 If skin irritation occurs: Get medical advice/attention
 Take off contaminated clothing and wash before reuse
 IF INHALED: Remove person to fresh air and keep comfortable for breathing
 Call a poison center or doctor/physician if you feel unwell
 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-%
Gypsum	13397-24-5	15-20
Proprietary	Proprietary	Proprietary
Ammonium Sulfate	7783-20-2	5-10
Sodium tetraborate pentahydrate	12179-04-3	5-10
Proprietary	Proprietary	Proprietary
Manganese dioxide	1313-13-9	5-10
Zinc Sulfate, monohydrate	7446-19-7	1-5
Manganese Sulfate Monohydrate	10034-96-5	1-5
Proprietary	Proprietary	Proprietary
Proprietary	Proprietary	Proprietary
Proprietary	Proprietary	Proprietary
Proprietary	Proprietary	Proprietary
Proprietary	Proprietary	Proprietary
Maleic-itaconic Copolymer	Proprietary	<1
Proprietary	Proprietary	Proprietary
Silica, Quartz	14808-60-7	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

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	IF ON SKIN: Wash with plenty of water and soap. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse.
Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.
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. Harmful if inhaled. Causes skin irritation. Causes serious eye damage. May cause damage to organs through prolonged or repeated exposure.
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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

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. Wear protective gloves/protective clothing and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapors/spray.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep container tightly closed and store in a cool, dry 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
Gypsum 13397-24-5	TWA: 10 mg/m ³ inhalable particulate matter	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 (vacated)	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust
Proprietary	TWA: 1 mg/m ³ respirable particulate matter	-	-
Sodium tetraborate pentahydrate 12179-04-3	STEL: 6 mg/m ³ inhalable particulate matter TWA: 2 mg/m ³ inhalable particulate matter	(vacated) TWA: 10 mg/m ³	TWA: 1 mg/m ³
Proprietary	TWA: 1 mg/m ³ Fe	(vacated) TWA: 1 mg/m ³ Fe	TWA: 1 mg/m ³ Fe
Manganese dioxide 1313-13-9	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 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
Proprietary	STEL: 2 mg/m ³ fume TWA: 1 mg/m ³ fume	TWA: 1 mg/m ³ fume (vacated) TWA: 1 mg/m ³ fume (vacated) STEL: 2 mg/m ³ fume (vacated)	IDLH: 50 mg/m ³ fume TWA: 1 mg/m ³ fume STEL: 2 mg/m ³ fume
Proprietary	STEL: 10 mg/m ³ respirable particulate matter TWA: 2 mg/m ³ respirable particulate matter	TWA: 5 mg/m ³ fume TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 5 mg/m ³ fume (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction (vacated) STEL: 10 mg/m ³ fume (vacated)	IDLH: 500 mg/m ³ Ceiling: 15 mg/m ³ dust TWA: 5 mg/m ³ dust and fume STEL: 10 mg/m ³ fume
Proprietary	TWA: 2 mg/m ³ fume	(vacated) TWA: 2 mg/m ³	TWA: 2 mg/m ³ fume
Proprietary	Ceiling: 2 mg/m ³	(vacated) Ceiling: 2 mg/m ³	Ceiling: 2 mg/m ³
Proprietary	TWA: 5 mg/m ³ inhalable particulate matter, particulate matter containing no asbestos and <1% crystalline silica	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction (vacated)	TWA: 10 mg/m ³ total dust TWA: 5 mg/m ³ respirable dust
Proprietary	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³ (vacated) Ceiling: 2 mg/m ³ (vacated)	IDLH: 10 mg/m ³ Ceiling: 2 mg/m ³
Proprietary	-	15 mg / m ³ (Total)	-
Silica, Quartz 14808-60-7	TWA: 0.025 mg/m ³ respirable particulate matter	TWA: 50 µg/m ³ TWA: 50 µg/m ³ excludes construction work, agricultural operations, and exposures that result from the processing of sorptive clays (vacated) TWA: 0.1 mg/m ³	IDLH: 50 mg/m ³ respirable dust TWA: 0.05 mg/m ³ respirable dust

		respirable dust : (250)/ (%SiO ₂ + 5) mppcf TWA respirable fraction : (10)/ (%SiO ₂ + 2) mg/m ³ TWA respirable fraction	
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Appropriate engineering controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits. Showers
 Eyewash stations
 Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Wear eye/face protection. 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 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	None
Appearance	Black course granule	Odor Threshold	Not determined
Color	Black		

<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	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	

Other Information

Bulk Density 7.5 lb/gal

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	Causes skin irritation.
Inhalation	Harmful if inhaled.
Ingestion	Harmful if swallowed.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Proprietary	> 5000 mg/kg (Rat)	-	-
Ammonium Sulfate 7783-20-2	= 2840 mg/kg (Rat)	-	-
Sodium tetraborate pentahydrate 12179-04-3	= 2403 mg/kg (Rat)	-	-
Manganese dioxide 1313-13-9	= 9000 mg/kg (Rat)	-	-
Proprietary	= 1100 mg/kg (Rat)	-	-
Proprietary	> 5000 mg/kg (Rat)	-	-
Carbon 7440-44-0	> 10000 mg/kg (Rat)	-	-
Proprietary	> 5000 mg/kg (Rat)	> 3600 mg/kg (Rabbit)	-
Proprietary	= 284 mg/kg (Rat)	-	-
Proprietary	-	= 1350 mg/kg (Rabbit)	-
Proprietary	= 3 g/kg (Rat) = 3000 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 Crystalline Silica is considered to be a human carcinogen when in respirable form (dust / powder).

STOT - repeated exposure May cause damage to organs through prolonged or repeated exposure. Respirable crystalline silica causes damage to organs (lung effects, immune system effects, and kidney effects) 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) 1,376.00 mg/kg

ATEmix (inhalation-dust/mist) 1.50 mg/L

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Very toxic to aquatic life with long lasting effects.

Component Information

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Proprietary		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		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 promelas mg/L LC50 126: 96 h Poecilia reticulata mg/L LC50 5.2 - 8.2: 96 h Oncorhynchus mykiss mg/L LC50 static	14: 48 h Daphnia magna mg/L LC50 423: 24 h Daphnia magna mg/L EC50
Proprietary		80: 96 h Gambusia affinis mg/L LC50 static	
Proprietary		45.4: 96 h Oncorhynchus mykiss mg/L LC50 static	
Proprietary		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	-5.1

7783-20-2	
Manganese dioxide 1313-13-9	<0
Proprietary	0.65 0.83
Proprietary	-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, monohydrate 7446-19-7	Toxic
Proprietary	Toxic Corrosive
Proprietary	Toxic
Proprietary	Toxic Corrosive
Proprietary	Toxic Corrosive

14. TRANSPORT INFORMATION

<u>Note</u>	Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.
<u>DOT</u>	Not regulated
<u>IATA</u>	Not regulated
<u>IMDG</u>	
Marine Pollutant	This material may meet the definition of a marine pollutant

15. REGULATORY INFORMATION**International Inventories**

Chemical Name	TSCA	DSL/NDL	EINECS/E LINCS	ENCS	IECSC	KECL	PICCS	AICS
Gypsum	X	X			X			
Proprietary	X	X	X		X	Present	X	X
Ammonium Sulfate	X	X	X	Present	X	Present	X	X
Sodium tetraborate pentahydrate	X			Present	X		X	
Proprietary	X	X						
Proprietary	X							X

Manganese dioxide	X	X	X	Present	X	Present	X	X
Zinc Sulfate, monohydrate	X	X			X		X	X
Manganese Sulfate Monohydrate				Present	X		X	X
Proprietary	X	X	X	Present	X	Present	X	X
Proprietary	X	X	X	Present	X	Present	X	X
Calcium Sulfate Anhydrite					X			
Carbon	X	X	X		X	Present	X	X
Proprietary	X	X	X	Present	X	Present	X	X
Proprietary	X	X	X	Present	X	Present	X	X
Proprietary	X	X	X	Present	X	Present	X	X
Proprietary	X	X	X	Present	X	Present	X	X
Proprietary	X	X	X	Present	X	Present	X	X
Silica, Quartz	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, 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
Proprietary	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
Proprietary	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ
Proprietary	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

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	5-10	1.0
Manganese dioxide - 1313-13-9	1313-13-9	5-10	1.0
Zinc Sulfate, monohydrate - 7446-19-7	7446-19-7	1-5	1.0
Manganese Sulfate Monohydrate - 10034-96-5	10034-96-5	1-5	1.0
Proprietary -		Proprietary	1.0
Proprietary -		Proprietary	1.0
Proprietary -		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
Zinc Sulfate, monohydrate		X		
Proprietary	1000 lb	X		X
Proprietary		X		
Proprietary	1000 lb			X
Proprietary	1000 lb			X

US State Regulations**California Proposition 65**

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Silica, Quartz - 14808-60-7	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Gypsum 13397-24-5	X		X
Ammonium Sulfate 7783-20-2		X	X
Sodium tetraborate pentahydrate 12179-04-3	X	X	
Proprietary			X
Manganese dioxide 1313-13-9	X		X
Zinc Sulfate, monohydrate 7446-19-7	X		X
Manganese Sulfate Monohydrate 10034-96-5	X		X
Proprietary	X	X	X
Proprietary	X	X	X
Proprietary	X	X	X
Proprietary	X	X	X
Proprietary	X	X	X
Proprietary	X	X	X
Proprietary	X	X	X
Silica, Quartz 14808-60-7	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

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Revision Note: Formula update

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