

Safety Data Sheet

Issue Date: 18-Nov-2021

Revision Date: 02-Dec-2021

Version 2

1. IDENTIFICATION

Product identifier

Product Name Cyto-Red+

Other means of identification

SDS # VLS-345

Product Code 6500095

UN/ID No UN3082

Recommended use of the chemical and restrictions on use

Recommended Use Plant 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 INFOTRAC 1-352-323-3500 (International)
1-800-535-5053 (North America)

2. HAZARDS IDENTIFICATION

Appearance Dark brown liquid

Physical state Liquid

Odor Characteristic

Classification

| | |
|-----------------------------------|-------------|
| Serious eye damage/eye irritation | Category 2 |
| Carcinogenicity | Category 1B |
| Reproductive toxicity | Category 1B |

Signal Word

Danger

Hazard statements

Causes serious eye irritation

May cause cancer

May damage fertility or the unborn child



Precautionary Statements - Prevention

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Wear protective gloves/protective clothing/eye protection/face protection

Wash face, hands and any exposed skin thoroughly after handling

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

If eye irritation persists: Get medical advice/attention

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other hazards

Toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical name | CAS No | Weight-% |
|----------------------------|-------------|----------|
| Zinc Sulfate | 7446-19-7 | 1-5 |
| Urea | 57-13-6 | 1-5 |
| Ferrous Sulfate | 17375-41-6 | 0.1-1 |
| Copper sulfate | 7758-99-8 | 0.1-1 |
| Manganese Sulfate | 10034-96-5 | 0.1-1 |
| Proprietary Acid | Proprietary | 0.1-1 |
| Boric Acid | 10043-35-3 | 0.1-1 |
| Cobalt nitrate | 10026-22-9 | <0.1 |
| Ammonium Molybdate | 12054-85-2 | <0.1 |
| Ammonium metavanadate | 7803-55-6 | <0.1 |
| Tin Sulfate | 7488-55-3 | <0.1 |
| Sodium Tungstate Dihydrate | 10213-10-2 | <0.1 |

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

Description of first aid measures

| | |
|-----------------------|--|
| General Advice | If exposed or concerned: Get medical advice/attention. |
| 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 for at least 15 minutes. |
| Inhalation | Remove to fresh air. |
| Ingestion | Clean mouth with water and drink afterwards plenty of water. |

Most important symptoms and effects, both acute and delayed

| | |
|-----------------|--|
| Symptoms | Causes serious eye irritation. May cause cancer. May damage fertility or the unborn child. |
|-----------------|--|

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 Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store locked up.

Incompatible Materials None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---------------------------------|--|---|---|
| Ferrous Sulfate 17375-41-6 | TWA: 1 mg/m ³ Fe | (vacated) TWA: 1 mg/m ³ Fe | TWA: 1 mg/m ³ Fe |
| Copper sulfate 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 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 Acid | - | 15 mg / m ³ (Total) | - |

| | | | |
|--|---|--|---|
| Boric Acid 10043-35-3 | STEL: 6 mg/m ³ inhalable particulate matter TWA: 2 mg/m ³ inhalable particulate matter | - | - |
| Cobalt nitrate 10026-22-9 | TWA: 0.02 mg/m ³ Co inhalable particulate matter | - | - |
| Ammonium Molybdate 12054-85-2 | TWA: 0.5 mg/m ³ Mo respirable particulate matter | TWA: 5 mg/m ³ Mo (vacated) TWA: 5 mg/m ³ Mo | IDLH: 1000 mg/m ³ Mo |
| Ammonium metavanadate 7803-55-6 | - | - | Ceiling: 0.05 mg/m ³ V dust and fume 15 min |
| Tin Sulfate 7488-55-3 | TWA: 2 mg/m ³ Sn inhalable particulate matter excluding tin hydride and indium tin oxide | TWA: 2 mg/m ³ Sn except oxides (vacated) TWA: 2 mg/m ³ Sn except oxides | IDLH: 100 mg/m ³ Sn TWA: 2 mg/m ³ except Tin oxides Sn |
| Sodium Tungstate Dihydrate 10213-10-2 | TWA: 3 mg/m ³ W respirable particulate matter in the absence of cobalt | (vacated) TWA: 1 mg/m ³ W (vacated) STEL: 3 mg/m ³ W | TWA: 1 mg/m ³ W STEL: 3 mg/m ³ W |

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 | Liquid | Odor | Characteristic |
| Appearance | Dark brown liquid | Odor Threshold | Not determined |
| Color | Dark brown | | |
| Property | Values | Remarks • Method | |
| pH | 6.0-8.0 | | |
| Melting point / freezing point | Not determined | | |
| Boiling point / boiling range | Not determined | | |
| Flash point | Not determined | | |
| Evaporation Rate | Not determined | | |
| Flammability (Solid, Gas) | Liquid-Not applicable | | |
| Flammability Limit in Air | | | |
| Upper flammability or explosive limits | Not determined | | |
| Lower flammability or explosive limits | Not determined | | |
| Vapor Pressure | Not determined | | |
| Vapor Density | Not determined | | |
| Relative Density | 1.28 | | |
| Water Solubility | Not determined | | |
| Solubility in other solvents | Not determined | | |
| Partition Coefficient | Not determined | | |
| Autoignition 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** Avoid contact with eyes.**Skin Contact** Avoid contact with skin.**Inhalation** Do not inhale.**Ingestion** Do not ingest.**Component Information**

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|------------------------------------|-----------------------|-------------------------|--------------------------------------|
| Urea 57-13-6 | = 8471 mg/kg (Rat) | - | - |
| Copper sulfate 7758-99-8 | = 472 mg/kg (Rat) | > 8 g/kg (Rabbit) | > 2.95 mg/L (Rat) |
| Proprietary Acid | = 3 g/kg (Rat) | > 2000 mg/kg (Rat) | - |
| Boric Acid 10043-35-3 | = 2660 mg/kg (Rat) | > 2000 mg/kg (Rabbit) | > 0.16 mg/L (Rat) 4 h |
| Cobalt nitrate 10026-22-9 | = 691 mg/kg (Rat) | - | - |
| Ammonium metavanadate 7803-55-6 | = 58100 µg/kg (Rat) | = 2102 mg/kg (Rat) | = 7800 µg/m ³ (Rat) 4 h |
| Tin Sulfate 7488-55-3 | = 2207 mg/kg (Rat) | - | - |

Symptoms related to the physical, chemical and toxicological characteristics**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****Serious eye damage/eye irritation** Causes serious eye irritation.**Carcinogenicity** May cause cancer.

| Chemical name | ACGIH | IARC | NTP | OSHA |
|------------------------------|-------|----------|------------------------|------|
| Boric Acid 10043-35-3 | | Group 2A | | X |
| Cobalt nitrate 10026-22-9 | A3 | Group 2B | Reasonably Anticipated | X |

Legend**ACGIH (American Conference of Governmental Industrial Hygienists)**

A3 - Animal Carcinogen

IARC (International Agency for Research on Cancer)

Group 2A - Probably Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

NTP (National Toxicology Program)

Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Reproductive toxicity

May damage fertility or the unborn child.

Numerical measures of toxicity

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

Oral LD50 7,761.2979 mg/kg

Dermal LD50 25,394.50 mg/kg

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Toxic to aquatic life with long lasting effects.

Component Information

| Chemical name | Algae/aquatic plants | Fish | Crustacea |
|-----------------------------|----------------------|--|--|
| Urea 57-13-6 | | 16200 - 18300: 96 h Poecilia reticulata mg/L LC50 | 3910: 48 h Daphnia magna mg/L EC50 Static |
| Copper sulfate 7758-99-8 | | 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 0.66 - 1.15: 96 h Lepomis macrochirus mg/L LC50 semi-static 0.96 - 1.8: 96 h Lepomis macrochirus mg/L LC50 static 0.6752: 96 h Pimephales promelas mg/L LC50 static | 0.147 - 0.227: 48 h Daphnia magna mg/L EC50 Static |
| Proprietary Acid | | 1516: 96 h Lepomis macrochirus mg/L LC50 | |
| Boric Acid 10043-35-3 | | | 115 - 153: 48 h Daphnia magna mg/L EC50 |

Persistence/Degradability

Not determined.

Bioaccumulation

There is no data for this product.

Mobility

| Chemical name | Partition coefficient |
|--------------------------|-----------------------|
| Proprietary Acid | -1.72 |
| Boric Acid 10043-35-3 | -0.757 |

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.

US EPA Waste Number

| Chemical name | RCRA | RCRA - Basis for Listing | RCRA - D Series Wastes | RCRA - U Series Wastes |
|------------------------------------|------|--------------------------|------------------------|------------------------|
| Ammonium metavanadate 7803-55-6 | P119 | | | |

| Chemical name | RCRA - Halogenated Organic Compounds | RCRA - P Series Wastes | RCRA - F Series Wastes | RCRA - K Series Wastes |
|------------------------------------|--------------------------------------|------------------------|------------------------|------------------------|
| Ammonium metavanadate 7803-55-6 | | P119 | | |

California Hazardous Waste Status

| Chemical name | California Hazardous Waste Status |
|------------------------------|-----------------------------------|
| Zinc Sulfate 7446-19-7 | Toxic |
| Copper sulfate 7758-99-8 | Toxic |
| Boric Acid 10043-35-3 | Toxic |
| Cobalt nitrate 10026-22-9 | 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 UN3082
Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s. (Copper sulfate)
Hazard class 9
Packing Group III
Reportable Quantity (RQ) Copper sulfate (10 lbs)
Marine Pollutant This material ships as a marine pollutant when inner package/single container is greater than 119 gallons.

IATA

UN number UN3082
Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s. (Copper sulfate)
Transport hazard class(es) 9
Packing Group III
Description This material ships as a marine pollutant when inner packagings exceed 5L/5KG

IMDG

UN number UN3082
Proper Shipping Name Environmentally hazardous substance, liquid, n.o.s. (Copper sulfate)
Transport hazard class(es) 9
Packing Group III
Marine Pollutant This material ships as a marine pollutant when inner packagings exceed 5L/5KG

15. REGULATORY INFORMATION

International Inventories

| Chemical name | TSCA | TSCA Inventory Status | DSL/NDSL | EINECS/ELINCS | ENCS | IECSC | KECL | PICCS | AICS |
|----------------------------|------|-----------------------|----------|---------------|------|-------|------|-------|------|
| Urea | X | ACTIVE | X | X | X | X | X | X | X |
| Zinc Sulfate | X | | X | | X | X | | X | X |
| Ferrous Sulfate | X | | | | | | | | X |
| Copper sulfate | X | | | | X | X | | X | X |
| Manganese Sulfate | | | | | X | X | | X | X |
| Proprietary Acid | X | ACTIVE | X | X | X | X | X | X | X |
| Boric Acid | X | ACTIVE | X | X | X | X | X | X | X |
| Cobalt nitrate | | | | | X | X | | X | X |
| Ammonium Molybdate | | | | | X | X | | X | X |
| Ammonium metavanadate | X | ACTIVE | X | X | X | X | X | X | X |
| Tin Sulfate | X | ACTIVE | X | X | X | X | X | X | X |
| Sodium Tungstate Dihydrate | | | | | X | X | | 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

| Chemical name | Hazardous Substances RQs | CERCLA/SARA RQ | Reportable Quantity (RQ) |
|------------------------------------|--------------------------|----------------|---|
| Copper sulfate 7758-99-8 | 10 lbs | 10 lbs | 10 lbs |
| Ammonium metavanadate 7803-55-6 | 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 - 7446-19-7 | 7446-19-7 | 1-5 | 1.0 |
| Copper sulfate - 7758-99-8 | 7758-99-8 | 0.1-1 | 1.0 |
| Manganese Sulfate - 10034-96-5 | 10034-96-5 | 0.1-1 | 1.0 |
| Cobalt nitrate - 10026-22-9 | 10026-22-9 | <0.1 | 0.1 |
| Ammonium Molybdate - 12054-85-2 | 12054-85-2 | <0.1 | 1.0 |
| Ammonium metavanadate - 7803-55-6 | 7803-55-6 | <0.1 | 1.0 |

CWA (Clean Water Act)

| Chemical name | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants | CWA - Hazardous Substances |
|----------------|-----------------------------|------------------------|---------------------------|----------------------------|
| Zinc Sulfate | | X | | |
| Copper sulfate | | 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 |
|------------------------------------|------------|---------------|--------------|
| Zinc Sulfate 7446-19-7 | X | | X |
| Ammonium metavanadate 7803-55-6 | X | X | X |
| Tin Sulfate 7488-55-3 | | 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:

18-Nov-2021

Revision Date:

02-Dec-2021

Revision Note:

Updated formula

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