1. IDENTIFICATION

Product Identifier

Product Name
PRIMO Ultra and PRIMO Ultra Flexconnect

Other means of identification

SDS #
VLS-243-2

Recommended use of the chemical and restrictions on use

Recommended Use
Seed treatment.

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
Yellow to brown liquid

Physical state
Liquid

Odor
Mild

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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary Formulation Base</td>
<td>Proprietary</td>
<td>30-40</td>
</tr>
</tbody>
</table>

**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
In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Eye Contact
Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

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**

**Symptoms**  May be harmful if swallowed.

**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 agent suitable for type of surrounding fire. Dry Chemical, Carbon Dioxide, Foam, or Water Fog.

**Unsuitable Extinguishing Media**  Not determined.

**Specific Hazards Arising from the Chemical**  None known.

**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.

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### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions**  Wear appropriate protective gear for the situation. See personal protection information in Section 8.

**Environmental precautions**

**Environmental precautions**  See Section 12 for additional Ecological Information. Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

**Methods and material for containment and cleaning up**

**Methods for Containment**  Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

**Methods for Clean-Up**  Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible. Collect spillage. Store away from other materials.

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### 7. HANDLING AND STORAGE

**Precautions for safe handling**

**Advice on Safe Handling**  Handle in accordance with good industrial hygiene and safety practice.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions**  Do not contaminate water, food or feed by storage, disposal or by cleaning equipment.
Incompatible Materials

Some seed-applied chemicals, including fungicides, insecticides, and nematicides, may be harmful to the bacteria in this product.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary Formulation Base</td>
<td>TWA: 10 mg/m³</td>
<td>TWA: 15 mg/m³ total dust</td>
<td>TWA: 10 mg/m³ total dust</td>
</tr>
<tr>
<td></td>
<td>TWA: 5 mg/m³ respirable fraction</td>
<td>(vacated) TWA: 15 mg/m³ total dust</td>
<td>TWA: 5 mg/m³ respirable dust</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(vacated) TWA: 5 mg/m³ respirable fraction</td>
<td></td>
</tr>
</tbody>
</table>

### Appropriate engineering controls

#### Engineering Controls

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

#### Individual protection measures, such as personal protective equipment

#### Eye/Face Protection

To avoid contact with eyes, wear chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

#### Skin and Body Protection

Wear suitable protective clothing. An emergency shower or water supply should be readily accessible to the work area.

#### Respiratory Protection

Ensure adequate ventilation, especially in confined areas.

#### General Hygiene Considerations

Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material:

1. Do not use, and/or consume foods, beverages, tobacco products, or cosmetics in area where this material is stored.
2. Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet.
3. Wash exposed skin promptly to remove accidental splashes or contact with this material.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
<td>Odor</td>
</tr>
<tr>
<td>Appearance</td>
<td>Yellow to brown liquid</td>
<td>Mild</td>
</tr>
<tr>
<td>Color</td>
<td>Yellow to brown</td>
<td>Odor Threshold</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>6.5-7.5</td>
<td></td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Boiling Range</td>
<td>Not determined</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not determined</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Flammability (Solid, Gas)</td>
<td>Liquid-Not applicable</td>
<td></td>
</tr>
<tr>
<td>Flammability Limits in Air</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Flammability Limits</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Lower Flammability Limit</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor Pressure</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No data available</td>
<td></td>
</tr>
<tr>
<td>Relative Density</td>
<td>1.09</td>
<td></td>
</tr>
<tr>
<td>Water Solubility</td>
<td>Miscible in water</td>
<td></td>
</tr>
</tbody>
</table>

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10. STABILITY AND REACTIVITY

Reactivity
Not reactive under normal conditions.

Chemical Stability
This material is stable under normal handling and storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous Polymerization
Under normal conditions of storage and use, hazardous polymerization will not occur.

Conditions to Avoid
Incompatible Materials.

Incompatible Materials
Some seed-applied chemicals, including fungicides, insecticides, and nematicides, may be harmful to the bacteria in this product.

Hazardous Decomposition Products
Under fire conditions, may produce gases such as oxides of carbon.

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
May be harmful if swallowed.

Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water 7732-18-5</td>
<td>&gt; 90 mL/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Proprietary Formulation Base</td>
<td>= 29700 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sorbitol 50-70-4</td>
<td>= 15900 mg/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Proprietary mixture of organic and amino acids</td>
<td>&gt; 1 g/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
### 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) | 36,774.00 mg/kg mg/L |

### 12. ECOLOGICAL INFORMATION

**Ecotoxicity**
The product is not expected to be hazardous to the environment.

**Persistence/Degradability**
Not determined.

**Bioaccumulation**
Not determined.

**Mobility**
Not determined.

**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.

### 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

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>TSCA</th>
<th>DSL/NDSL</th>
<th>EINECS/ELINCS</th>
<th>ENCS</th>
<th>IECSC</th>
<th>KECL</th>
<th>PICCS</th>
<th>AICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary Formulation Base</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>Present</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

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**
Not determined

**CWA (Clean Water Act)**
This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

US State Regulations

**California Proposition 65**
This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>New Jersey</th>
<th>Massachusetts</th>
<th>Pennsylvania</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proprietary Formulation Base</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Special Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Physical hazards</th>
<th>Personal Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

Issue Date: 11-Jan-2018
Revision Date: 11-Jan-2018
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