**DESCRIPTION**

MicroBlend Foliar Zn-Mn-Cu is a foliar applied liquid nutrient product designed to provide Zinc (Zn), Manganese (Mn), Copper (Cu) and Sulfur (S) that may be deficient in the soil or plant.

**DIRECTIONS FOR USE**

MicroBlend Foliar Zn-Mn-Cu should be applied as a foliar spray. Spray in the late evening, early morning and nighttime in order to allow for maximum time for absorption. DO NOT spray in the heat of the day. DO NOT spray to the point of runoff. Use as fine a spray mist as possible. Allow 3-4 hours after application before rains or sprinkler irrigation in order to avoid washing off of the product. MicroBlend Foliar Zn-Mn-Cu is compatible with a wide range of nutrient and pesticide solutions and may be applied as a tank mix solution. A standard quart jar test is always recommended before tank mixing other materials. Adding a citric acid based acidifier may be required in order to assure compatibility with and optimum absorption when tank mixed with Phosphorus or some Phosphite products. Adjusting the final spray tank pH to 4.5 with a citric acid acidifier will decrease the chance of compatibility problems. Constant agitation is required when mixing with Calcium fertilizers.

<table>
<thead>
<tr>
<th>RATES &amp; TIMING</th>
<th>1-4 QUARTS PER ACRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orchards &amp; Vineyards</td>
<td>Apply in spring at any time after leaf out. Do not spray during pollination on orchard crops. Always use a final spray volume greater than 50 gallons per acre. Repeat as needed.</td>
</tr>
<tr>
<td>Field, Row, Vegetable, &amp; Fruit Crops</td>
<td>Apply any time during the growing season. Repeat as needed.</td>
</tr>
</tbody>
</table>

**GUARANTEED ANALYSIS**

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur (S)</td>
<td>3.00%</td>
</tr>
<tr>
<td>Copper (Cu)</td>
<td>1.00%</td>
</tr>
<tr>
<td>Manganese (Mn)</td>
<td>3.00%</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>3.00%</td>
</tr>
</tbody>
</table>

Derived from: zinc sulfate, manganese sulfate, and copper sulfate.

**HAZARD STATEMENTS**

Contact with eyes or skin may cause irritation.

**PRECAUTIONARY STATEMENTS**

Wear protective gloves and protective eyewear. Wash skin thoroughly after handling. Clothing should be thoroughly washed before re-use.

**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 attention.

**IF SWALLOWED:** Do not induce vomiting. Clean mouth with water. Call a Poison Control Center or doctor if you feel unwell.

**IF ON SKIN:** Remove immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs get medical attention.

**IF INHALED:** Remove person to fresh air and obtain medical attention immediately if breathing becomes difficult.

**WARRANTY & CONDITIONS OF SALE**

Manufacturer warrants that this material conforms to the chemical description hereon and is reasonably fit for use as directed. No other warranty is made, either expressed or implied. BEFORE OPENING, see other conditions and limitations that apply which are available at: http://www.FBSciences.com/ProductConditionsOfSale/.

Information regarding the contents and levels of metals in this product is available on the Internet at: http://www.aapfco.org/metals.htm

**FBSciences Inc.**

153 N. Main St, Suite 100
Collierville, TN 38017 USA

F1837
V013018
MicroBlend Foliar Zn-Mn-Cu
Safety Data Sheet

According to Federal Register/Vol. 77, No. 58/Monday, March 26, 2012/Rules and Regulations

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND COMPANY

1.1 PRODUCT IDENTIFIERS

Product Name: MicroBlend Foliar Zn-Mn-Cu
Active Ingredient (%): Sulfur 3.0%, Zinc 3.0%, Manganese 3.0%, Copper 1.0%
Recommended Use: Fertilizer

1.2 RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Uses of the Substance/Mixture: Various agricultural applications

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

FBSciences, Inc.
153 N. Main St., Ste. 100
Collierville, TN 38017 USA
1-901-221-1200

1.4 EMERGENCY TELEPHONE NUMBER

Emergency Number: CHEMTREC 1-800-424-9300
24 Hour Emergency HAZMAT Response: 1-800-229-5252
EPA National Response Center: 1-800-424-8802

SECTION 2: HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

Classification (GHS-US)
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).
Skin Irritation: 2 H315 - Causes skin irritation
Eye Irritation: 2B H320 - Causes eye irritation

2.2 LABEL ELEMENTS

Pictograms

Signal word: WARNING
Hazard statement(s):

H315 Causes skin irritation
H320 Causes eye irritation

Precautionary statement(s):
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P309+P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.
**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

### 3.1 SUBSTANCES

<table>
<thead>
<tr>
<th>Material</th>
<th>% by Weight</th>
<th>CAS No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Sulfate, Monohydrate</td>
<td>9.54%</td>
<td>10034-96-5</td>
</tr>
<tr>
<td>Zinc Sulfate, Monohydrate</td>
<td>3.33%</td>
<td>7446-19-7</td>
</tr>
<tr>
<td>Copper (II) sulfate pentahydrate</td>
<td>3.99%</td>
<td>7758-99-8</td>
</tr>
<tr>
<td>Citric Acid</td>
<td>0-10%*</td>
<td>77-92-9</td>
</tr>
</tbody>
</table>

*exact percentage being withheld as confidential business information.*

**SECTION 4: FIRST AID MEASURES**

### 4.1 DESCRIPTION OF FIRST AID MEASURES

**General information:** Contact with eyes or skin may cause irritation. Undiluted material will be irritating on direct eye contact. If ingested, a small quantity may cause nausea, diarrhea or stomach discomfort. Clothing should be thoroughly washed before re-use. Seek medical attention if irritation persists.

**If inhaled:** Move to fresh air: Obtain medical attention immediately if breathing becomes difficult.

**In case of skin contact:** Flush eyes with water immediately with plenty of water for at least 15 minutes. Obtain medical attention if irritation persists.

**Following eye contact:** If prolonged contact occurs, rinse thoroughly with soap and water. Obtain medical attention if irritation persists.

**If ingested:** Do not induce vomiting. Obtain medical attention.

### 4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

**Symptoms/effects:** None reasonably foreseeable

### 4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

**Notes for the doctor:** Treat symptomatically

**SECTION 5: FIREFIGHTING MEASURES**

### 5.1 EXTINGUISHING MEDIA

**Suitable extinguishing media:** Use water, dry chemical, foam or CO2 extinguishing media.

**Unsuitable extinguishing media:** No information available.

### 5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

**Fire hazard:** Not flammable

**Hazardous combustion products:** Metal oxides, sulfur oxides.
5.3 ADVICE FOR FIRE FIGHTERS

Do not attempt to take action without suitable protective equipment: self-contained breathing apparatus and complete protective clothing.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

For non-emergency personnel: Ensure adequate ventilation. Use personal protective equipment. Avoid contact with eyes or skin.
Protective equipment for emergency responders: Do not attempt to take action without suitable protective equipment. For further information, see section 8 Exposure controls/personal protection.

6.2 ENVIRONMENTAL PRECAUTIONS

Avoid uncontrolled release into the environment.

6.3 METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

For containment: Store in original container.
For cleaning up: Take up liquid spill in absorbent material.

SECTION 7: HANDLING AND STORAGE

Handling: Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin or eyes. Do not ingest.
Storage: Keep out of reach of children. Do not contaminate water, food, or feed by storage or disposal. Do not store below 40°F (5°C). Keep from freezing.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

No additional information available.

8.2 EXPOSURE CONTROLS

Environmental exposure controls: Avoid uncontrolled release to the environment.

8.2.1 APPROPRIATE ENGINEERING CONTROLS

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

8.2.2 PERSONAL PROTECTIVE EQUIPMENT

Hand protection: Protective gloves.
Eye protection: Safety glasses.
Skin and body protection: Wear suitable protective clothing.
Respiratory protection: In case of insufficient ventilation, wear suitable respiratory equipment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Dark brown
Odor: Slightly sweet to peanut oil
Vapor Pressure: Greater than 1.0 @ 100°C
Vapor Density: (Air = 1) N/A
**Safety Data Sheet**

**MicroBlend Foliar Zn-Mn-Cu**

- **pH:** 2.5-3.1
- **Relative Density:** H2O=1 1.24-1.40 @ 20°C
- **Melting Point:** N/A
- **Freezing Point:** -1°C
- **Solubility in Water:** Complete
- **Solubility in alcohols:** N/A
- **Boiling Point:** N/A
- **Flash Point & Method:** Non-flammable
- **Evaporation Rate:** Non-volatile
- **Flammability:** Non-flammable
- **Flammable Limits:** N/A LEL: N/A UEL: N/A
- **Auto-ignition Temperature:** N/A
- **Decomposition Temperature:** N/A
- **Viscosity:** N/A

**9.2 OTHER INFORMATION**

No other information.

**SECTION 10: STABILITY AND REACTIVITY**

**10.1 REACTIVITY**

The product is non-reactive under normal conditions of use, storage and transport.

**10.2 CHEMICAL STABILITY**

Stable under normal conditions.

**10.3 POSSIBILITY OF HAZARDOUS REACTIONS**

No dangerous reactions known under normal conditions of use.

**10.4 CONDITIONS TO AVOID**

None under recommended storage and handling conditions (see section 7).

**10.5 INCOMPATIBLE MATERIALS**

Strong oxidizers. Reactive metals.

**10.6 HAZARDOUS DECOMPOSITION PRODUCTS**

No additional information available.

**SECTION 11: TOXICOLOGICAL INFORMATION**

**11.1 INFORMATION ON TOXICOLOGICAL EFFECTS**

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral (rat)</th>
<th>LD50 Dermal (rat)</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citric acid</td>
<td>3000 mg/kg</td>
<td>&gt;2g/kg</td>
<td>Not listed</td>
</tr>
<tr>
<td>Manganese sulfate, monohydrate</td>
<td>2150 mg/kg</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Zinc sulfate, monohydrate</td>
<td>2150 mg/kg</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Copper (II) sulfate pentahydrate</td>
<td>960 mg/kg</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>
Toxicologically Synergistic Products: No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Acute**

Likely Routes of Exposure: Skin, eye, ingestion
Eye Irritation: May cause irritation, stinging, tearing, itching, swelling, and/or redness
Skin Sensitization: Contact with skin may cause irritation.

Mutagenic Potential: None observed
Reproductive Hazard Potential: None observed
Chronic/Subchronic Toxicity Studies: None observed
Carcinogenic Potential: Yes
Other Toxicity Information: Not available
Toxicity of Other Components: Not available

### SECTION 12: ECOLOGICAL INFORMATION

12.1 TOXICITY

Ecotoxicity: Do not empty into drains.
Persistence and Degradability: No information available
Bioaccumulation/Accumulation: No information available.
Mobility: No information available.

### SECTION 13: DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS

Disposal: Dispose of in an approved disposal facility in accordance with all municipal, provincial, and federal regulations.
Container Disposal: Non-refillable container. Do not reuse or refill this container.

### SECTION 14: TRANSPORT INFORMATION

UN Number: Not regulated by DOT, IATA or IMDG
UN Proper Shipping Name: Not applicable
DOT Classification: Not applicable; no label or placard required
B/L Freight Classification: Not regulated
International Transportation: Not applicable
HAZARD CLASSIFICATION (0 minimal, 1 slight, 2 moderate, 3 serious, 4 severe)
   NFPA: HEALTH 1  FIRE 0  REACTIVITY 0
   1 slight – exposure could cause irritation but only minor residual injury even if no treatment is given.

### SECTION 15: REGULATORY INFORMATION

15.1 US FEDERAL REGULATIONS

UN Number: Not regulated by DOT, IATA or IMDG
UN Proper Shipping Name: Not applicable
DOT Classification: Not applicable; no label or placard required
B/L Freight Classification: Not regulated
International Transportation: Not applicable

HAZARD CLASSIFICATION (0 minimal, 1 slight, 2 moderate, 3 serious, 4 severe)

NFPA: HEALTH 1 FIRE 0 REACTIVITY 0
1 slight – exposure could cause irritation but only minor residual injury even if no treatment is given.

15.2 INTERNATIONAL REGULATIONS
Canada: No additional information available.
EU Regulations: No additional information available.

15.1.2 NATIONAL REGULATIONS
SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components: The following components are subject to reporting levels established by SARA Title III, Section 313:
- Zinc sulfate monohydrate CAS-No. 7446-19-7
- Manganese sulfate monohydrate CAS-No. 10034-96-5
- Copper sulphate pentahydrate CAS-No. 7758-99-8

SARA 311/312 Hazards: Acute Health Hazard, Chronic Health Hazard.
Massachusetts Right To Know Components:
- Zinc sulfate monohydrate CAS-No. 7446-19-7
- Copper sulphate pentahydrate CAS-No. 7758-99-8

Pennsylvania Right To Know Components:
- Zinc sulfate monohydrate CAS-No. 7446-19-7
- Manganese sulfate monohydrate CAS-No. 10034-96-5
- Copper sulphate pentahydrate CAS-No. 7758-99-8
- Citric acid CAS-No. 77-92-9

New Jersey Right To Know Components:
- Zinc sulfate monohydrate CAS-No. 7446-19-7
- Manganese sulfate monohydrate CAS-No. 10034-96-5
- Copper sulphate pentahydrate CAS-No. 7758-99-8
- Citric acid CAS-No. 77-92-9

California Prop. 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: OTHER INFORMATION
The directions for use of this product are believed to be adequate and must be followed carefully. The use of this product is beyond the control of the manufacturer, and, therefore, to the extent consistent with applicable law, no warranty, representation, or guarantee of any kind, expressed or implied, is made as to the effects of such use or any results obtained if not used in accordance with printed directions and established safe practice or if unusual or extraordinary weather conditions occur. To the extent consistent with applicable law, the buyer’s exclusive remedy and manufacturer’s or seller’s exclusive liability in tort or otherwise, shall be limited, at the manufacturer’s option, to replacement of, or the repayment of the purchase price for, the quantity of product with respect to which damages are claimed.
The information and recommendations contained herein are based upon data believed to be correct. However, there is no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein.