SECTION 1. IDENTIFICATION

Product Identifier: TIGER MICRONUTRIENTS® Manganese 15%

Other Means of Identification: Tiger Mn; Sulphur and Manganese Oxide

Recommended Use: Plant nutrient fertilizer.

Restrictions on Use: Always follow safe handling practices.

Manufacturer/Supplier Identifier:
- Tiger-Sul Products LLC - Hwy 31 West Industrial Park P.O. Box 5; Atmore, AL; 36504, USA.
- Tiger-Sul Products LLC - 61 Stork Rd; Stockton, CA; 95203, USA.
- Tiger-Sul (Canada) Co, -275137 Range Road 263 P.O. Box 126; Irricana, AB; T0M 1B0, Canada.

Emergency Phone No.:
- CHEMTREC, (800) 424-9300 - 24 hrs
- Stockton Toll free, (877) 299-3399
- Irricana Toll free, (877) 299-3399
- Atmore Toll free, (800) 239-3647

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada’s Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

Classification:
- Combustible dust - Category 1; Acute toxicity (Dermal) - Category 4; Skin irritation - Category 2; Eye irritation - Category 2A; Skin sensitization - Category 1B; Carcinogenicity - Category 1A

Label Elements:

Danger:
- May form combustible dust concentrations in air.
- May cause cancer.
- Causes skin and eye irritation.
- May be harmful if swallowed, in contact with skin or if inhaled.

Other Hazards: None known.
SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>%</th>
<th>Other Identifiers</th>
<th>Other Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>SULFUR</td>
<td>7704-34-9</td>
<td>65.0 - 68.0</td>
<td>EU EINECS/ELINCS Number: 231-722-6</td>
<td>S</td>
</tr>
<tr>
<td>BENTONITE</td>
<td>1302-78-9</td>
<td>9 - 11</td>
<td>EU EINECS/ELINCS Number: 215-108-5</td>
<td>CLAY</td>
</tr>
<tr>
<td>MANGANOUS OXIDE</td>
<td>1344-43-0</td>
<td>19 - 20</td>
<td>EU EINECS/ELINCS Number: 215-695-8</td>
<td>MnO</td>
</tr>
<tr>
<td>SILICA QUARTZ</td>
<td>14808-60-7</td>
<td>1.09 - 1.19</td>
<td>EU EINECS/ELINCS Number: 238-878-4</td>
<td>SiO2</td>
</tr>
<tr>
<td>FERRIC OXIDE</td>
<td>1309-37-1</td>
<td>1.0 – 1.2</td>
<td>EU EINECS/ELINCS Number: 215-168-2</td>
<td>Fe2O3</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation
Take precautions to ensure your own safety before attempting rescue (e.g. wear appropriate protective equipment).

Skin Contact
Avoid direct contact. Wear chemical protective clothing if necessary. Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes.

Eye Contact
Wear eye protection to avoid dust getting into eyes. If contact and irritation occurs rinse the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. Remove contact lenses, if present and easy to do.

Ingestion
Get medical advice or attention if you feel unwell or are concerned.

First-aid Comments
Get medical advice or attention if you feel unwell or are concerned.

Most Important Symptoms and Effects, Acute and Delayed
If in eyes: may cause moderate to severe irritation. Symptoms include sore, red eyes, and tearing.
If on skin: may cause mild to moderate irritation
If inhaled: repeated or long term inhalation can cause respiratory problems (SILICA, QUARTZ).

Immediate Medical Attention and Special Treatment

Target Organs
None known.

Special Instructions
Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media
Water spray or fog is preferred If water is not available, use Carbon dioxide, dry chemical powder or appropriate foam. Small fires may be smothered with sand.

Unsuitable Extinguishing Media
Avoid scattering spilled material with high pressure water streams.

Specific Hazards Arising from the Product
Combustible dust. May form combustible dust concentration in air.
Combustion products include Sulphur Dioxide and Hydrogen Sulphide.

Special Protective Equipment and Precautions for Fire-fighters
Wear positive pressure self-contained breathing apparatus (SCBA) Structural firefighters’ protective clothing will only provide limited protection.
Chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary. Hydrogen Sulphide is heavier than air and may collect in low lying areas and confined spaces.
SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures
Do not touch damaged containers or spilled product unless wearing appropriate protective equipment.
Use the personal protective equipment recommended in Section 8 of this safety data sheet.

Environmental Precautions
Prevent uncontrolled release to the environment.

Methods and Materials for Containment and Cleaning Up
Avoid generating dust.
Avoid dry sweeping.
If necessary, use a dust suppressant such as water.
Do not use compressed air for clean-up.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling
Avoid breathing in this product.
Avoid repeated or prolonged skin contact.
Do not get in eyes.

Conditions for Safe Storage
Store in an area that is: cool, well-ventilated, out of direct sunlight and away from heat and ignition sources.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>ACGIH TLV® TWA</th>
<th>STEL</th>
<th>OSHA PEL TWA</th>
<th>Ceiling</th>
<th>AIHA WEEL 8-hr TWA</th>
<th>TWA</th>
</tr>
</thead>
<tbody>
<tr>
<td>SULFUR</td>
<td>10 mg/m3</td>
<td>N.AV.</td>
<td>15 mg/m3</td>
<td>N.AV.</td>
<td>N.AV.</td>
<td>N.AV.</td>
</tr>
<tr>
<td>BENTONITE</td>
<td>1 mg/m3</td>
<td>10 mg/m3</td>
<td>N.AV.</td>
<td>N.AV.</td>
<td>N.AV.</td>
<td>N.AV.</td>
</tr>
<tr>
<td>SILICA, QUARTZ</td>
<td>0.025 mg/m3</td>
<td>N.AV.</td>
<td>10 mg/m3</td>
<td>N.AV.</td>
<td>N.AV.</td>
<td>N.AV.</td>
</tr>
<tr>
<td>MANGANOUS OXIDE</td>
<td>0.1 mg/m3</td>
<td>N.AV.</td>
<td>N.AV.</td>
<td>5 mg/m3</td>
<td>N.AV.</td>
<td>N.AV.</td>
</tr>
<tr>
<td>FERRIC OXIDE</td>
<td>5 mg/m3</td>
<td>N.AV.</td>
<td>10 mg/m3</td>
<td>N.AV.</td>
<td>N.AV.</td>
<td>N.AV.</td>
</tr>
</tbody>
</table>

Appropriate Engineering Controls
Do not allow product to accumulate in the air in work or storage areas, or in confined spaces.
Use local exhaust ventilation and enclosure, if necessary, to control amount in the air.
Provide eyewash in work area, if contact or splash hazard exists.

Individual Protection Measures

Eye/Face Protection
Wear chemical safety goggles.

Skin Protection
Wear long sleeved clothing and impervious gloves.

Respiratory Protection
For non-routine or emergency situations: wear a NIOSH approved self-contained breathing apparatus (SCBA) or supplied air respirator.
### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Basic Physical and Chemical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Grey pastilles. Particle Size: 280 SGN</td>
</tr>
<tr>
<td>Odour</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Odour Threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH</td>
<td>Not available</td>
</tr>
<tr>
<td>Melting Point/Freezing Point</td>
<td>115 °C (239 °F) (SULFUR) (melting); Not applicable (freezing)</td>
</tr>
<tr>
<td>Initial Boiling Point/Range</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash Point</td>
<td>207 °C (405 °F) (closed cup) (SULFUR)</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Flammable solid. (SULFUR)</td>
</tr>
<tr>
<td>Upper/Lower Flammability or</td>
<td>0.14% (SULFUR) (upper); 0.0035% (SULFUR) (lower)</td>
</tr>
<tr>
<td>Explosive Limit</td>
<td></td>
</tr>
<tr>
<td>Vapour Pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour Density (air = 1)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative Density (water = 1)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water; Not available (in other liquids)</td>
</tr>
<tr>
<td>Partition Coefficient, n-Octanol/Water (Log Kow)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition Temperature</td>
<td>232 °C (450 °F) (SULFUR)</td>
</tr>
<tr>
<td>Decomposition Temperature</td>
<td>Not available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable (kinematic); Not applicable (dynamic)</td>
</tr>
</tbody>
</table>

#### Other Information

<table>
<thead>
<tr>
<th>Property</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical State</td>
<td>Solid</td>
</tr>
<tr>
<td>Bulk Density</td>
<td>80 lb/ft³</td>
</tr>
</tbody>
</table>

### SECTION 10. STABILITY AND REACTIVITY

#### Reactivity

Not reactive under normal conditions of use.

#### Chemical Stability

Normally stable.

#### Possibility of Hazardous Reactions

None expected under normal conditions of storage and use.
Reacts in the presence of high energy sources (e.g. welding arcs).
Dust may cause a fire or explosion.

#### Conditions to Avoid

Open flames, sparks, static discharge, heat and other ignition sources.

#### Incompatible Materials

Oxidizing agents (e.g. peroxides), strong acids (e.g. hydrochloric acid).

#### Hazardous Decomposition Products

Sulphur Dioxide: Hydrogen Sulfide.
SECTION 11. TOXICOLOGICAL INFORMATION

**Likely Routes of Exposure**
Inhalation; skin contact; eye contact.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LC50</th>
<th>LD50 (oral)</th>
<th>LD50 (dermal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SULFUR</td>
<td>&gt; 0.047 mg/L (rat) (4-hour exposure)</td>
<td>&gt; 5000 mg/kg (rat)</td>
<td>N.AV.</td>
</tr>
<tr>
<td>BENTONITE</td>
<td>N.AV.</td>
<td>5000 mg/kg (rat)</td>
<td>N.AV.</td>
</tr>
<tr>
<td>SILICA, QUARTZ</td>
<td>N.AV.</td>
<td>500 mg/kg (rat)</td>
<td>N.AV.</td>
</tr>
<tr>
<td>FERRIC OXIDE</td>
<td>N.AV.</td>
<td>&gt; 1000 mg/kg (rat)</td>
<td>N.AV.</td>
</tr>
</tbody>
</table>

**LD50 Oral** 2,604 mg/kg; Acute toxicity estimate
**LD50 Dermal** 1,322 mg/kg; Acute toxicity estimate

**Skin Corrosion/Irritation**
May cause irritation to skin, eyes and respiratory tract.

**Serious Eye Damage/Irritation**
Can cause serious eye irritation.

**STOT (Specific Target Organ Toxicity) - Single Exposure**
- **Inhalation**
  - May cause nose and throat irritation.
- **Skin Absorption**
  - May cause skin to become sensitive to sunlight (ultraviolet light).
- **Ingestion**
  - May be harmful if large amounts are swallowed symptoms may include nausea, vomiting, stomach cramps and diarrhea.

**Aspiration Hazard**
No information was located.

**STOT (Specific Target Organ Toxicity) - Repeated Exposure**
If inhaled: lung injury, irritation of the respiratory system. May cause respiratory tract injury.

**Respiratory and/or Skin Sensitization**
May cause an allergic reaction (skin sensitization) based on limited evidence.

**Carcinogenicity**
If inhaled: lung cancer. A1 – Confirmed human carcinogen. (SILICA QUARTZ)

**Reproductive Toxicity**
- **Development of Offspring** No information was located.
- **Sexual Function and Fertility** No information was located.
- **Effects on or via Lactation** No information was located.

**Germ Cell Mutagenicity** No information was located.

**Interactive Effects** No information was located.
SECTION 12. ECOLOGICAL INFORMATION

Avoid uncontrolled release.

Ecotoxicity

Acute Aquatic Toxicity

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>LC50 Fish</th>
<th>EC50 Crustacea</th>
<th>ErC50 Aquatic Plants</th>
<th>ErC50 Algae</th>
</tr>
</thead>
<tbody>
<tr>
<td>SULFUR</td>
<td>&lt; 14 mg/L (Lepomis macrochirus (bluegill); 96-hour; fresh water; static)</td>
<td>&gt; 5000 mg/L (Daphnia magna (water flea); 48-hour; fresh water; static)</td>
<td>N.AV.</td>
<td>N.AV.</td>
</tr>
<tr>
<td>BENTONITE</td>
<td>19000 mg/L (Oncorhynchus mykiss (rainbow trout); 96-hour; fresh water; static)</td>
<td>N.AV.</td>
<td>N.AV.</td>
<td>N.AV.</td>
</tr>
<tr>
<td>FERRIC OXIDE</td>
<td>&gt; 180 mg/L (Oncorhynchus mykiss (rainbow trout); 96-hour; fresh water; static)</td>
<td>N.AV.</td>
<td>N.AV.</td>
<td>N.AV.</td>
</tr>
</tbody>
</table>

Persistence and Degradability
No ingredient of this product or its degradation products is known to be highly persistent.

Bioaccumulative Potential
This product and its degradation products are not known to bioaccumulate.

Mobility in Soil
If released into the environment, this product is expected to move slowly through the soil, based on physical and chemical properties.

Other Adverse Effects
There is no information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of contents and container in accordance with local, regional, national and international regulations.

SECTION 14. TRANSPORT INFORMATION


Environmental Hazards
Not applicable

Special Precautions
Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code
Not applicable
SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all of the information required by the Controlled Products Regulations.

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)
Listed on the DSL.

USA

Toxic Substances Control Act (TSCA) Section 8(b)
All ingredients are listed on the TSCA Inventory.

Additional USA Regulatory Lists
Listed Pennsylvania Right to Know. (SULFUR). (QUARTZ)
Listed California Proposition 65: Quartz CAS 14808-60-7
SARA Title III - Section 313: Listed Reportable Product > 1% Mn.

⚠ WARNING: This product can expose you to chemicals including crystalline silica, which is known to the State of California to cause cancer when inhaled. For more information, go to www.P65Warnings.ca.gov.

SECTION 16. OTHER INFORMATION

NFPA Rating
Health - 1  Flammability - 1  Instability – 0

SDS Prepared By  Tiger-Sul
Phone No.        (877) 299-3399
Date of Preparation       January 23, 2018
Date of Last Revision      May 06, 2019
Revision Indicators The following SDS content was changed on 05/06/2019: Updated California Proposition 65 statement; Added EU EINECS/ELINCS for Sulphur and Bentonite

Key to Abbreviations
ACGIH® = American Conference of Governmental Industrial Hygienists
NFPA = National Fire Protection Association
NIOSH = National Institute for Occupational Safety and Health
OSHA = US Occupational Safety and Health Administration

Disclaimer
This Safety Data Sheet is offered solely for information, consideration, and investigation purposes. It is not to be construed as recommending any practice or product in violation of any law or regulation. The user is responsible to determine the suitability of the material for use and practice necessary safety precautions. The information presented has been compiled from sources considered to be dependable and is reliable to the best of our knowledge and is not to be considered as a warranty or quality specification.