



Safety Data Sheet

TIGER MICRONUTRIENTS® Manganese 15%

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

Mixture:

Chemical Name	CAS No.	%	Other Identifiers	Other Names
SULFUR	7704-34-9	65.0 - 68.0	EU EINECS/ELINCS Number: 231-722-6	S
BENTONITE	1302-78-9	9 - 11	EU EINECS/ELINCS Number: 215-108-5	CLAY
MANGANOUS OXIDE	1344-43-0	19 - 20	EU EINECS/ELINCS Number: 215-695-8	MnO
SILICA QUARTZ	14808-60-7	1.09 - 1.19	EU EINECS/ELINCS Number: 238-878-4	SiO ₂
FERRIC OXIDE	1309-37-1	1.0 - 1.2	EU EINECS/ELINCS Number: 215-168-2	Fe ₂ O ₃

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.

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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

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
SULFUR	10 mg/m ³	N.AV.	15 mg/m ³	N.AV.	N.AV.	N.AV.
BENTONITE	1 mg/m ³	10 mg/m ³	N.AV.	N.AV.	N.AV.	N.AV.
SILICA, QUARTZ	0.025 mg/m ³	N.AV.	10 mg/m ³	N.AV.	N.AV.	N.AV.
MANGANOUS OXIDE	0.1 mg/m ³	N.AV.	N.AV.	5 mg/m ³	N.AV.	N.AV.
FERRIC OXIDE	5 mg/m ³	N.AV.	10 mg/m ³	N.AV.	N.AV.	N.AV.

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

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

Other Information

Physical State	Solid
Bulk Density	80 lb/ft ³

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.

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
SULFUR	> 0.047 mg/L (rat) (4-hour exposure)	> 5000 mg/kg (rat)	N.AV.
BENTONITE	N.AV.	5000 mg/kg (rat)	N.AV.
SILICA, QUARTZ	N.AV.	500 mg/kg (rat)	N.AV.
FERRIC OXIDE	N.AV.	> 1000 mg/kg (rat)	N.AV.

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.

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SECTION 12. ECOLOGICAL INFORMATION

Avoid uncontrolled release.

Ecotoxicity

Acute Aquatic Toxicity

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

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

Not regulated under Canadian TDG regulations. Not regulated under US DOT Regulations.

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

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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.