



SAFETY DATA SHEET

Issuing Date 22-Jun-2015

Revision Date 22-Jun-2015

Revision Number 0

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

GHS product identifier

Product Name TIGER MICRONUTRIENTS® Rice Mix

Other means of identification

Synonyms Rice Mix, Sulphur

Recommended use of the chemical and restrictions on use

Recommended Use Plant nutrient fertilizer

Uses advised against No information available

Supplier's details

Supplier Address
228 Saugatuck Ave
Westport, CT 06880
TEL: 203-682-9200

Manufacturer Address
Tiger-Sul Products
25 Byrne Drive
PO Box 5
Atmore, AL 36504
TEL: 251-202-3850

Sulphur/Tiger-Sul Products Plant
65 Stork Road
Stockton, CA 95203
TEL: 209-943-0478

Emergency telephone number


Emergency Telephone Number 800-239-3647
CHEMTREC: (800) 424-9300 – 24 hours

2. HAZARDS IDENTIFICATION

Classification

Acute Dermal Toxicity	Category 4
Skin Corrosion/Irritation	Category 2
Combustible Dust	Yes

GHS Label elements, including precautionary statements**Emergency Overview**

Signal Word	Warning
Hazard Statements	
<ul style="list-style-type: none"> • May be harmful if swallowed • Harmful in contact with skin • Causes skin irritation • May form combustible dust concentrations in air 	
	
Appearance Gray	Physical State Solid (compressed).
	Odor None

Precautionary Statements**Prevention**

- Wear protective gloves/protective clothing/eye protection/face protection.
- Wash face, hands and any exposed skin thoroughly after handling.

General Advice

- Specific measures (see supplemental first aid instructions on this label)
- Specific treatment (see supplemental instructions on the administration of antidotes on this label)

Skin

- IF ON SKIN: Wash with plenty of soap and water.
- Call a POISON CENTER or doctor/physician if you feel unwell.
- If skin irritation occurs: Get medical advice/attention.
- Take off contaminated clothing and wash before reuse.

Storage

- None

Disposal

- Dispose of contents/container to an approved waste disposal plant.

Hazard Not Otherwise Classified (HNOC)

Not applicable

Other information

May cause irritation of respiratory tract. Contact with eyes may cause irritation. Powdered material may form explosive dust-air mixtures.

Toxic to aquatic life.

7.589% of the mixture consists of ingredient(s) of unknown toxicity.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Rice Mix, Sulphur

Chemical Name	CAS-No	Weight %	Trade secret
Sulfur	7704-34-9	63-64	*
Zinc oxide	1314-13-2	19.1-19.5	*
Bentonite	1302-78-9	9-11	*
Iron oxide	1309-37-1	7.2-7.5	*
Calcium oxide	1305-78-8	0.70-0.80	*
Iron	7439-89-6	0.55-0.6	*
Silicon dioxide	7631-86-9	0.285-0.29	*
Manganese	7439-96-5	0.055-0.058	*
Magnesium oxide	1309-48-4	0.025-0.030	*
Aluminum oxide	1344-28-1	0.02-0.03	*
Titanium dioxide	13463-67-7	0.025-0.029	*
Lead	7439-92-1	0.0095-0.0098	*
Copper	7440-50-8	0.0095-0.0098	*
Cadmium and compounds (as Cd)	7440-43-9	0.0015-0.002	*
Arsenic	7440-38-2	0.0015-0.002	*

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of necessary first-aid measures

Eye Contact Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention if symptoms occur.

Skin Contact Wash off immediately with soap and plenty of water for at least 15 minutes while removing all contaminated clothing and shoes. Consult a physician.

Inhalation Move to fresh air. Get medical attention if symptoms occur.

Ingestion Do NOT induce vomiting. Clean mouth with water and afterwards drink plenty of water. Never give anything by mouth to an unconscious person. Consult a physician.

Most important symptoms/effects, acute and delayed

Most Important Symptoms/Effects Dermal irritation.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Water spray or fog is preferred; if water not available use dry chemical, CO₂ or regular foam. Small fires may be smothered with sand.

Unsuitable Extinguishing Media Do not scatter spilled material with high pressure water streams.

Specific Hazards Arising from the Chemical

Avoid dust formation. Dust suspended in air is readily ignited by flames, static electricity or friction spark. Every reasonable step must be taken to minimize dust formation. Sulfur dioxide reacts with water to form sulfuric acid.

Explosion Data

Sensitivity to Mechanical Impact

None.

Sensitivity to Static Discharge

Yes.

Protective Equipment and Precautions for Firefighters

Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Ensure adequate ventilation. Avoid dust formation. Do not get in eyes. Use personal protective equipment. Remove all sources of ignition. Take precautionary measures against static discharges. Wash thoroughly after handling.

Environmental Precautions

Environmental Precautions Do not allow material to contaminate ground water system.

Methods and materials for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Cleaning Up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Ensure adequate ventilation. Do not get in eyes. Avoid dust formation in confined areas. Keep away from open flames, hot surfaces and sources of ignition. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Dust tight castings should be equipped with explosion relief vents. Sparkles electrical equipment is recommended.

Conditions for safe storage, including any incompatibilities

Storage Keep in a dry, cool and well-ventilated place.

Incompatible Products Incompatible with oxidizing agents; Acids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Zinc oxide 1314-13-2	STEL: 10 mg/m ³ respirable fraction TWA: 2 mg/m ³ respirable fraction	TWA: 5 mg/m ³ fume TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 5 mg/m ³ fume (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction (vacated) STEL: 10 mg/m ³ fume	IDLH: 500 mg/m ³ Ceiling: 15 mg/m ³ dust TWA: 5 mg/m ³ dust and fume STEL: 10 mg/m ³ fume
Bentonite 1302-78-9	TWA: 1 mg/m ³ respirable fraction	-	-

Iron oxide 1309-37-1	TWA: 5 mg/m ³ respirable fraction	TWA: 10 mg/m ³ fume (vacated) TWA: 10 mg/m ³ fume	IDLH: 2500 mg/m ³ Fe dust and fume TWA: 5 mg/m ³ Fe dust and fume
Calcium oxide 1305-78-8	TWA: 2 mg/m ³	TWA: 5 mg/m ³ (vacated) TWA: 5 mg/m ³	IDLH: 25 mg/m ³ TWA: 2 mg/m ³
Silicon dioxide 7631-86-9	10 mg/m ³	20 mppcf TWA; ((80)/(% SiO ₂)) mg/m ³)	IDLH: 3000 mg/m ³ TWA: 6 mg/m ³
Manganese 7439-96-5	TWA: 0.2 mg/m ³	(vacated) TWA: 1 mg/m ³ fume (vacated) STEL: 3 mg/m ³ fume (vacated) Ceiling: 5 mg/m ³ Ceiling: 5 mg/m ³ fume	IDLH: 500 mg/m ³ TWA: 1 mg/m ³ fume STEL: 3 mg/m ³
Aluminum oxide 1344-28-1	TWA: 1 mg/m ³ respirable fraction	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction	-
Magnesium oxide 1309-48-4	TWA: 10 mg/m ³ inhalable fraction	TWA: 15 mg/m ³ fume, total particulate (vacated) TWA: 10 mg/m ³ fume and total particulate	IDLH: 750 mg/m ³ fume
Titanium dioxide 13463-67-7	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust (vacated) TWA: 10 mg/m ³ total dust	IDLH: 5000 mg/m ³
Lead 7439-92-1	TWA: 0.05 mg/m ³	TWA: 50 µg/m ³ Action Level: 30 µg/m ³ Poison, See 29 CFR 1910.1025	IDLH: 100 mg/m ³ TWA: 0.050 mg/m ³
Copper 7440-50-8	TWA: 0.2 mg/m ³ fume	TWA: 0.1 mg/m ³ fume TWA: 1 mg/m ³ dust and mist (vacated) TWA: 0.1 mg/m ³ Cu dust, fume, mist	IDLH: 100 mg/m ³ dust, fume and mist TWA: 1 mg/m ³ dust and mist TWA: 0.1 mg/m ³ fume
Arsenic 7440-38-2	TWA: 0.01 mg/m ³	TWA: 10 µg/m ³ As Action Level: 5 µg/m ³ As (vacated) TWA: 0.5 mg/m ³	IDLH: 5 mg/m ³ Ceiling: 0.002 mg/m ³ 15 min
Cadmium and compounds (as Cd) 7440-43-9	TWA: 0.01 mg/m ³ TWA: 0.002 mg/m ³ respirable fraction	TWA: 0.1 mg/m ³ fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 0.2 mg/m ³ dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 5 µg/m ³ Action Level: 2.5 µg/m ³ (vacated) STEL: 0.3 ppm fume Ceiling: 0.3 mg/m ³ fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect Ceiling: 0.6 mg/m ³ dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect	IDLH: 9 mg/m ³ dust

Appropriate engineering controls

Engineering Measures

Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection

Safety glasses with side-shields.

Skin and Body Protection

Long sleeved clothing. Impervious gloves.

Respiratory Protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Provide regular cleaning of equipment, work area and clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Solid (compressed).	Appearance	Gray.
Odor	None.	Odor Threshold	No information available.

<u>Property</u>	<u>Values</u>	<u>Remarks/ - Method</u>
pH	No data available	None known
Melting Point/Range	119 °C	None known
Boiling Point/Boiling Range	444 °C	None known
Flash Point	188 °C	None known
Evaporation rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limits in Air		
upper flammability limit	1400 gm/m ³	
lower flammability limit	35 gm/m ³	
Vapor Pressure	No data available	None known
Vapor Density	No data available	None known
Specific Gravity	2.07	None known
Water Solubility	Negligible	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	No data available	None known
Autoignition Temperature	190 °C	None known
Decomposition Temperature	No data available	None known
Viscosity	Solid	None known

Flammable Properties Powdered material may form explosive dust-air mixtures.

Explosive Properties No data available

Oxidizing Properties No data available

Other information

VOC Content (%) None

10. STABILITY AND REACTIVITY

Reactivity

No dangerous reaction known under conditions of normal use.

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

None under normal processing.
Fine dust dispersed in air may ignite.

Hazardous Polymerization

Hazardous polymerization does not occur.

Conditions to avoid

Dust formation. Exposure to air or moisture.

Incompatible materials

Incompatible with oxidizing agents; Acids.

Hazardous decomposition products

Sulfur dioxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure**Product Information**

Inhalation	May cause irritation of respiratory tract.
Eye Contact	May cause irritation.
Skin Contact	May cause irritation. May be absorbed through the skin.
Ingestion	May cause irritation to the gastrointestinal tract.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Delayed and immediate effects and also chronic effects from short and long term exposure

Sensitization No information available.
Mutagenic Effects No information available.
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Iron oxide		Group 3		
Silicon dioxide		Group 3		
Titanium dioxide		Group 2B		X
Lead	A3	Group 2A	Reasonably Anticipated	X
Cadmium and compounds (as Cd)	A2	Group 1	Known	X
Arsenic	A1	Group 1	Known	X

ACGIH: (American Conference of Governmental Industrial Hygienists)

A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans
Group 2A - Probably Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
Group 3 - Not Classifiable as to its Carcinogenicity to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

OSHA: (Occupational Safety & Health Administration)

X - Present

Reproductive Toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Chronic Toxicity	Bentonite contains naturally occurring crystalline silica. Crystalline silica (quartz) has been classified by the International Agency for Research on Cancer (IARC) as a known human carcinogen (Group 1).
Target Organ Effects	Eyes. Skin. Respiratory system.
Aspiration Hazard	No information available.

Numerical measures of toxicity - Product**Acute Toxicity** 7.589% of the mixture consists of ingredient(s) of unknown toxicity.*The following values are calculated based on chapter 3.1 of the GHS document:***LD50 Oral** 3333 mg/kg; Acute toxicity estimate**LD50 Dermal** 1719 mg/kg; Acute toxicity estimate**Inhalation dust/mist** 9.8 mg/L; Acute toxicity estimate**12. ECOLOGICAL INFORMATION****Ecotoxicity**

The environmental impact of this product has not been fully investigated.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Sulfur 7704-34-9	-	LC50: 866 mg/L Brachydanio rerio 96 h static LC50: <14 mg/L Lepomis macrochirus 96 h static LC50: >180 mg/L Oncorhynchus mykiss 96 h static	-	-
Zinc oxide 1314-13-2	Selenastrum capricornutum 72-hour EC50: 0.14 mg/l	Oncorhynchus mykiss 96-hour LC50: 0.14 mg/l		Daphnia magna 48-hour EC50: 0.07 mg/l
Bentonite 1302-78-9		LC50 96 h: 8.0-19.0 g/L (Salmo gairdneri) LC50 96 h: = 19000 mg/L static (Oncorhynchus mykiss)		
Calcium oxide 1305-78-8		LC50 96 h: = 1070 mg/L static (Cyprinus carpio)		
Iron 7439-89-6	-	LC50 96 h: = 0.56 mg/L semi-static (Cyprinus carpio) LC50 96 h: = 13.6 mg/L static (Morone saxatilis)	-	-
Silicon dioxide 7631-86-9	EC50 72 h: = 440 mg/L (Pseudokirchneriella subcapitata)	LC50 96 h: = 5000 mg/L static (Brachydanio rerio)		EC50 48 h: = 7600 mg/L (Ceriodaphnia dubia)
Aluminum oxide 1344-28-1		LC50 96 h: > 100 mg/L semistatic (Salmo trutta)		LC50 48 h: > 100 mg/L (daphnia magna)
Lead 7439-92-1		LC50 96 h: = 0.44 mg/L semi-static (Cyprinus carpio) LC50 96 h: = 1.17 mg/L flow-through (Oncorhynchus mykiss) LC50 96 h: = 1.32 mg/L static (Oncorhynchus mykiss)		EC50 48 h: = 600 µg/L (water flea)

Copper 7440-50-8	EC50 96 h: 0.031 - 0.054 mg/L static (Pseudokirchneriella subcapitata) EC50 72 h: 0.0426 - 0.0535 mg/L static (Pseudokirchneriella subcapitata)	LC50 96 h: 0.0068 - 0.0156 mg/L (Pimephales promelas) LC50 96 h: < 0.3 mg/L static (Pimephales promelas) LC50 96 h: = 0.052 mg/L flow-through (Oncorhynchus mykiss) LC50 96 h: = 0.112 mg/L flow-through (Poecilia reticulata) LC50 96 h: = 0.2 mg/L flow-through (Pimephales promelas) LC50 96 h: = 0.3 mg/L semi-static (Cyprinus carpio) LC50 96 h: = 0.8 mg/L static (Cyprinus carpio) LC50 96 h: = 1.25 mg/L static (Lepomis macrochirus)	-	EC50 48 h: = 0.03 mg/L Static (Daphnia magna)
Cadmium and compounds (as Cd) 7440-43-9		LC50 96 h: 0.0004-0.003 mg/L (Pimephales promelas) LC50 96 h: = 0.002 mg/L (Cyprinus carpio) LC50 96 h: = 0.003 mg/L flow-through (Oncorhynchus mykiss) LC50 96 h: = 0.006 mg/L static (Oncorhynchus mykiss) LC50 96 h: = 0.016 mg/L (Oryzias latipes) LC50 96 h: = 0.24 mg/L static (Cyprinus carpio) LC50 96 h: = 21.1 mg/L flow-through (Lepomis macrochirus) LC50 96 h: = 4.26 mg/L semi-static (Cyprinus carpio)		EC50 48 h: = 0.0244 mg/L Static (Daphnia magna)

Persistence and Degradability No information available.

Bioaccumulation No information available.

Other Adverse Effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging

Do not re-use empty containers.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Lead - 7439-92-1	(hazardous constituent - no waste number)	Included in waste streams: F035, F037, F038, F039, K002, K003, K005, K046, K048, K049, K051, K052, K061, K062, K064, K065, K066, K069, K086, K100, K176	= 5.0 mg/L regulatory level	
Arsenic - 7440-38-2		Included in waste streams: F032, F034, F035, F039, K031, K060, K084, K101, K102, K161, K171, K172, K176	5.0 mg/L regulatory level	
Cadmium and compounds (as Cd) - 7440-43-9		Included in waste streams: F006, F039, K061, K069, K100	1.0 mg/L regulatory level	

14. TRANSPORT INFORMATION

DOT Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA

All components of this product are either listed or are exempt on the TSCA inventory.

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Zinc oxide	1314-13-2	19.5	1.0
Lead	7439-92-1	0.0098	0.1
Arsenic	7440-38-2	0.002	0.1
Cadmium and compounds (as Cd)	7440-43-9	0.002	0.1

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Zinc oxide		X		
Lead		X	X	
Copper		X	X	
Cadmium and compounds (as Cd)		X	X	
Arsenic		X	X	

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Lead	10 lb		RQ 10 lb final RQ RQ 4.54 kg final RQ
Copper	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ
Cadmium and compounds (as Cd)	10 lb		RQ 10 lb final RQ RQ 4.54 kg final RQ
Arsenic	1 lb		RQ 1 lb final RQ RQ 0.454 kg final RQ

U.S. State Regulations**California Proposition 65**

This product contains the following Proposition 65 chemicals:

Chemical Name	CAS-No	California Prop. 65
Titanium dioxide	13463-67-7	Carcinogen
Lead	7439-92-1	Carcinogen Developmental Female Reproductive Male Reproductive
Arsenic	7440-38-2	Carcinogen
Cadmium and compounds (as Cd)	7440-43-9	Carcinogen Developmental Male Reproductive

U.S. State Right-to-Know Regulations

"X" designates that the ingredients are listed on the state right to know list.

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Sulfur	X	X	X		X
Zinc oxide	X	X	X		
Iron oxide	X	X	X		X
Calcium oxide	X	X	X		X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

<u>NFPA</u>	Health Hazard	1	Flammability	1	Instability	0	Physical and Chemical Hazards -
<u>HMIS</u>	Health Hazard	1	Flammability	1	Physical Hazard	0	

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Issuing Date 22-Jun-2015
Revision Date 22-Jun-2015
Revision Note Initial Release.

General 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. Resources include tests, research data, and reports believed to be credible. No guarantee is made as to accuracy or completeness. Therefore, the user assumes all risks involving the use of the product.

End of Safety Data Sheet