SAFETY DATA SHEET
ZM² + IRON CHELATE

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1. Product and Company Identification

Product Code: FGAU471-474
Product Name: ZM² + IRON CHELATE
Company Name: Stoller Australia Pty Ltd
1 Creswell Road
Largs Bay
South Australia 5016
Web site address: www.stoller.com.au
Email address: stoller@stoller.com.au
Emergency Contact: STOLLER PRODUCTION CHEMIST
Contact number: 08 8169-0988
Information: 1800 337-845
Intended Use: For agricultural use only

2. Hazards Identification

Acute Toxicity: Oral, Category 4
Acute Toxicity: Skin, Category 4
Serious Eye Damage/Eye Irritation, Category 2B

GHS Signal Word: **Warning**

GHS Hazard Phrases:
H302 - Harmful if swallowed.
H312 - Harmful in contact with skin.
H320 - Causes eye irritation.

GHS Precaution Phrases:
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.

GHS Response Phrases:
P301+312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P302+352 - IF ON SKIN: Wash with plenty of soap and water.
P305+351+338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312 - Call a POISON CENTER or doctor/physician if you feel unwell.
P330 - Rinse mouth.
P337+313 - If eye irritation persists, get medical advice/attention.
P362+364 - Take off contaminated clothing and wash it before reuse.

GHS Storage and Disposal Phrases: P501 - Dispose of contents/container to permitted treatment facility.

Potential Health Effects (Acute and Chronic): Chronic: Not known.

Inhalation: Prolonged exposure to low concentrations of vapors may cause sore throat and headache, which are temporary.

Skin Contact: May cause skin discomfort, irritation, or rash. Harmful if absorbed through broken skin.

Eye Contact: Contact with product may cause severe irritation and possible irreversible damage.

Ingestion: May cause gastrointestinal irritation, nausea and vomiting.

3. Composition/Information on Ingredients

CAS #	Components (Chemical Name)	Concentration	
10034-96-5	Manganese sulfate	< 1.0 %	
68512-34-5	Lignosulfonic acid, sodium salt, sulfomethylated	<10.0 %	
7733-02-0	Zinc sulfate	<20.0 %	
10034-99-8	Magnesium sulfate, 7-hydrate	<30.0 %	
7782-63-0	Ferrous sulfate	<15.0 %	

4. First Aid Measures

Emergency and First Aid Procedures: Victims of severe exposure to chemicals must be taken to health providing centers for medical attention. Always bring with victim a copy of label and SDS of product to health professional.

In Case of Inhalation: Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Call a physician if no improvement on patient condition.

In Case of Skin Contact: Remove product and immediately wash affected area with soap and water for 15 minutes. Do not apply greases or ointments. Remove contaminated clothing, taking care not to impregnate eyes. Launder contaminated clothing. Seek medical attention if irritation occurs.

In Case of Eye Contact: Hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

In Case of Ingestion: Immediately call a POISON CENTER or doctor/physician. Wash mouth out with water. Give at least two glasses of milk or water and induce vomiting. Never give anything by mouth to an unconscious person.

Note to Physician: Treat symptomatically and supportively.

5. Fire Fighting Measures

Flash Pt: N.E.

Explosive Limits: LEL: N.E. UEL: N.E.

Autoignition Pt: N.E.

Suitable Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media: none known.

Fire Fighting Instructions: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear.

Flammable Properties and Hazards: No data available.

Hazardous Combustion Products: No data available.

6. Accidental Release Measures

Protective Precautions, Protective Equipment and Emergency Procedures: In case of a large spill, clear the affected area and protect people. Such releases should be responded to by trained personnel using pre-planned procedures. In the event of an incidental release, minimum Personal Protective Equipment must be worn: latex or rubber gloves and rubber boots, goggles or full face-shield and coveralls.

Environmental Precautions: Do not allow to enter drains or waterways.

Steps To Be Taken In Case Material Is Released Or Spilled: It is necessary to contain the spill into the smallest area possible by diking, scooping, etc., and place liquid into an appropriate container, labeling it accordingly. If product is clean, use it as intended, following original label directions; should it get dirty or contaminated, salvage for proper disposal as waste.
Absorb residual product onto dry carrier such as dirt, sand or any other absorbent material, then put in covered, labeled containers and dispose of as dry waste in accordance with Federal, State and Local waste disposal regulations.

7. Handling and Storage

Precautions To Be Taken in Handling: Use with adequate ventilation. Avoid breathing dust, mist, or vapor. Avoid contact with eyes, skin, or clothing. Avoid ingestion and inhalation. Use only in a well-ventilated area. Empty containers may contain residual liquid or vapors and therefore should be handled the same as full containers.

Precautions To Be Taken in Storing: Inspect all incoming containers before storage to ensure all are properly labeled and not damaged. Store only in shipping container: Bulk material can be stored in polyethylene, aluminum or stainless steel tanks. Keep containers closed and away from oxidizing agents. Store in a cool, dry place, away from direct sunlight, sources of intense heat or where freezing is possible. Store away from food, feed, clothing materials and living quarters. Whenever possible, place chemicals on secondary containers or diked area.

8. Exposure Controls/Personal Protection

CAS #	Partial Chemical Name	OSHA TWA	ACGIH TWA	Other Limits
10034-96-5	Manganese sulfate	CEIL: 5 mg/m3	TLV: 0.2 mg/m³ as Mn	No data.
68512-34-5	Lignosulfonic acid, sodium salt, sulfomethylated	No data.	No data.	No data.
7733-02-0	Zinc sulfate	No data.	TLV: 1 mg/m³ as Zn	No data.
10034-99-8	Magnesium sulfate, 7-hydrate	No data.	No data.	No data.
7782-63-0	Ferrous sulfate	No data.	TLV: 1 mg/m³ as Fe	No data.

CAS #	Chemical Name	Jurisdiction	Recommended Exposure Limits	Notations
10034-96-5	Manganous sulfate	Australia	TWA: 1 mg/m3 () STEL: () (Total dust)	

Recommended Exposure Limits: No occupantional exposure limits have been established for this mixture.

Respiratory Equipment (Specify Type):	A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Eye Protection:	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Use full face-shield when there is any likelihood of splashes.
Protective Gloves:	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers.
Other Protective Clothing:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear long sleeve shirt, long pants, and protective shoes with socks.
Engineering Controls (Ventilation etc.):	General ventilation is usually adequate. Local exhaust should be used if needed for safe, comfortable working conditions. An eye bath, safety shower and washing facilities should be readily available.
Work/Hygienic/Maintenance Practices:	Handle in accordance with good industrial hygiene and safety practice. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove all dirty or contaminated clothing and wash it before reusing, as well as any other PPE.
Environmental Exposure Controls:	Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash water.

9. Physical and Chemical Properties

Physical States:	[ ] Gas [X] Liquid [ ] Solid
Appearance and Odor:	Dark brown color. Slight characteristic odor.
pH:	2 - 4
Freezing Point:	N.E.
Boiling Point:	~ 212.00 F
Flash Pt:	N.E.
Evaporation Rate:	No data.
Flammability (solid, gas):	No data available.
Explosive Limits:	LEL: N.E. UEL: N.E.
Vapor Pressure (vs. Air or mm Hg):	NA
Vapor Density (vs. Air = 1):	No data.
Specific Gravity (Water = 1):	~ 1.3 - 1.4
Density:	~ 11.3 LB/GA
Solubility in Water:	> 99%
Saturated Vapor Concentration:	N.E.

Octanol/Water Partition Coefficient:	N.E.
Percent Volatile:	N.A.
Autoignition Pt:	N.E.
Decomposition Temperature:	N.E.
Viscosity:	N.E.

10. Stability and Reactivity

Reactivity:	N.A.
Stability:	Unstable [ ] Stable [X]
Conditions To Avoid - Instability:	Stable under normal conditions.
Incompatibility - Materials To Avoid:	Strong oxidizing agents.
Hazardous Decomposition or Byproducts:	Sulfur dioxide, carbon dioxide.
Possibility of Hazardous Reactions:	Will occur [ ] Will not occur [X]
Conditions To Avoid - Hazardous Reactions:	none known.

11. Toxicological Information

Toxicological Information:	Mutagenicity: This product has not been investigated for mutagenic effects. Embryotoxicity: This product has not been investigated for embryotoxic effects. Teratogenicity: This product has not been investigated for teratogenic effects. Reproductive Toxicity: This product has not been investigated for toxic reproductive effects.
Irritation or Corrosion:	No data available.
Symptoms related to Toxicological Characteristics:	No data available.
Sensitization:	The sensitizing properties of this product have not been thoroughly investigated.
Chronic Toxicological Effects:	The toxicological properties of this material have not been fully investigated.
Carcinogenicity/Other Information:	The carcinogenic properties of this product have not been thoroughly investigated.
Carcinogenicity:	NTP? Unknown IARC Monographs? Unknown OSHA Regulated? Unknown

12. Ecological Information

General Ecological Information:	No environmental impact studies have been performed with this product. The available data on the ingredients of this plant nutrient product does not indicate any undue hazard to the environment under anticipated use and storage. Any waste due to spillage or leakage should be contained and disposed of as a Fertilizer (see Section 6 "Accidental Release Measures). Due to its nutrient value, may contribute to eutrophication in bodies of water.
Results of PBT and vPvB assessment:	No data available.
Persistence and Degradability:	No data available.
Bioaccumulative Potential:	No data available.

Mobility in Soil: No data available.

13. Disposal Considerations

Waste Disposal Method: This product, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local waste regulatory authority. Avoid contaminating water by disposal of equipment wash waters or other product wastes.
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

14. Transport Information

LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not Regulated. Trade Name: ZM² + IRON CHELATE
DOT Hazard Class:
UN/NA Number:

MARINE TRANSPORT (IMDG/IMO):

IMDG/IMO Shipping Name: Not Regulated. Trade Name: ZM² + IRON CHELATE

AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Not Regulated. Trade Name: ZM² + IRON CHELATE

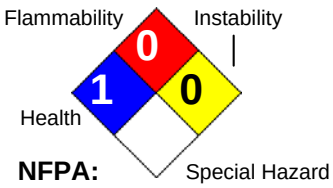
15. Regulatory Information

Regulatory Information Statement:

16. Other Information

Revision Date: 06/30/2016

Hazard Rating System:



Additional Information About This Product: No data available.

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