

Safety Data Sheet (SDS) GRA SP/01

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According to SANS 10234/UN GHS 9th edition

Revision Date: 2022/08/29

First print date: 2013/09/20

Version: 3.6

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

Product identifier:

Identification as on the label/Trade name: **GRAINGRO™**

Additional information: Product code GRA SP/01

Relevant identification uses of the substance and uses advised against:

Identified uses: Fertilizer.

Uses advised against: Use only as directed.

Details of the supplier of the Safety Data Sheet:

NULANDIS, A Division of AECI Limited
14 Field Road, LILANTON

Emergency telephone numbers:

Griffon Poison information centre: 082 446 8946

Poisons Information Helpline: 0861 555 777

AECI Limited: (011) 823 8000 (o/h) Spill Tech: 086 100 0366 (a/h)

SECTION 2. HAZARD IDENTIFICATION

Classification of the substances or mixture

The mixture is classified as hazardous.

SANS 10234:2019, Regulations for Hazardous Chemical Agents – 2021, Regulation EC 1272/2008 [EU-GHS/CLP]	
Hazard classes/Hazard categories	Hazard Statement
Acute Toxicity Oral (Category 4)	H302
Serious Eye Damage/Irritation (Category 1)	H318
Reproductive Toxicity (Category 1B)	H360fd
STOT RE (Category 2)	H373
Aquatic Toxicity Acute (Category 1)	H400
Aquatic Toxicity Chronic (Category 1)	H410

For full text of H statements see section 16

The most important adverse effects

The most important adverse physiochemical effects: None.

The most important adverse human health effects: Causes eye damage and is harmful if swallowed. Reproductive toxic.

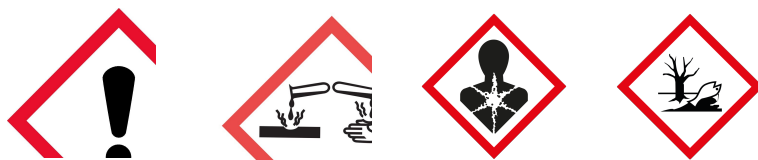
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Hazard pictograms:



Signal Word: Danger.

Hazard Statements: H302 Harmful if swallowed. H318 Causes serious eye damage. H360fd May damage fertility. Suspected of damaging the unborn child. H373 May cause damage to organs through prolonged or repeated exposure. H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements:

Prevention – P203 Obtain, read, and follow all safety instructions before use. P260 Do not breathe dust/vapours/spray. P270 Do not eat, drink, or smoke when using this product. P273 Avoid release to the environment. P280 Wear protective gloves, protective clothing, eye, and face protection. P264 + P265 Wash hands and face thoroughly after handling.

Response – P317 Get medical help. P318 If exposed or concerned, get medical advice. P330 Rinse mouth. P391 Collect spillage. P301 + P317 IF SWALLOWED: Get medical help. P305 + P354 + P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses if present, and easy to do. Continue rinsing.

Storage – P405 Store locked up.

Disposal – P501 Dispose of contents/container in accordance with local and national regulations.

Special labelling of certain mixtures: None.

Other hazards: None.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Mixture

Ingredients: Hazardous

Substance name (IUPAC/EC)	CAS –No.	Concentration % by weight	Classification
	EC-No.		
Manganese Sulphate Monohydrate	10034-96-5	30 – 60%	STOT RE (Category 2), H373. Aquatic Toxicity Chronic (Category 2), H411.
	600-072-9		

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Zinc Sulphate Monohydrate	7446-19-7	30 – 60%	Acute Toxicity Oral (Category 4), H302. Serious Eye Damage/Irritation (Category 1), H318. Aquatic Toxicity Acute (Category 1), H400. Aquatic Toxicity Chronic (Category 1), H410. M Factors Acute and Chronic = 1.
	231-793-3		
Copper Sulphate Pentahydrate	7758-99-8	10 – 30%	Acute Toxicity Oral (Category 4), H302. Serious Eye Damage/Irritation (Category 2), H319. Aquatic Toxicity Acute (Category 1), H400. Aquatic Toxicity Chronic (Category 1), H410. M Factors Acute and Chronic = 10.
	231-847-6		
Disodium Octaborate Tetrahydrate	12280-03-4	<10%	Reproductive Toxicity (Category 1B), H360.
	215-540-4		

Within the current knowledge of the supplier and in the applicable concentrations, there are no additional ingredients present in this fertilizer that are classified as hazardous to health or the environment that subsequently cause/contribute towards the classification, and that require reporting in terms of the South African Regulations for Hazardous Chemical Agents - 2021; Regulation 14(b).

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4. FIRST AID MEASURES

Description of first aid measures:

In case of inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Keep person at rest and warm. Treat symptomatically and supportively as and when required. Obtain medical advice if necessary.

In case of skin contact: In case of contact, flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation occurs and persist.

In case of eye contact: Check for and remove any contact lenses. In case of contact, hold eyelids apart and immediately flush eyes with plenty of water for at least 15 minutes. Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. Cold water may be used. Obtain immediate medical attention.

In case of ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If conscious, rinse mouth thoroughly with water. Loosen tight clothing such as a collar, tie, belt, or waistband. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Refer for medical attention if you feel unwell.

Most important symptoms and effects, both acute and delayed:

Inhalation: High dust concentrations may cause irritation of the nose and upper respiratory tract with symptoms such as sore throat and coughing

Ingestion: Harmful if swallowed.

Skin contact: Prolonged contact may cause some irritation in sensitive individuals.

Eye contact: Causes serious eye damage.

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Indication of any immediate medical attention and special treatment needed:

There is no specific antidote. Treat supportively and symptomatically.

SECTION 5. FIRE -FIGHTING MEASURE

Extinguisher media:

Suitable extinguisher media:

SMALL FIRE: Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant foam.

LARGE FIRE: Water spray can be used for larger fires or cooling of unaffected stock but avoid the accumulation of polluted run-off from the site

Unsuitable extinguishing media:

Do not use high volume water jet due to contamination risk.

Special hazards arising from the mixture:

Metal oxides, and oxides of carbon may form as combustion products.

Advice for fire-fighters:

Stay at a maximum distance and avoid inhaling hazardous vapours. Keep container cool by spraying with water.

Fire-fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. Be sure to use an approved/certified respirator or equivalent.

Act in accordance with the site's Internal Emergency Plan and the Workplace Specific Procedures for actions to be taken after an accident or other emergencies.

SECTION 6. ACCIDENTAL RELEASE

Personal precautions, protective equipment, and emergency procedures:

For non-emergency personnel: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection. Avoid contact with skin, eyes, and clothing.

For emergency responders: Do not breathe in dust and avoid contact of the spilt material with eyes, skin, or clothes. Wear appropriate protective clothing recommended in Section 8 of the SDS.

Evacuate personnel to a safe area when necessary and limit the access to emergency responders only. Isolate and ventilate the area of the spill or leak, especially when in confined areas. Do not touch or walk through spilled material as this could cause contamination. Contain spills if it can be done without risk and clean-up immediately.

Environmental precautions:

Prevent spillage if safe to do so. Do not allow the spilt product to enter water courses and drains and avoid contact with soil. Do not allow the spilt product to spread to other areas - keep the spilt material contained and isolated. Report spills and releases as required to appropriate authorities if the spilt product has caused environmental pollution (sewers, water ways, soil, or air).

Methods for containment and cleaning up:

For small spills. Sweep up and place into a leak-proof labelled waste container with a shovel. Dispose of collected spilt material as hazardous waste. Clean the contaminated surface with water to remove any residues of the spilt product. Keep the wash water out of drains, sewers, and waterways.

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For large spills. Prevent entry into sewers, water courses, basements, or confined areas. Prevent dust formation by covering with a tarpaulin. Sweep up and place the spilt material into a labelled container for disposal according to local regulations.

Reference to other sections:

See section 1 for emergency contact information.

See section 7 for information on safe handling.

See section 8 for information on personal protection equipment.

See section 13 for information on disposal.

Additional information:

None known.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:

Always provide good ventilation in the work area. Do not breathe in dust. Wear protective clothing and equipment during handling as described in Section 8 of the SDS. Wash the hands and face thoroughly with soap after handling. Keep containers closed when not in use. Do not permit smoking in use or storage areas. Locate emergency showers and eye-rinsing facility near the work/handling area. Remove contaminated clothing immediately if the product gets inside. Contaminated work clothing should not be allowed out of the workplace. Work clothes should be separately laundered. Launder contaminated clothing before re-use. Keep unprotected persons away from the area where the product is being applied.

Protective measures: Observe directions on label and instructions for use.

Advice on general occupational hygiene: Do not eat drink or smoke when handling this product.

Regular cleaning of work area and work clothing is recommended. Maintain good normal industrial hygiene and housekeeping practices in areas where the product is used/handled.

Conditions for safe storage, including incompatibilities:

Store product in a segregated and secured area below 35°C. The entrance to storage facilities should be granted only to appropriately trained personnel. Keep containers tightly closed when not in use. Store only in properly labelled containers. The product is stable if stored well ventilated, out of direct sunlight, cool and free of moisture and high humidity. Keep out of reach of children, uninformed persons, and animals. Protect containers from physical damage and check the condition of storage containers periodically (e.g., for leaks). Avoid cross contamination with other agricultural products. Store in accordance with national and local regulations.

Specific end uses:

Use as directed on the label. Use original container.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

Occupational exposure limits (OEL): The product, as supplied, does not contain any hazardous substances with occupational exposure limits established by the South African Department of Labour and Employment.

Occupational exposure limits have though been established for air borne and respirable dust as indicated below:

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Component	Type	Control Parameter	Update	Basis
Total air borne dust	OEL- eight- hour TWA	10mg/m ³	2021	South African RELs*
Total respirable dust	OEL- eight- hour TWA	5mg/m ³	2021	South African RELs*
*REL:	Recommended Exposure Limit.			
OEL- eight-hour TWA:	Occupational Exposure Limit- Time Weighted Average. Calculated over an eight-hour working day, for a five-day working week.			

Biological exposure indices (BEI): None.

Additional exposure limits under the conditions of use: None known.

Exposure control: Use only in a well-ventilated area. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. A Risk Assessment should be conducted before handling is to commence to determine specific exposure control.

Appropriate engineering controls: Use local exhaust ventilation or other engineering controls to maintain airborne levels as low as possible.

Hygiene measures: Wash hands, forearms, and face thoroughly after handling the product, before eating, smoking, and using the lavatory, and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location and are easily accessible. Handle the product in accordance with good industrial hygiene and safety practice. Keep the product away from food, drink, and animal feeding stuffs.

Eye/face protection: Safety goggles together with a face shield is recommended when a full-face respirator is not used.

Hand protection: Use chemical resistant gloves. Examples of preferred glove barrier materials include Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, Polyvinyl alcohol, Polyvinyl chloride.

Body protection: Wear appropriate impervious clothing e.g., overalls, aprons, shoes, and socks to prevent skin contact and contamination of personal clothing. Keep working clothes separately.

Respiratory protection: Respiratory protection is required when ventilation is inadequate, or discomfort is experienced; use an approved air-purifying respirator.

Environmental exposure controls: Prevent product from entry into sewers and water courses.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance (form): Solid - powder.

Colour: Blue white.

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Odour: No information available.

Odour threshold: No information available.

pH (1% solution in water): 4.87 – 5.15 (1%).

Melting point/range (°C): No information available.

Boiling point/range (°C): No information available.

Flash point (°C): No information.

Evaporation rate: No information available.

Flammability (solid, gas): Not flammable.

Ignition temperature (°C): No information available.

Upper/lower flammability/explosive limits: No information available.

Vapour pressure (20°C): No information available.

Vapour density: No information available.

Density: No information available.

Water solubility (g/L) at 20°C: 137 g/ℓ.

n-Octanol/Water partition coefficient: No information available.

Auto-ignition temperature: No information available.

Decomposition temperature: No information available.

Viscosity, dynamic (mPa s): No information available.

Physical hazards:

Explosive properties: None.

Other information:

Fat solubility (solvent-oil to be specified): No information available.

Bulk density: No information available.

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Dissociation constant in water (p Ka): No information available.

Oxidation-reduction potential: No information available.

SECTION 10. STABILITY AND REACTIVITY

Reactivity:

The product is stable under normal conditions.

Chemical stability:

Stable under normal storage conditions for 2 years.

Possibility of hazardous reactions:

No information available.

Conditions to avoid:

Heat and high temperatures.

Incompatible materials:

No information available.

Hazardous decomposition products:

Metal oxides (manganese, zinc, and copper), and oxides of carbon.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicokinetics, metabolism and distribution:

Non-human toxicological data: No Information available for the product.

Method: No Information available.

Dosage: No Information available.

Routes of administration: No Information available.

Results: No Information available.

Absorption: No Information available.

Distribution: No Information available.

Metabolism: No Information available.

Excretion: No Information available.

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Information on toxicological effects:

Routes of exposure:

The product may be absorbed into the body by inhalation of dust. The product may come into contact with the skin or eyes.

Acute toxicity:

The product is harmful if swallowed, and of low dermal and inhalation acute toxicity. Specific test data for the product is not available. Assessment of acute toxicity is based on calculation and the properties of the individual ingredients.

Assessment of acute toxicity:

Product/ingredient Name	Dose Acute -	Species	Test Result
GrainGro	1 038 mg/kg	Rat	ATE _(MIX) Oral
Manganese Sulphate Monohydrate	2 150 mg/kg	Rat	LD ₅₀ Oral
	>4.45 mg/L	Rat	LC ₅₀ Inhalation (Dust/Mist) 4h

Chronic toxicity: No information available.

Skin corrosion/irritation: Based on available data for the ingredients in the product, the classification criteria are not met for skin corrosion or irritation.

Serious eye damage/irritation: Based on available data for the ingredients in the product, the classification criteria are not met for serious eye damage.

Respiratory or skin sensitization: No information available for the product. Based on available data for the ingredients in the product, the classification criteria are not met for Respiratory/Skin Sensitization.

Germ cell mutagenicity: No information available for the product. Based on available data for the ingredients in the product, the classification criteria are not met for Germ Cell Mutagenicity.

Carcinogenicity: No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible, or confirmed human carcinogen by IARC.

Reproductive toxicity: No information available for the product.

Based on available data for the ingredients in the product, the classification criteria are met for Reproductive Toxicity. Disodium octaborate tetrahydrate: The classification of disodium octaborate tetrahydrate for reproductive toxicity is based on read across from other tested borates (e.g. boric acid) and borate salts (borax or disodium tetraborate decahydrate) because their hydrolysis results in the formation of the same substances. Based on the adverse developmental and fertility effects of borates in rats and rabbits, disodium octaborate tetrahydrate is classified as a reproductive toxicant.

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STOT- Single Exposure: No information available for the product. Based on available data for the ingredients in the product, the classification criteria are not met for STOT – Single Exposure.

STOT-Repeated Exposure: No information available for the product. Based on available data for the ingredients in the product, the classification criteria are met for STOT – Repeated Exposure.

Manganese Sulphate Monohydrate: Could target the brain, kidneys, and liver because of repeated and excessive exposure.

Aspiration hazard: No information available for the product. Based on available data for the ingredients in the product, the classification criteria are not met for aspiration toxicity.

Additional information: None available for the product.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity:

This product is very toxicity to aquatic organisms with long lasting effects.

Information on toxicological effects:

No eco-toxicological data is available for the formulated product.

Zinc sulphate:

Very toxic to fish.

Sodium borate:

Fish: LC₅₀ (96 h) for Dab (*Limanda Limanda*) 74 mg B/l (sodium tetra borate)

Daphnia: EC₅₀ (24 h) for *Daphnia magna straus* 242 mg B/l (sodium tetra borate)

Algae: EC₁₀ (96 h) for *Scenedesmus subspicatus* 24 mg B/l (sodium tetra borate)

Persistence and degradability:

No information available for the product.

Bioaccumulative potential:

No information available for the product.

Mobility in soil

Very soluble in water.

Other adverse effects:

No information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

Treat as hazardous waste and do not dispose of the product as general waste. Dispose product related waste and packaging in accordance with all local, provincial, and national regulations e.g., the Waste Classification and Management Regulations (GN 634 of 2013), R634 Waste Classification & Management Regulations, R635 National Norms & Standards for the Assessment of Waste for Landfill Disposal and R636 National Norms & Standards for

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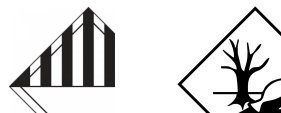
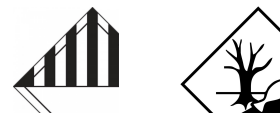
Disposal of Waste to Landfill. Prevent the contamination of water, food, or feed by storage or disposal of the waste. Do not use empty containers for any other purpose.

Special help is available for the disposal of Agricultural Chemicals. The product label will supply general advice regarding disposal of small quantities, and how to cleanse containers. Avoid and minimize the generation of waste.

Product/ packaging disposal:

Treat contaminated packaging as hazardous waste as dispose of as required by the legislation. Do not reuse or refill containers. Triple rinse container (or equivalent) promptly after emptying and offer for recycling - if an available option. Recondition if appropriate, or puncture and dispose of in a hazardous waste landfill, or by other procedures approved by the local authorities.

SECTION 14. TRANSPORT INFORMATION

	Land transport (ADR/RID)	Sea transport (IMDG)	Air transport (ICAO/IATA)
UN-Number	3077	3077	3077
UN Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Transport hazard class:	9	9	9
Transport hazard pictogram			
Packaging group:	III	III	III
Marine pollutant:	Yes	Yes	Yes
Special precautions for user:	None	None	None
Transport in bulk according to MARPOL 73/78 Annex II and the IBC code	Not required	Not required	Not required

Inland waterways: Not required.

Emergency response information: Not required.

Dangerous goods "Single Packaging" GHS pictogram requirements (e.g., drums and IBCs):

Dangerous good pictograms required: Environmental hazard and Class 9.

GHS hazard warning label that includes the following pictograms, are required:

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SECTION 15. REGULATORY INFORMATION

Safety, health, and environmental regulations/legislation for the mixture:

Relevant information regarding authorization: Occupational Health and Safety Act 1993. Regulation for Hazardous Chemical Agents, 2021. UN Recommendations on the Transport of Dangerous Goods Model Regulations Rev. 21 (2019), Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Rev 9, 2021.

ACGIH: American Conference of Governmental Industrial Hygienists (ACGIH).

Relevant information regarding restrictions:

EU regulations: Regulation EC 1272/2008 [EU-GHS/CLP].

Other National regulations: National Road Traffic Act, 1996 (ACT NO. 93 of 1996).

SANS 10228:2012- The identification and classification of dangerous goods for transport by road and rail modes.

National Environmental Management: Waste Act 59 of 2008.

Chemical Safety Assessment carried out? No.

SECTION 16. OTHER INFORMATION

Indication of changes:

GHS aligned.

Relevant classification and H statements (number and full text):

Acute Toxicity Oral, Category 4.

Aquatic Toxicity Acute Category 1.

Aquatic Toxicity Chronic Category 1.

Aquatic Toxicity Chronic Category 2.

Serious Eye Damage/Irritation, Category 1.

STOT RE 2 Category 2.

Reproductive Toxicity, Category 1B.

H302: Harmful if swallowed.

H318: Causes serious eye damage.

H360fd: May damage fertility. Suspected of damaging the unborn child.

H373: May cause damage to organs through prolonged or repeated exposure.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

H411: Toxic to aquatic life with long lasting effects.

Training instructions:

Use as indicated on the label, special training may be required for application.

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Key Abbreviations:

AND	European Provisions concerning the International Carriage of Dangerous Goods by inland Waterways
ADR	The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
CAS Number	Chemical Abstracts Service Number
COD	Chemical Oxygen Demand
EC ₅₀	Half Maximal Effective Concentration
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IMDG	International Maritime Dangerous Goods
LD ₅₀	Lethal Dose 50
LC ₅₀	Lethal Concentration 50
RID	The Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
TWA	Time Weighted Average
UN	United Nations

Further information:

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

Notice to readers:

Employers should use this information only as a supplement to other information gathered by them and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees.

This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.