According to SANS 10234/UN GHS 6th edition
Revision Date: 2019/08/28

First print date: 2017/07/17

Version: 1.0

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

Product identifier:

Identification as on the label/Trade name: NUTRIFEED 2

Additional information: Product code NUTB SP/01

Relevant identification uses of the substance and uses advised against:

Identified uses: Fertiliser.

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, LILIANTON

Emergency telephone numbers:

Griffon Poison information centre: 082 446 8946
Poisons Information Helpline: 0861 555 777
Nulandis: (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 10234:2008, Regulation EC 1272/2008 [EU-GHS/CLP]	
Hazard classes/Hazard categories	Hazard statement
Serious eye damage (Category 1)	H318
STOT RE 2	H373
Hazardous to the aquatic environment (Acute 2)	H401
Hazardous to the aquatic environment (Chronic 2)	H411

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 serious eye damage.

Hazard pictograms:

Signal Word: Danger

Hazard Statements: H318 Causes serious eye damage. H373 May cause damage to organs through prolonged or repeated exposure. H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements: P264 Wash thoroughly after handling. P270 Do not eat, drink when using this product. P280 Wear impervious rubber gloves and boots, protective clothing and chemical safety goggles. P332 +P313 If skin irritation occurs get medical advice. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISION CENTRE/doctor.

Special labelling of certain mixtures: None.

Other hazards: None.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Mixture

Ingredients: Classification

Substance name (IUPAC/EC)	CAS –No. EC-No.	Concentration % by weight	Classification EC1272/2008
Manganese sulphate monohydrate	10034-96-5 231-089-9	10-20%	STOT RE 2 H373. Aquatic chronic 2 H411
Zinc sulphate monohydrate	7446-19-7 231-793-3	1-10%	Acute toxicity oral (Category 4) H302. Serious eye damage (Category 1) H319. Aquatic acute 1 H400. Aquatic chronic 1 H410.
Citric acid monohydrate	77-92-9 201-069-1	1-3%	Eye irritant (Category 2) H319.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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. Get medical attention if you feel unwell.

In case of skin contact: In case of contact, immediately 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 persist.

In case of eye contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.
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. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if you feel unwell.

Most important symptoms and effects, both acute and delayed:

Inhalation: Prolonged exposure may cause respiratory irritation.
Ingestion: May be harmful if swallowed.
Skin contact: None known.
Eye contact: May cause serious eye damage.

Indication of any immediate medical attention and special treatment needed:

Treat symptomatically.

SECTION 5. FIRE -FIGHTING MEASURE

Extinguisher media:

Suitable extinguisher media:
SMALL FIRE: Use dry chemical powder.
LARGE FIRE: Use water spray, fog or foam. Do not use water jet.
Unsuitable extinguishing media: Do not use high pressure water jets.

Special hazards arising from the mixture:

Sulphur oxides. Manganese/manganese oxides, zinc oxides.

Advice for fire-fighters:

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.

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. Refer to Section 7, Handling and Storage, for additional precautionary measures. Use appropriate safety equipment. For additional information refer to Section 8, Exposure Controls / Personal Protection.

For emergency responders: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Refer to Section 7, Handling and Storage, for additional precautionary measures. Use appropriate safety equipment. For additional information refer to Section 8, Exposure Controls / Personal Protection.

Environmental precautions:

Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapours, if any. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

Methods for containment and cleaning up:

For small spills Contain spilled material if possible. Collect in suitable and properly labelled containers.

For large spills Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in well labelled container for disposal according to local regulations.

Reference to other sections:

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.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:

Avoid breathing dust, avoid contact with skin and eyes. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking.

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.

Conditions for safe storage, including incompatibilities:

Store product in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use.

Specific end uses:

Use as directed. Use original container.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

Occupational exposure limits (OEL): Manganese compounds as Mn TWA-OEL-RL 5 mg/m^3.

Biological exposure indices (BEI): None.

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

Exposure control: 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 dust, if available maintain airborne levels below exposure limit requirements or guidelines.

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, 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.

Eye/face protection: Use safety goggles.

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 clothing for task or operation. Keep working clothes separately.

Respiratory protection: Dust mask may be required in high dust areas**.** In addition, respiratory protection may be required when ventilation is inadequate, or discomfort is experienced; use an approved air-purifying respirator. Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines.

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): Mixture of granules and powder.

Colour: White.

Odour: Not known.

Odour threshold: No information available.

pH (at concentration): 4.63 (9.5g/ℓ).

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): No information available

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: 9.5g/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.

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:

No information available.

Incompatible materials:

Reactive with reducing agents, strong oxidising agents and acids.

Hazardous decomposition products:

Sulphur oxides. Manganese/manganese oxides, zinc oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicokinetics, metabolism and distribution:

Non-human toxicological data: No Information available.

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.

Information on toxicological effects:

Acute toxicity:
Manganese sulphate monohydrate
Harmful: danger of serious damage to health by prolonged exposure if swallowed.
Zinc sulphate monohydrate:
Acute toxicity oral LD_{50} for rat 2150 mg/kg.

Chronic toxicity: No information available.

Skin corrosion/irritation: No information available.

Serious eye damage/irritation: No information available.

Respiratory or skin sensitization: No information available.

Germ cell mutagenicity:
Manganese sulphate monohydrate
Hamster (Manganese Sulphate Monohydrate) ovary.
Cytogenetic analysis in hamster ovary.
Sister chromatid exchange
Mouse- Micronucleus test
Mouse- Cytogenetic analysis
Mouse in sperm.

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

Reproductive toxicity: No information available.

STOT-single exposure: No information available.

STOT-repeated exposure: No information available.

Aspiration hazard: No information available.
Additional information:
Manganese sulphate monohydrate
Men exposed to manganese dusts showed a decrease in fertility. Chronic man system. Early symptoms include languor, sleepiness and weakness in the le disturbances such as uncontrollable laughter and a spastic gait with tend cases. High incidence of pneumonia has been found in workers exposed.
Prolonged or repeated inhalation may cause: Pneumonia.

SECTION 12. ECOLOGICAL INFORMATION

Toxicity:
No information available.

Persistence and degradability:
No information available.

Bioaccumulative potential:
No information available.

Mobility in soil
Very soluble in water.

Results of PBT& vPvB assessment:
No information available.

Other adverse effects:
No information available.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste treatment methods:
Treat as hazardous waste and dispose of in accordance with municipal, provincial and national regulations.

Product/ packaging disposal:
Treat as hazardous waste and dispose of in accordance with municipal, provincial and national regulations.

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 (Zinc sulphate, Manganese sulphate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S (Zinc sulphate, Manganese sulphate)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S (Zinc sulphate, Manganese sulphate)
Transport hazard class:	9	9	9
Packaging group:	III	III	III
Marine pollutant:	Yes	Yes	Yes
Special precautions for user:	Causes serious eye damage	Causes serious eye damage	Causes serious eye damage
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

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 Substances.

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:

Aligned to GHS.

Relevant classification and H statements (number and full text:

Aquatic acute 1: Hazardous to the aquatic environment (Acute 1)
Aquatic acute 2: Hazardous to the aquatic environment (Acute 2)
Aquatic chronic 1: Hazardous to the aquatic environment (Chronic 1)
Aquatic chronic 2: Hazardous to the aquatic environment (Chronic 2)
STOT RE 2: Specific Target Organ Toxicity repeated exposure (Category 2)

H302 Harmful if swallowed. H318 Causes serious eye damage. H319 Causes serious eye irritation. H373 May cause damage to organs through prolonged or repeated exposure. H400 Very toxic to aquatic life. H401 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.

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.