SAFETY DATA SHEET
ACCORDING TO 1907/2006/EC, 453/2010/EU, 2015/830/EU (REACH)

ZINC NITRATE

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product Identifier
Product Name: ZINC NITRATE
Product description: Fertiliser
Product Type: Liquid

1.2 Relevant identified uses of the substance or mixture and uses advised against
Relevant uses: Fertiliser
Uses advised against: All uses not specified in this section or in section 7.3

1.3 Details of the supplier of the safety data sheet
Rolfes Agri (Pty) Ltd
288 Mundt Street
Waltloo
Pretoria
South Africa
Tel: +27(0)12 803 0145
Fax: +27(0)12 803 8418

1.4 Emergency telephone number

National advisory body/Poison Centre

Telephone number: SOUTH AFRICA
Griffon Poison Information Centre
(24 Hour Poisoning Emergency Helpline)
+27(0)82 446 8946
SECTION 2: Hazards identification

2.1 Classification of the substance or mixture:
CLP Regulation (EC) no 1272/2008:
Classification of this product has been carried out in accordance with CLP Regulation (EC) no 1272/2008.

Acute Tox. 4: Acute Toxicity, Category 4, H302
Skin Irrit. 2: Skin irritation, Category 4, H315
Eye Dam. 1: Eye Damage, Category 1, H318
Aquatic Acute 1: Aquatic Acute, Category 1, H400
Aquatic Chronic 1: Aquatic Chronic, Category 1, H410

2.2 Label elements
CLP Regulation (EC) no 1272/2008:

Hazard pictogram(s):

Signal word: Danger
Hazard statement(s):
- H302 - Harmful if swallowed.
- H315 - Causes skin irritation
- H319 - Causes serious eye damage.
- H400 - Very toxic to aquatic life
- H410 - Very toxic to aquatic life with long lasting effects

Precautionary statement(s):
- P101 - If medical advice is needed, have product container or label at hand.
- P102 - Keep out of reach of children.
- P103 - Read label before use.
- P264 - Wear protective gloves/face shield/eye protection.
- P270 - Do not eat, drink or smoke when using this product.
- P273 - Avoid release to the environment
- P280 - Wear protective gloves/face shield/eye protection.
- P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician.
- P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
- P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do, continue rinsing.
- P332+P313 - If skin irritation occurs: Get medical advice/attention.
- P337+P313 - If eye irritation persists: Get medical advice/attention.
- P321 - Specific treatment (see Section 4 on this label).
- P330 - Rinse mouth.
- P362 - Take off contaminated clothing and wash before reuse.
- P391 - Collect spillage.
- P501 - Dispose of the contents/containers in accordance with the current legislation on waste treatment.

2.3 Other hazards
Non-applicable

SECTION 3: Composition/information on ingredients

3.1 Substance: Non-applicable

3.2 Mixture:
Chemical description: Multi-Constutuent Substance
Component(s):
SECTION 4: First Aid Measures

4.1 Description of first aid measures
The symptoms resulting from intoxication can appear after exposure, therefore, in case of doubt, seek medical attention for direct exposure to the chemical product or persistent discomfort, showing the SDS of this product.

By inhalation:
Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen. Do NOT give mouth-to-mouth resuscitation if victim ingested or inhaled the substance. Keep person at rest and warm. Treat symptomatically and supportively as and when required. Obtain medical advice if necessary.

By skin contact:
Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

By eye contact:
Immediately flush eyes with lukewarm water or saline solution for at least 15 minutes, lifting lower and upper eyelids occasionally. Check for and remove any contact lenses after 5 minutes. Get medical attention if necessary.

By ingestion / aspiration:
If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed
No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : None.
Specific treatments : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Fire Extinguishing Media

Suitable extinguishing media:
Not combustible, but substance is a strong oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Increases flammability of any combustible substance in contact with it

Fire extinguishing media:
Water or water spray in early stages of fire. Foam or dry chemical may also be used.

5.2 Special hazards arising from the substance or mixture
Hazardous thermal decomposition products:
During fire, irritating and toxic gases will be released due to thermal decomposition or combustion.
ZINC NITRATE

5.3 Additional provisions:
Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. In the event of a fire, wear full protective clothing and self-contained breathing apparatus with full-face piece operated in the pressure demand or other positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:
Ventilate area of leak or spill. Wear appropriate personal protective equipment.

6.2 Environmental precautions:
Keep product away from drains, surface and underground water.

6.3 Methods and materials for containment and cleaning up

Spills:
Collect liquid in an appropriate container or absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer.

Large Spills:
Dyke far ahead of liquid spills for later disposal. Prevent entry of the substance into waterways, sewers, basements or confined areas.

6.4 Reference to other sections:
See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:
A.- Precautions for safe manipulation
Comply with the current legislation concerning the prevention of industrial risks. Keep containers hermetically sealed. Control spills and residues, destroying them with safe methods (section 6). Avoid leakages from the container. Maintain order and cleanliness where dangerous products are used.

B.- Technical recommendations for the prevention of fires and explosions
Due to its non-flammable nature, the product does not present a fire risk under normal conditions of storage, manipulation and use.

C.- Technical recommendations to prevent ergonomic and toxicological risks
Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

D.- Technical recommendations to prevent environmental risks
It is recommended to have absorbent material available at close proximity to the product (See subsection 6.3)

7.2 Conditions for safe storage, including any incompatibilities:
A.- Technical measures for storage
Minimum Temp.: 5 ºC
Maximum Temp.: 30 ºC
Maximum time: 36 Months

B.- General conditions for storage
Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5
7.3 Specific end use(s) Except for the instructions already specified it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
There are no occupational exposure limits for the substances contained in the product

8.2 Exposure controls

Appropriate engineering controls:
Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

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.

Eye/face protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Skin protection

Hand protection:
Protective gloves against minor risks.

Body protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Other skin protection:
Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection:
For conditions of use where exposure to the substance is apparent and engineering controls are not feasible, consult an industrial hygienist. For emergencies, or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

Environmental exposure controls:
In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. No significant release into the air is expected.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties
For complete information, please refer to product datasheet.

Appearance
Physical state : Liquid
Colour : Colorless to yellowish liquid
Odour : Slight nitric acid odor.

Volutility:
Boiling point at atmospheric pressure :
Vapour pressure at 20 °C : Not determined
ZINC NITRATE

Vapour pressure at 50 ºC : Not determined
Evaporation rate at 20 ºC : Not determined

Product description:
Density at 20 ºC : 1.32 -1.35
Relative density at 20 ºC : Not determined
Dynamic viscosity at 20 ºC : Not determined
Kinematic viscosity at 20 ºC : Not determined
Kinematic viscosity at 40 ºC : Not determined
pH : Not determined
Vapour density at 20 ºC : Not determined
Partition coefficient n-octanol/water 20 ºC : Not determined
Solubility in water at 20 ºC : Soluble in water.
Solubility properties : Not determined
Decomposition temperature : Not determined
Melting point/freezing point : Not determined
 Explosive properties : No explosive properties
Oxidising properties : Oxidiser

9.2 Other information: No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity:
React with metallic powders

10.2 Chemical stability:
Chemically stable under the conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:
Aqueous solution is an acid.

10.4 Conditions to avoid:
Heat, flames, ignition sources and incompatibles.

10.5 Incompatible materials:
Metal powders, cyanides, sodium hypophosphite, stannous chloride, phosphorus, thiocyanates, carbon, metallic sulfides, sulfur, organic materials. Substance is capable of reacting rapidly with reducing agents and combustible materials at elevated temperatures

10.6 Hazardous decomposition products:
Oxides of nitrogen and toxic metal fumes may form when heated to decomposition.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

<table>
<thead>
<tr>
<th>Acute toxicity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>LD50 Oral - Rat 1190 mg/kg</td>
</tr>
<tr>
<td>Chronic Toxicity</td>
<td>No additional information</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Corrosion Irritation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>Skin Rabbit – severe skin irritation – 24 h</td>
</tr>
<tr>
<td>Ocular</td>
<td>Eye Rabbit – moderate eye irritation – 24 h</td>
</tr>
<tr>
<td>Sensitization</td>
<td>No additional information</td>
</tr>
<tr>
<td>Single Target Organ STOT</td>
<td>Inhalation – May cause respiratory irritation</td>
</tr>
<tr>
<td>Numerical measures</td>
<td>No additional information</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>No additional information</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>No additional information</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>No additional information</td>
</tr>
</tbody>
</table>
ZINC NITRATE

SECTION 12: Ecological information

The experimental information related to the eco-toxicological properties of the product itself is not available.

12.1 Toxicity:
This material is expected to be toxic to aquatic life. This material is not expected to significantly bioaccumulate.

12.2 Persistence and degradability:
In accordance with column 2 of REACH Annex VII, the ready biodegradability test does not need to be conducted as the substance is inorganic.

12.3 Bioaccumulative potential: Not bio-accumulated.

12.4 Mobility in soil: Soluble in water.

12.5 Results of PBT and vPvB assessment:
This substance/mixture does not meet the PBT and vPvB criteria of REACH regulation, annex XIII

12.6 Other adverse effects: No information available.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product
Methods of disposal:
The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Hazardous waste:
No information available.

Packaging
Methods of disposal:
The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions:
This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
## SECTION 14: Transport information

<table>
<thead>
<tr>
<th></th>
<th>Land transport (ADR/RID)</th>
<th>Inland waterway transport (AND/ADNR)</th>
<th>Sea Transport (IMDG)</th>
<th>Air transport (ICAO-TI / IATA-DGR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1 UN Number</td>
<td>1514</td>
<td>1514</td>
<td>1514</td>
<td>1514</td>
</tr>
<tr>
<td>14.2 UN proper shipping name</td>
<td>Zinc nitrate</td>
<td>Zinc nitrate</td>
<td>Zinc nitrate</td>
<td>Zinc nitrate</td>
</tr>
<tr>
<td>14.3 Transport hazard class(es)</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>14.4 Packing group</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
</tr>
<tr>
<td>14.5 Environmental hazards</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>14.6 Special precautions for user</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
<td>No data available</td>
</tr>
<tr>
<td>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code:</td>
<td>IBC08</td>
<td>IBC08</td>
<td>IBC08</td>
<td>IBC08</td>
</tr>
</tbody>
</table>

## SECTION 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:
- Candidate substances for authorisation under the Regulation (EC) 1907/2006 (REACH): Non-applicable
- Regulation (EC) 1005/2009, about substances that deplete the ozone layer: Non-applicable
- Active substances not included in Annex I under Regulation (EU) No 528/2012: Non-applicable
- REGULATION (EU) No 688/2012, in relation to the import and export of hazardous chemical products: Non-applicable
- Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII REACH, etc. . . . .): Non-applicable

### Other legislation:
- Law No.360 / 2003 on the dangerous substances and preparations
- Law nr.349 / 2007 regarding the reorganization of the institutional framework for chemicals management
- Law no.249 / 2011 to amend article 4 of Law nr.349 / 2007 on the reorganization of the institutional framework chemicals management
Emergency Ordinance no.60 / 2013 for completing art. 4 para. (1) of Law no. 349/2007 on the reorganization framework institutional management of chemicals GD Nr.1408 / 2008 and Annexes 1-6 on classification, packaging and labeling of dangerous substances GD nr.937 / 2010 and Annexes 1 to 5 on the classification, packaging and labeling in the marketing of dangerous preparations.
GD no.398 / 2010 and Annexes 1 to 5 on the classification, packaging and labeling in the marketing of dangerous preparations.
GD no.1218/2006 establishing minimum safety requirements for ensuring occupational health and protection workers from risks related to chemical agents.
Law no. 319/2006 - Law on safety and health at work.
GD 621/2005 on the management of packaging and packaging waste.

Specific provisions in terms of protecting people or the environment:
It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of the local circumstances in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

15.2 Chemical Safety Assessment:
The supplier has not carried out evaluation of chemical safety.

SECTION 16: Other information

Legislation related to safety data sheets:
This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) N° 1907/2006 (Regulation (EU) N° 453/2010, Regulation (EC) N° 2015/830)

Modifications related to the previous security card which concerns the ways of managing risks. :
Non-applicable

Texts of the legislative phrases mentioned in section 2:
The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Texts of the legislative phrases mentioned in section 3:
Non-applicable

CLP Regulation (EC) n° 1272/2008:
Acute Tox. 4: Acute Toxicity, Category 4, H302
Skin Irrit. 2: Skin irritation, Category 4, H315
Eye Dam. 1: Eye Damage, Category 1, H318
Aquatic Acute 1: Aquatic Acute, Category 1, H400
Aquatic Chronic 1: Aquatic Chronic, Category 1, H410

Classification procedure:
Non-applicable

Advice related to training:
Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:
http://esis.jrc.ec.europa.eu
http://echa.europa.eu
http://eur-lex.europa.eu
**ZINC NITRATE**

**Relevant P-, H- and EUH-phrases (number and full text)**
P101 - If medical advice is needed, have product container or label at hand.
P102 - Keep out of reach of children.
P103 - Read label before use.
P264 - Wash hands thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment
P280 - Wear protective gloves/face shield/eye protection.
P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician.
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do, continue rinsing.
P332+P313 - If skin irritation occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P321 - Specific treatment (see Section 4 on this label).
P330 - Rinse mouth.
P362 - Take off contaminated clothing and wash before reuse.
P391 - Collect spillage
P501 - Dispose of the contents/containers in accordance with the current legislation on waste treatment.

**Abbreviations and acronyms:**
ADR: European agreement concerning the international carriage of dangerous goods by road
IMDG: International maritime dangerous goods code
IATA: International Air Transport Association
ICAO: International Civil Aviation Organisation
COD: Chemical Oxygen Demand
BOD5: 5-day biochemical oxygen demand
BCF: Bioconcentration factor
LD50: Lethal Dose 50
CL50: Lethal Concentration 50
EC50: Effective concentration 50
Log-POW: Octanol–water partition coefficient
KOC: PARTITION COEFFICIENT OF ORGANIC CARBON

**Date of revision**: 19/07/2019

**Version**: 3

**Notice to reader**

**DISCLAIMER AND LIMITATION OF LIABILITY**

The information and recommendations contained in this Safety Data Sheet ("SDS") relate only to the specific material referred to herein (the "Material") and do not relate to the use of such Material in combination with any other material or process. The information and recommendations contained herein are believed to be current and correct as of the date of this SDS. HOWEVER, THE INFORMATION AND RECOMMENDATIONS ARE PRESENTED WITHOUT WARRANTY, REPRESENTATION OR LICENSE OF ANY KIND, EXPRESS OR IMPLIED, WITH RESPECT TO THEIR ACCURACY, CORRECTNESS OR COMPLETENESS, AND THE SELLER, SUPPLIER AND MANUFACTURER OF THE MATERIAL AND THEIR RESPECTIVE AFFILIATES (COLLECTIVELY, THE "SUPPLIER") DISCLAIM ALL LIABILITY FOR RELIANCE ON SUCH INFORMATION AND RECOMMENDATIONS.

This SDS is not a guarantee of safety. A buyer or user of the Material (a "Recipient") is responsible for ensuring that it has all current information necessary to safely use the Material for its specific purpose.