

Safety Data Sheet

NIRVANA- Reg. No: L 9838 (Act No 36 of 1947)

Date of issue: 17/03/2014

Date revised: 25/03/2017

| 1) IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER. | |
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| Product name: | NIRVANA |
| Other means of identification: | Glufosinate-ammonium 200 g/L |
| UN Number: | Not regulated |
| Recommended use: | Herbicide |
| Restrictions on use: | Agriculture |
| Distributed by: | MERIDIAN AGRITECH P O BOX 436 MODDERFONTEIN TEL 011 8228509 FAX 0866901386 MOBILE: 0834006056 www.agritech.co.za |
| Emergency Number: | POISON CENTRE (UNITAS HOSPITAL) 012 664 1100 WESTERN CAPE POISONS TELEPHONE SERVICE: 0861 555 777 RAPID SPILL RESPONSE: 0800 775 3305 GRIFFON POISON CENTRE: 082 446 8946 |
| Chemical Name: | ammonium (S)-2-amino-4- [hydroxy(methyl)phosphinoyl]butyrate |
| 2) Classification of the substance / mixture: | |
| Classification of the product: | |
| Label elements: | Hazard statements: H412: harmful to aquatic life with long lasting effects. EUH401: To avoid risks to human health and the environment, comply with the instructions for use. Precautionary Statements (Disposal) P501: Dispose of content / container to hazardous or special waste collection point. Hazard Symbol: Signal Word: WARNING |
| Health effects: eyes: | May cause irritation |
| Health effects: skin: | May cause irritation. May be harmful |
| Health effects: ingestion | Harmful if swallowed |
| Health effects: inhalation | Harmful if inhaled. |
| Health effects: Other | |
| 3) COMPOSITION / INFORMATION ON INGREDIENTS: | |

Mixture:

| Chemical name | Composition | CAS No. | EC No. | Classification according to Regulation EC 1272/2008 (CLP) | Classification according to 67/548/EEC |
|----------------------|-------------|---------|--------|---|---|
| Glufosinate-ammonium | 20% | | | <p>Aquatic Acute 1: H400: Very toxic to aquatic life</p> <p>Aquatic chronic: H410: Very toxic to aquatic life with long lasting effects</p> <p>Skin Irrit.:2: H315: Causes skin irritation.</p> <p>Eye Irrit. 2: H319: Causes serious eye irritation.</p> | <p>N;</p> <p>R50/53</p> <p>S60</p> <p>S61</p> |

Full text of R- and S-phrases: see section 15.

4) First Aid Measures:

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| Eye contact: | Flush eyes with plenty of water for 15 minutes holding eyelids open if necessary. Seek medical assistance. |
| Skin contact: | Immediately flush body and clothes with large amounts of water. Remove contaminated clothing and footwear. Wash affected areas with soap and water. Do not rub skin. Seek medical assistance should irritation persist. |
| Ingestion: | Never give anything by mouth to an unconscious person. If swallowed do NOT induce vomiting unless told to so by poison control centre or doctor. A glass of water may be given to sip. For advice, contact the National Poisons Centre. Seek medical assistance immediately. |
| Inhalation: | Remove patient to fresh air. If breathing is shallow or has stopped ensure airway is clear and apply resuscitation. Seek medical assistance. |
| Most important symptoms and effects, acute and delayed: | Not known |
| Indication of immediate medical attention and special treatment needed: Advice to physician | There is no specific antidote if this product is ingested. Treat and supportive therapy as indicated. |

5) Fire-Fighting Measures:

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| Suitable extinguishing media: | Water, Foam, Dry Chemical, CO ₂ |
| Unsuitable extinguishing media: | No information available |
| Special hazards arising from the substance or mixture: | Burning chemicals may produce by-products more toxic than the original material. |
| Fire-fighting: | <p>Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire.</p> <p>Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal.</p> <p>Generating poisonous and corrosive fumes. Keep upwind. Avoid inhaling hazardous vapours and fumes from burning materials. Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but must be contained for later disposal. (on small fires) If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated.</p> <p>Do not scatter the material. Water can be used to cool containers. Dispose of extinguishing agent and spillage in a safe way at a later stage.</p> |

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| | <p>Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.</p> <p>Burning chemicals may produce by-products more toxic than the original material.</p> |
| Protective clothing: | Full protective clothing and self-contained breathing apparatus. |
| 6) Accidental Release Measures: | |
| <p>Personal precautions:</p> <p>Environmental precautions:</p> <p>Cleaning procedure:</p> <p>Disposal:</p> | <p>Wear appropriate safety clothing and eye/face protection. Do not breathe in spray or fumes.</p> <p>For personal protection see Section 8.</p> <p>Do not contaminate waterways, drains and groundwater. If contamination of waterways, drains, rivers or lakes is unavoidable, warn the local authorities (Police and Department of Water/Environmental affairs) immediately.</p> <p>Initial Containment: Follow applicable Federal, State/Provincial and Local laws/ regulations. Prevent material from entering sewers, waterways, or low areas.</p> <p>Spill: Clean Up Shovel or sweep up.</p> <p>Wear protective clothing. Clear area of unprotected personnel. Contain and absorb liquid spills with inert material and place in waste containers. Wash area with water containing soda or detergent and absorb with further inert material. If spill does enter waterways contact the local authority. Heavily contaminated soil layers should be removed and disposed of in an approved way. Spilled product cannot be re-used and must be disposed of by incineration or disposal in a chemical waste disposal facility. If containers cannot be recycled, they should be disposed of together with the waste chemical</p> <p>Waste Disposal:</p> <p>In accordance with local and national regulations. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.</p> <p>Container Disposal:</p> <p>Refer to the product label for instructions.</p> <p>If the container is to be refilled, do not rinse with any material or introduce any pesticide other than this product.</p> <p>DO NO REUSE THE CONTAINER FOR ANY OTHER PURPOSE.</p> <p>Do not transport if this container is damaged or leaking.</p> |
| 7) Handling & Storage: | |
| Handling: | <p>Avoid skin and eye contact and inhalation of spray mist. Keep away from heat and sources of ignition. Ensure adequate ventilation.</p> <p>Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke. Wash contaminated clothing before re-use.</p> <p>APPROVED HANDLER: This product must be under the control of an approved handler when applied in a wide dispersive manner; or used by a commercial contractor.</p> <p>BEWARE: Spray drift hazard. Apply this product carefully. Spray drift may cause serious damage to other desirable plants.</p> |

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| Storage: | Store in original container tightly closed and in a locked, dry, cool area away from foodstuffs, fertilisers and seeds. Keep away from children or uninformed persons. Avoid extreme temperatures. |
| 8) Exposure Control / Personal Protection: | |
| <p>It is essential to provide adequate ventilation. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.</p> <p><u>PERSONAL PROTECTIVE EQUIPMENT:</u></p> <p>Clothing:</p> <p>Gloves:</p> <p>Eye protection:</p> <p>Respiratory protection:</p> <p>Emergency eye wash:</p> | <p>Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.</p> <p>Employee must wear appropriate chemical-resistant gloves to prevent contact with this substance</p> <p>The use of safety goggles with side shields is recommended.</p> <p>Wear respirator if ventilation is inadequate or exposure to high levels are likely</p> <p>Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.</p> |
| 9) Physical & Chemical Properties: | |
| <p>Form:</p> <p>Colour:</p> <p>Odour:</p> <p>Odour threshold:</p> <p>pH:</p> <p>Melting point / Freezing point</p> <p>Initial boiling point and boiling range</p> <p>Flash point:</p> <p>Evaporation rate:</p> <p>Flammability (solid, gas)</p> <p>Upper/ lower flammability or explosive limits:</p> <p>Vapour pressure:</p> <p>Vapour density:</p> <p>Relative density:</p> <p>Solubility(ies)</p> <p>Partition coefficient: n-octanol/water</p> <p>Auto-ignition temperature:</p> <p>Viscosity:</p> | <p>Liquid</p> <p>Light brown</p> <p>Characteristic</p> <p>No data available</p> <p>5.0-6.0</p> <p>No data available</p> <p>No data available</p> <p>60°C</p> <p>N/A</p> <p>No flammable</p> <p>No data available</p> <p>No data available</p> <p>No data available</p> <p>N/A</p> <p>Suspends in water.</p> <p>No data available</p> <p>No data available</p> <p>No data available</p> |
| 10) Stability & Reactivity: | |
| <p>Reactivity:</p> <p>Chemical stability:</p> | <p>No hazardous reactions if stored and handled as indicated / prescribed.</p> <p>Stable under standard conditions. No decomposition if stored (up to 2 years) and applied as directed. The generation of gas during decomposition can cause pressure in closed systems. The pressure build-up may be rapid. Avoid static discharge.</p> |

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| Hazardous decomposition product(s): | Thermal decomposition can lead to release of: Ammonia, Carbon oxides, Nitrogen oxides, Phosphorous oxides, Sulphur oxides |
| Conditions to avoid: | Protect product from direct sunlight, open flame and sources of heat. Store in a cool, dry place below 30°C. |
| Incompatible materials: | Avoid: strong oxidizing agents, acids, bases and alkali metals. |

11) Toxicological Information:

Acute:

Oral LD50 : >2 000 mg/kg, rat.b Female rats:1620 mg/kg

Dermal LD50 : > 4 000 mg/kg

Inhalation LC50 (4h): > 1.26 mg/L, mouse (Very low toxicity)

Skin irritation : Mild irritant, rabbit.

Eye irritation : Moderate irritant, rabbit.

Sensitization : Does not cause sensitization on laboratory animals, (guinea pig).

Other :

Repeated dose toxicity: No data available

Mutagenicity: No data available

Carcinogenicity: No data available

Reproductive toxicity: No data available

Teratogenicity: No data available

12) Ecological Information:

Information below based on active ingredient: Glufosinate-ammonium

Birds: Dietary LC₅₀ (8 d) for Japanese quail >5000 mg/kg

Fish: LC₅₀ (96 h) for rainbow trout 710, carp, bluegill sunfish, golden orfe >1000 mg/l.

Daphnia: LC₅₀ (48 h) 560–1000 mg/l.

Algae: LD₅₀ for *Scenedesmus subspicatus* ≥1000, *Selenastrum capricornutum* 37 mg/l.

Bees: Not hazardous to bees; LD₅₀ >100 µg/bee.

Worms: LD₅₀ for earthworms >1000 mg/kg soil.

Environmental fate:

Persistence and degradation:

Rapidly degraded in surface levels of soil, and in water. Because of polarity, it and its metabolites do not bioaccumulate. Metabolism in soil and water reviewed (E. Dorn et al., Z. Pflanzenkr. Pflanzenschutz, 1992, Sonderheft XIII, pp. 459–468). Degraded to 3-(methyl)phosphinoylpropionic acid and 2-(methyl)phosphinoylacetic acid, and ultimately to CO₂ and bound residues. In soil, DT₅₀ 3–10 d (lab.), 7–20 d (field); DT₉₀ 10–30 d (lab.); DT₅₀ of metabolites 7–19 d (lab.). DT₅₀ in water c. 2–30 d. Lysimeter studies and model calculations show that neither a.i. nor metabolites leach into groundwater; this appears to be due to rapid degradation, and adsorption to certain soil elements. Adsorption is more correlated with clay content than organic matter, K_{clay} 2–115, K_{oc} 10–1230 (A. Zumdick et al., Proc. 9th IUPAC Int. Congr. Pestic. Chem., London, 1998, 2, 6A-023; idem, *ibid.*, 6D-034).

Bioaccumulative potential: Does not bioaccumulate

Bioconcentration factor: No data available

13) Disposal Considerations:

Waste Disposal: In accordance with local and national regulations. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal: Refer to the product label for instructions. Triple rinse empty containers before disposal in the following manner: Invert the container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed to a drip. Thereafter, rinse the container three times with a volume of water equal to a third of that of the container volume. Add rinsing to the contents of the spray tank before destroying the container in the prescribed manner. Empty containers should not be burnt; puncture and flatten containers and dispose at a licensed landfill site according to local regulations. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Prevent contamination of water sources, food or feed by disposal. **DO NOT REUSE THE CONTAINER FOR ANY OTHER PURPOSE.** If recycling, replace cap and take containers to the designated recycling point. If containers cannot be recycled, they should be disposed of together with the waste chemical according to local regulations.

14) Transportation Information:

UN Number: Not regulated

Road Transport ADR/ RID:

Class: 9, Miscellaneous Dangerous Goods

Packaging group: III

Labelling no: III

Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, ID, SOLID.N.O.S. (Glufosinate-ammonium)

Maritime Transport IMDG / IMO:

Marine pollutant: yes

Class: 9, Miscellaneous Dangerous Goods

Packaging group: III

Shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, ID, SOLID.N.O.S. (Glufosinate-ammonium)

Air Transport IATA:

Class: 9, Miscellaneous Dangerous Goods

Packaging group: III

Labelling no: III

Shipping Name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, ID, SOLID.N.O.S. (Glufosinate-ammonium)

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC code): NA

15) Regulatory Information:

Contains: Glufosinate-ammonium

Symbols:

Xi – Irritant

Risk – Phrase (s):

R20/22 - Harmful by inhalation and if swallowed

R43 - May cause sensitization by skin contact.

R36 - Irritating to eyes

R48/20/22 - Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Safety – Phrase (s):

S1/2 - Keep under lock and key and out of the reach of children.

S7/9 - Keep container tightly closed and in a well-ventilated place.

S13 - Keep away from food, drink and animal feeding stuffs.

- S20/21 - When using do not eat, drink or smoke.
- S23 - Do not breathe fumes/vapour/spray.
- S24/25 - Avoid contact with skin and eyes.
- S28 - After contact with skin, wash immediately with plenty of water and non-abrasive soap.
- S35 - This material and its container must be disposed of in a safe way.
- S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.
- S46 - If swallowed, seek medical advice immediately and show this container.
- S57 - Use appropriate containment to avoid environmental contamination.
- S60 - This material and its container must be disposed of as hazardous waste.
- S61 - Avoid release to the environment. Refer to special instructions/Safety data sheets.
- S62 - If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.
- S63 - In case of accident by inhalation: remove casualty to fresh air and keep at rest.

Hazard -Phrase (s)

- H317 - May cause an allergic skin reaction.

16.Other Information

All information and instructions provided in this Safety Data Sheet (SDS) are based on the current state of scientific and technical knowledge at the date indicated on the present SDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear.

It is the responsibility of persons in receipt of this SDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with this product. If the recipient subsequently produces formulation(s) containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this SDS to their own SDS.

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