

| | | |
|--------------------|----------------------------|--------------------|
| Infosafe No™ 3NUWC | Issue Date : November 2016 | ISSUED by NUFARMNZ |
|--------------------|----------------------------|--------------------|

Product Name **Biffo**

1. Identification

| | |
|--|--|
| GHS Product Identifier | Biffo |
| Product Code | 00830 |
| Product Type | Herbicide |
| Company Name | Nufarm NZ |
| Address | 6 Manu Street, Otahuhu Auckland 2024 New Zealand |
| Telephone/Fax Number | Tel: 0-9-270 4150 Fax: 0-9-270-4159 |
| Emergency phone number | 0800 651 911 |
| Email | info@nz.nufarm.com |
| Recommended use of the chemical and restrictions on use | A non-selective contact herbicide for the control of a wide range of grasses and broadleaf weeds including clover. |
| Other Information | This SDS describes, to the best of our knowledge, the properties of the concentrated product. The physical properties and some of the assessments do not apply to the properties of the product once it has been diluted for application. Acute health effects of the diluted product are likely to be much less severe. |

2. Hazard Identification

| | |
|--------------------------|---|
| Other Information | 3.1D Combustible Liquid, 6.1D Acute toxicant, 6.3B Skin irritant, 6.4A Eye irritant, 6.8B Reproductive/Developmental Toxicant, 6.9A Target organ systemic toxicant, 9.1C Aquatic ecotoxicant, 9.2B Soil ecotoxicant and 9.3C Vertebrate ecotoxicant FLAMMABLE Warning: Combustible liquid. Keep away from sources of ignition TOXICITY Toxic- may cause kidney damage from repeated oral exposure at high doses. Harmful-may be harmful if swallowed, inhaled or absorbed through the skin. May cause skin and eye irritation. May cause reproductive/developmental damage from repeated oral exposure. ECOTOXIC Harmful to aquatic organisms with long lasting effects. Non selective herbicide- very toxic to some plant species. Harmful to terrestrial vertebrates. |
|--------------------------|---|

3. Composition/information on ingredients

| | | | |
|----------------------------------|---|------------|-------------------|
| Chemical Characterization | Liquid | | |
| Ingredients | <u>Name</u> | <u>CAS</u> | <u>Proportion</u> |
| | Glufosinate ammonium | 77182-82-2 | 200 g/L |
| | Other ingredients (considered non-hazardous) | | 30-60 % |
| | 1-methoxy-2- propanol | 107-98-2 | 10-30 % |

4. First-aid measures

| | |
|---------------------------|---|
| First Aid Measures | For advice contact the National Poisons Centre 0800 POISON (0800 764 766) or a doctor immediately. Begin artificial respiration if the victim is not breathing. Use mouth-to-nose rather than mouth-to-mouth. Obtain medical attention. |
| Inhalation | Remove affected person to fresh air until recovered. If symptoms develop or persist, seek medical advice. |
| Ingestion | Never give anything by mouth to an unconscious person. If swallowed do NOT induce vomiting. For advice, contact the National Poisons Centre (0800 764 766). Seek medical assistance immediately. |
| Skin | Immediately flush body and clothes with large amounts of water. Remove contaminated clothing and footwear. Wash affected areas with soap and water. |

| | | |
|--------------------|----------------------------|--------------------|
| Infosafe No™ 3NUWC | Issue Date : November 2016 | ISSUED by NUFARMNZ |
|--------------------|----------------------------|--------------------|

Product Name **Biffo**

Eye contact Seek medical assistance immediately.
Flush eyes with plenty of water for 15 minutes holding eyelids open if necessary.
Remove contact lenses, if present and easy to do.

First Aid Facilities Seek medical assistance even if there are no immediate symptoms.
Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.

Advice to Doctor The treatment below may be warranted following ingestion of significant quantities of the concentrated product. Significant effects from exposure to dilute spray solution are unlikely.
Glufosinate-ammonium is a glutamine synthase inhibitor and can interfere with neurotransmitter function. Early symptoms shortly after exposure are mainly gastrointestinal (nausea, diarrhoea, and vomiting, abdominal pain). In the course of time impaired respiration and neurological defects such as mental status changes, tremor, fever and convulsions may develop. Recovery is normally spontaneous, usually within 48 hours.
As these symptoms may be delayed up to 48 hours after exposure, the patient should be admitted to hospital for at least 36 hours or 48 hours if a large amount has been ingested.

DECONTAMINATION
If ingested, endotracheal intubation and gastric lavage should be performed as soon as possible, followed by administration of a charcoal and sodium sulfate solution. Elimination by dialysis (forced alkaline diuresis) and/or haemo-perfusion must be conducted soon after ingestion to be effective.

ANTICONVULSANT THERAPY
Phenobarbital-sodium 1 mg/kg intramuscularly or subcutaneously until maximum 5 mg/kg daily; when necessary 10 mg diazepam slowly intravenously. Repeat as necessary until fully sedated.

MONITOR respiratory, cardiac and central nervous systems, electrolyte balance (especially for hypokalemia) and signs of increased intracranial pressure; ECG (electrocardiogram) ; EEG (electroencephalogram).

CONTRAINDICATION
Atropine, as glufosinate-ammonium does not inhibit cholinesterase.

5. Fire-fighting measures

Suitable extinguishing media Water, foam, carbon dioxide or dry chemical.

Hazards from Combustion Products If involved in a fire, the dehydrated components may emit oxides of phosphorous and sulfur and oxides of carbon and nitrogen.

Special Protective Equipment for fire fighters Full protective clothing and self-contained breathing apparatus.

Specific Methods Keep up wind. Do not allow washings to reach sewage or effluent systems.

Other Information Location Certificate: Not applicable.
Hazardous Atmosphere Zone: Not applicable.
Number of fire extinguisher: 2 for 500L or more

6. Accidental release measures

Spills & Disposal Wear protective clothing. Clear area of unprotected personnel. Eliminate all ignition sources and naked lights. Use non-sparking utensils. Contain spill and absorb with sand, soil or absorbent granules. If spill does enter waterways contact the local authority. Collect in an appropriate sealable container for disposal in an approved landfill. Prevent material from coming into contact with Class 1, 2, 3.2, 4 or 5 substances.
Wash area with water and detergent and absorb with inert material. Dispose of waste safely in an approved landfill.

Personal Protection For appropriate personal protective equipment (PPE), refer Section 8.

Environmental Precautions Prevent from entering drains, waterways or sewers.

7. Handling and storage

Precautions for Safe Handling Avoid skin and eye contact and inhalation of spray mist.
APPROVED HANDLER: Not applicable

| | | |
|--------------------|----------------------------|--------------------|
| Infosafe No™ 3NUWC | Issue Date : November 2016 | ISSUED by NUFARMNZ |
|--------------------|----------------------------|--------------------|

 Product Name **Biffo**

TRACKING: Not applicable

RECORD KEEPING: Records, as described in NZS 8409 Management of Agrichemicals, must be kept whenever BIFFO is used.

This product must not be applied onto or into water.

Conditions for safe storage, including any incompatibilities Store in original container tightly closed and in a locked, dry, cool area away from sources of ignition and foodstuffs. Storage must be in accordance with NZS 8409 Management of Agrichemicals. Do not store with HSNO Class 1, 2, 3.2, 4 or 5 substances. Stores containing 1000L of BIFFO require secondary containment and are subject to signage, and more than 1000L require emergency response plans.

Other Information Stores containing 500L of BIFFO must have at least 2 fire extinguishers. Always read the label and any attached leaflet before use.

Aggregate Storage Volume Thresholds:
 When stored with substances of the same hazard classification the aggregate quantity must be considered. For full details refer to the current NZS8409 Management of Agrichemicals and the HSNO Regulations.

8. Exposure controls/personal protection

Occupational exposure limit values No exposure limits (WES, TEL or EEL's) have been specifically assigned for this product.

Appropriate engineering controls Handle in well ventilated areas, generally natural ventilation is adequate.

Personal Protective Equipment When opening the container, preparing spray and using the prepared spray wear eye protection, waterproof gloves, boots and overalls.

Hygiene Measures Do not eat, drink or smoke while using.
 Remove protective clothing and wash hands and face thoroughly before meals and after work. Wash protective clothing daily after work.

9. Physical and chemical properties

Form Liquid

Appearance Clear Blue liquid

Solubility in Water Soluble in water.

Specific Gravity 1.10

pH 4.5-6.5

Vapour Pressure 3.10×10^{-2} mPa (glufosinate-ammonium)

Volatile Component ~40%

Flash Point 67°C (open cup); 136°C (closed cup).

Flammability Combustible Liquid.

Other Information Soluble Concentrate.

10. Stability and reactivity

Chemical Stability Stable under normal conditions of handling and storage.

Conditions to Avoid Avoid strong acid or alkali. Avoid oxidising agents. Avoid all ignition sources. All potential sources of ignition (open flames, pilot lights, furnaces, spark producing switches and electrical equipment etc) must be eliminated both in and near the work area. Do NOT smoke. Vapour may travel a considerable distance to source of ignition and flash back.

Incompatible Materials The addition of a strong alkali such as caustic soda will cause release of ammonia vapour.

Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerisation is not possible.

11. Toxicological Information

Toxicology Information No harmful effects are expected if the precautions on the label and the SDS are followed.

Acute Toxicity - Oral LD50 (rat) 2000 mg/kg for the product

| | | |
|--------------------|----------------------------|--------------------|
| Infosafe No™ 3NUWC | Issue Date : November 2016 | ISSUED by NUFARMNZ |
|--------------------|----------------------------|--------------------|

 Product Name **Biffo**

| | |
|------------------------------------|--|
| Acute Toxicity - Dermal | LD50 (rat) 1400 mg/kg for the product |
| Acute Toxicity - Inhalation | LC50 (rat) (4hr) >3 mg/l |
| Ingestion | Early symptoms after exposure are mainly gastrointestinal (nausea, diarrhoea, vomiting, abdominal pain). In the course of time, impaired respiration and neurological defects such as mental status changes, tremor, fever and convulsions may develop. |
| Inhalation | Symptoms of exposure by inhalation are similar to those described for ingestion. |
| Skin | Symptoms of over exposure may be similar to those described for ingestion. |
| Eye | The concentrate will cause irritation of the eyes. |
| Skin Sensitisation | Product is not a skin sensitiser. |
| Chronic Effects | Evidence from animal studies suggests the potential for impaired fertility or developmental toxicity on repeated or prolonged exposure. |
| Skin corrosion/irritation | Mild skin irritant. |
| Other Information | The Australian Acceptable Daily Intake (ADI) for glufosinate ammonium for a human is 0.02 mg/kg/day, set for the public for daily, lifetime exposure. This is based on the NOEL of 2.1 mg/kg/day, the level determined to show no effects during long term exposure for the most sensitive indicators and the most sensitive species. (Ref: Comm. Dept. of Health and Ageing, Office of Chemical Safety, 'ADI List', December 2014). |

12. Ecological information

| | |
|---|--|
| Persistence and degradability | Glufosinate ammonium is rapidly degradable. |
| Environmental Fate | Glufosinate ammonium is quite soluble in water and is rapidly degraded in surface levels of soil and in water. In soil DT50 3-10 d (lab). Neither Glufosinate ammonium nor its metabolites reach into groundwater, due to rapid degradation and adsorption to certain solid elements. |
| Bioaccumulative Potential | Not bioaccumulative. |
| Acute Toxicity - Fish | The following is data for a similar product. Not toxic to fish. LC50 (96 hr) for rainbow trout is 34 mg/l. |
| Acute Toxicity - Daphnia | EC50 (48hr) for daphnia is 27 mg/l. |
| Acute Toxicity - Algae | LD50 (72hr) for Desmodesmus Subspicatus is 36 mg/L |
| Acute Toxicity - Other Organisms | Not Toxic to birds. Not toxic to bees. LD50 Earthworms = >1000mg/kg soil. |

13. Disposal considerations

| | |
|---------------------------|---|
| Product Disposal | Dispose of product only by using according to label, or at an approved landfill. Do not burn. |
| Container Disposal | Triple rinse empty container and add rinsate to spray tank. Recycle empty container. Otherwise crush and bury in a suitable landfill. |

14. Transport information

| | |
|------------------------------|---|
| Transport Information | It is good practice not to transport agricultural chemical products with food, food related materials and animal feedstuffs. |
| U.N. Number | 3082 |
| Storage and Transport | Not classified as Dangerous Goods for transport in New Zealand. |
| Other Information | Segregation: Check the latest Land Transport Rule Dangerous Goods Rule 45001 for additional information. Sea transport may require additional segregation. Refer NZS5433 sea segregation for details. Do not carry BIFFO on a passenger service vehicle. |

15. Regulatory information



Safety Data Sheet

infosafe
CS: 1.7.2

Page: 5 of 5

Infosafe No™ 3NUWC Issue Date : November 2016 ISSUED by NUFARMNZ

Product Name **Biffo**

National and or International Regulatory Information Registered pursuant to the ACVM Act 1997, No. P9268
See www.foodsafety.govt.nz for registration conditions
Approved pursuant to the HSNO Act 1996, Approval Code HSR000152
See www.epa.govt.nz for approval controls.

Hazard Rating 2-1-1

Hazard Category WARNING - Combustible Liquid HARMFUL * ECOTOXIC - Keep out of reach of children

16. Other Information

Date of preparation or last revision of SDS Not applicable. First issue.

Contact Person/Point IN AN EMERGENCY, DIAL 111 - FIRE OR POLICE
24Hr Tollfree Emergency No: 0800 651 911
24Hr Emergency No: National Poisons Centre Phone: 0800 764 766
...End Of MSDS...

© Copyright ACOHS Pty Ltd

Copyright in the source code of the HTML, PDF, XML, XFO and any other electronic files rendered by an Infosafe system for Infosafe MSDS displayed is the intellectual property of Acohs Pty Ltd.

Copyright in the layout, presentation and appearance of each Infosafe MSDS displayed is the intellectual property of Acohs Pty Ltd.
The compilation of MSDS's displayed is the intellectual property of Acohs Pty Ltd.

Copying of any MSDS displayed is permitted for personal use only and otherwise is not permitted. In particular the MSDS's displayed cannot be copied for the purpose of sale or licence or for inclusion as part of a collection of MSDS without the express written consent of Acohs Pty Ltd.