

Massacre 450

Issued: July 2010

Section 1: SUBSTANCE IDENTIFICATION AND SUPPLIER

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| Trade Name: | UNITED FARMERS MASSACRE 450 HERBICIDE |
| Substance: | Active ingredient is an amino acid. Present as isopropylamine salt. |
| Product Use: | Agricultural herbicide for use as described on the product label. |
| Company Identification: | Ravensdown Fertiliser Co-operative Limited - Incorporated in New Zealand |
| Address: | 2 Birksgate Rd Rous Head North Fremantle, WA 6160 |
| Customer Centre: | 1800 624 122 |
| Poisons Information Centre: | 13 1126 in Australia, 0800 764 766 in New Zealand |
| Emergency Telephone Number: | For specialist advice call 1800 705 766 (24hr) (Emergencies Only) |
| Transport Emergency: | IN AN EMERGENCY, DIAL 000 - FIRE or POLICE |

Section 2: HAZARD IDENTIFICATION

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| Statement of Hazardous Nature | This product is classified as: Hazardous according to the criteria of NOHSC Australia. Not a Dangerous Good according to the Australian Dangerous Goods (ADG) Code. |
| Risk Phrases: | R41 Risk of serious damage to eyes. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment. |
| Safety Phrases: | S2 Keep out of reach of children. S26 In case of contact with eyes, rinse immediately with plenty of water and contact a doctor or Poisons Information Centre. S61 Avoid release to the environment. Refer to special instructions/Safety Data Sheets. S24/25 Avoid contact with skin and eyes. S36/39 Wear suitable protective clothing and eye/face protection |

Section 3: COMPOSITION INFORMATION

| INGREDIENTS | CAS No | Conc,% | TWA (mg/m ³) | STEL (mg/m ³) |
|---------------------------------|------------|--------|--------------------------|---------------------------|
| Glyphosate, isopropylamine salt | 38641-94-0 | 450g/L | not set | not set |
| Other non hazardous ingredients | secret | <10 | not set | not set |
| Water | 7732-18-5 | to 100 | not set | not set |

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible.

The TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term 'peak' is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.

Section 4: FIRST AID MEASURES

Emergency Overview

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| Physical Description & Colour: | Viscous, amber-coloured liquid. |
| Odour: | Slight amine odour. |

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| Major Health Hazards: | Glyphosate is practically nontoxic by ingestion and skin absorption, with a reported acute oral LD ₅₀ of 5600 mg/kg in the rat. Glyphosate is reportedly not irritating to the skin of rabbits, and does not induce skin sensitization in guinea pigs. It does cause eye irritation in rabbits. Some formulations may cause much more extreme irritation of the skin or eyes. In a number of human volunteers, patch tests produced no visible skin changes or sensitization. Product may cause serious damage to eyes. |
| General Information: | You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this MSDS with you when you call. |
| Inhalation: | No first aid measures normally required. However, if inhalation has occurred, and irritation has developed, remove to fresh air and observe until recovered. If irritation becomes painful or persists more than about 30 minutes, seek medical advice. |
| Skin Contact: | Wash gently and thoroughly with water (use non-abrasive soap if necessary) for 5 minutes or until chemical is removed. |
| Eye Contact: | Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 20 minutes or until the product is removed, while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Obtain medical attention immediately. Take special care if exposed person is wearing contact lenses. |
| Ingestion: | If product is swallowed or gets in mouth, wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor. |

Section 5: FIRE FIGHTING MEASURES

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| Fire and Explosion Hazards: | There is no risk of an explosion from this product under normal circumstances if it is involved in a fire. This product is likely to decompose only after heating to dryness, followed by further strong heating. Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures. |
| Extinguishing Media: | Not Combustible. Use extinguishing media suited to burning materials. |
| Fire Fighting: | If a significant quantity of this product is involved in a fire, call the fire brigade. |
| Flash point: | Does not burn. |
| Upper Flammability Limit: | Does not burn. |
| Lower Flammability Limit: | Does not burn. |
| Autoignition temperature: | Not applicable - does not burn. |
| Flammability Class: | Does not burn. |

Section 6: ACCIDENTAL RELEASE MEASURES

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| Spills and Disposal: | Wear appropriate protective clothing. Exclude non-essential people from the area. Contain spill and absorb with inert material such as soil, sand or absorbent granules and place in a sealable waste container. Dispose of waste safely in an approved landfill. |
| Protective Clothing: | For appropriate personal protective equipment see section 8. |
| Environmental Precaution: | Prevent from entering drains, waterways or sewers. If spill does enter waterways contact local authority. |

Section 7: HANDLING AND STORAGE

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| Handling: | Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this MSDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10. |
| Storage: | This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule of poison. Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. Make sure that the product does not come into contact with substances listed under "Incompatibilities" in Section 10. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label. |

Section 8: EXPOSURE CONTROL/PERSONAL PROTECTION

The following Australian Standards will provide general advice regarding safety clothing and equipment:
 Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Industrial Clothing: **AS2919**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**.

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| Exposure Limits: | Exposure limits have not been established by NOHSC for any of the significant ingredients in this product. The ADI for Glyphosate, isopropylamine salt is set at 0.3mg/kg/day. The corresponding NOEL is set at 30mg/kg/day. ADI means Acceptable Daily Intake and NOEL means No-observable-effect-level. Values taken from Australian ADI List, Dec 2004. |
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No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

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| Ventilation: | No special ventilation requirements are normally necessary for this product. However make sure that the work environment remains clean and that vapours and mists are minimised. |
| Eye Protection: | Protective glasses or goggles must be worn when this product is being used. Failure to protect your eyes may lead to severe harm to them or to general health. Emergency eye wash facilities must also be available in an area close to where this product is being used. |
| Skin Protection: | You should avoid contact even with mild skin irritants. Therefore you should wear suitable impervious elbow-length gloves and facial protection when handling this product. See below for material types. |
| Protective Material Types: | We suggest that protective clothing be made from the following: rubber, PVC. |
| Respirator: | Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above. Otherwise, not normally necessary. |
| | Eyebaths or eyewash stations and safety deluge showers should be provided near to where this product is being used. |

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

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| Physical Description & colour: | Viscous, amber-coloured liquid. |
| Odour: | Slight amine odour. |
| Boiling Point: | Approximately 100°C at 100kPa. |
| Freezing/Melting Point: | Approximately 0°C. |
| Volatiles: | Water component. |
| Vapour Pressure: | 2.37 kPa at 20°C (water vapour pressure). |
| Vapour Density: | No data. |
| Product Name: | United Farmers Massacre 450 Herbicide |
| Specific Gravity: | No data. |
| Water Solubility: | Completely soluble in water. |
| pH: | No data. |
| Volatility: | No data. |
| Odour Threshold: | No data. |
| Evaporation Rate: | No data. |
| Coeff Oil/water Distribution: | No data. |
| Autoignition temp: | Not applicable - does not burn. |

Section 10: STABILITY AND REACTIVITY

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| Reactivity: | This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties. |
| Conditions to Avoid: | Protect this product from light. Store in the closed original container in a dry, cool, well-ventilated area out of direct sunlight. |
| Incompatibilities: | Strong acids, strong bases, strong oxidising agents. |
| Fire Decomposition: | This product is likely to decompose only after heating to dryness, followed by further strong heating. Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen and its compounds, and under some circumstances, oxides of nitrogen. Occasionally hydrogen cyanide gas. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death. Hydrogen cyanide poisoning signs and symptoms are weakness, dizziness, headache, nausea, vomiting, coma, convulsions, and death. Death results from respiratory arrest. Hydrogen cyanide gas acts very rapidly; symptoms and death can both occur quickly. |
| Polymerisation: | This product will not undergo polymerisation reactions. |

Section 11: TOXICOLOGICAL INFORMATION

Potential Health Effects

Inhalation

Short Term Exposure: Available data indicates that this product is not harmful. However product may be mildly irritating, although unlikely to cause anything more than mild transient discomfort.

Skin Contact

Short Term Exposure: Available data indicates that this product is not harmful. It should present no hazards in normal use. However product may be irritating, but is unlikely to cause anything more than mild transient discomfort.

Eye Contact

Short Term Exposure: This product is a severe eye irritant. Symptoms may include stinging and reddening of eyes and watering which may become copious. Other symptoms such as swelling of eyelids and blurred vision may also become evident. If exposure is brief, symptoms should disappear once exposure has ceased. However, lengthy exposure or delayed treatment is likely to cause permanent damage.

Ingestion

Short Term Exposure: Significant oral exposure is considered to be unlikely. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.

Carcinogen Status

NOHSC: No significant ingredient is classified as carcinogenic by NOHSC.

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| NTP: | No significant ingredient is classified as carcinogenic by NTP. |
| IARC: | No significant ingredient is classified as carcinogenic by IARC. |
| Toxicity | An information profile for Glyphosate is available at http://extoxnet.orst.edu/pips/ghindex.html |
| Acute toxicity: | Oral LD ₅₀ values for glyphosate are greater than 10,000 mg/kg in mice, rabbits, and goats. The toxicities of the technical acid (glyphosate) and the formulated product are nearly the same. It is practically nontoxic by skin exposure, with reported dermal LD ₅₀ values of greater than 5000 mg/kg for the acid and isopropylamine salt. The reported 4-hour rat inhalation LC ₅₀ values for the technical acid and salts were 5 to 12 mg/L, indicating moderate toxicity via this route. Some formulations may show high acute inhalation toxicity. While it does contain a phosphatyl functional group, it is not structurally similar to organophosphate pesticides which contain organophosphate esters, and it does not significantly inhibit cholinesterase activity. |
| Chronic toxicity: | Studies of glyphosate lasting up to 2 years, have been conducted with rats, dogs, mice, and rabbits, and with few exceptions no effects were observed. For example, in a chronic feeding study with rats, no toxic effects were observed in rats given doses as high as 400 mg/kg/day. Also, no toxic effects were observed in a chronic feeding study with dogs fed up to 500 mg/kg/day, the highest dose tested. |
| Reproductive effects: | Laboratory studies show that glyphosate produces reproductive changes in test animals very rarely and then only at very high doses (over 150 mg/kg/day). It is unlikely that the compound would produce reproductive effects in humans. |
| Teratogenic effects: | In a teratology study with rabbits, no developmental toxicity was observed in the fetuses at the highest dose tested (350 mg/kg/day). Glyphosate does not appear to be teratogenic. |
| Mutagenic effects: | Glyphosate mutagenicity and genotoxicity assays have been negative. It appears that glyphosate is not mutagenic. |
| Carcinogenic effects: | Rats given oral doses of up to 400 mg/kg/day did not show any signs of cancer, nor did dogs given oral doses of up to 500 mg/kg/day or mice fed glyphosate at doses of up to 4500 mg/kg/day. It appears that glyphosate is not carcinogenic. |
| Organ toxicity: | Some microscopic liver and kidney changes, but no observable differences in function or toxic effects, have been seen after lifetime administration of glyphosate to test animals. |
| Classification of Hazardous Ingredients: | No ingredient mentioned in the HSIS Database is present in this product at hazardous concentrations. |
| Fate in humans and animals: | Glyphosate is poorly absorbed from the digestive tract and is largely excreted unchanged by mammals. At 10 days after treatment, there were only minute amounts in the tissues of rats fed glyphosate for 3 weeks. Cows, chickens, and pigs fed small amounts of glyphosate had undetectable levels (less than 0.05 ppm) in muscle tissue and fat. Levels in milk and eggs were also undetectable (less than 0.025 ppm). Glyphosate has no significant potential to accumulate in animal tissue. |

Section 12: ECOLOGICAL INFORMATION

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| Toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment. | |
| Birds: | Glyphosate is not harmful to wild birds. The dietary LC ₅₀ in both mallards and bobwhite quail is greater than 4500 ppm. |
| Fish: | Technical glyphosate acid is practically nontoxic to fish and may be slightly toxic to aquatic invertebrates. The reported 96-hour LC ₅₀ values for other aquatic species include greater than 10 mg/L in Atlantic oysters, 934 mg/L in fiddler crab, and 281 mg/L in shrimp. The 48-hour LC ₅₀ for glyphosate in Daphnia (water flea), an important food source for freshwater fish, is 780 mg/L. Some formulations may be more toxic to fish and aquatic species due to differences in toxicity between the salts and the parent acid or to surfactants used in the formulation. There is a very low potential for the compound to build up in the tissues of aquatic invertebrates or other aquatic organisms. |
| Bees and Worms: | Glyphosate is nontoxic to honeybees. Its oral and dermal LD ₅₀ is greater than 0.1 mg/bee. The reported contact LC ₅₀ values for earthworms in soil are greater than 5000 ppm for both the glyphosate trimethylsulfonium salt and formulated product. |
| Environmental Fate | |
| Soil and groundwater: | Glyphosate is moderately persistent in soil, with an estimated average half-life of 47 days. Reported field half-lives range from 1 to 174 days. It is strongly adsorbed to most soils, even those with lower organic and clay content. |
| Water: | In water, glyphosate is strongly adsorbed to suspended organic and mineral matter and is broken down primarily by microorganisms. Its half-life in pond water ranges from 12 days to 10 weeks. |
| Plants: | Glyphosate may be translocated throughout the plant, including to the roots. It is extensively metabolized by some plants, while remaining intact in others. |

Section 13: DISPOSAL INFORMATION

Follow label advice for the disposal of empty containers, packaging and for the return of refillable containers.

Product Disposal: For the disposal of unwanted / unusable chemicals, seek advice from suppliers, local government, your local Waste Management Authority and consult ChemClear, 1800 008 182

<http://www.chemclear.com.au/>

Container Disposal: Where possible, used containers should be recycled after triple rinsing. Check with local suppliers and or DrumMUSTER <http://www.drummuster.com.au/>. Otherwise, bury at an authorised landfill. Before disposing of unwanted containers or used packaging on a property, ensure that all appropriate regulations, both Local and State Government, are observed. Significant penalties may apply.

Section 14: TRANSPORT INFORMATION

ADG Code: This product is not classified as a Dangerous Good. No special transport conditions are necessary unless required by other regulations.
UN Number: None allocated
SUSDP Classification: S5
ADG Classification: None allocated. Not a Dangerous Good under the ADG Code.

Section 15: REGULATORY INFORMATION

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations. The following ingredient: Glyphosate is mentioned in the SUSDP.

Section 16: OTHER INFORMATION

This MSDS contains only safety-related information. For other data see product literature.
This MSDS supersedes all others and was reviewed: February, 2010
Please read all labels carefully before using product.
This MSDS is prepared in accord with the ASCC document "National Code of Practice for the Preparation of Material Safety Data Sheets" 2nd Edition [NOHSC:2011(2003)]