Section 1 - Identification of Chemical Product and Company

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Substance: Glyphosate is an amino acid.
Trade Name: Wipe-Out Plus
Product Code: 60504
Product Use: Agricultural herbicide for use as described on the product label.
Creation Date: March, 2006
Revision Date: March, 2006

Section 2 - Hazards Identification

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.
Safety Phrases: S36, S45, S24/25. Wear suitable protective clothing. In case of accident or if you feel unwell, contact a doctor or Poisons Information Centre immediately (show the label where possible). Avoid contact with skin and eyes.
SUSDP Classification: S5
ADG Classification: None allocated. Not a Dangerous Good under the ADG Code.
UN Number: None allocated

Emergency Overview

Physical Description & colour: Dark blue viscous liquid.
Odour: Faint odour.

Major Health Hazards: Glyphosate is practically nontoxic by ingestion and skin absorption, with a reported acute oral LD50 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.

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.
NTP: No significant ingredient is classified as carcinogenic by NTP.
IARC: No significant ingredient is classified as carcinogenic by IARC.
Section 3 - Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS No</th>
<th>Conc,%</th>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glyphosate (monoethanolamine salt)</td>
<td>1071-83-6</td>
<td>510g/L</td>
<td>not set</td>
<td>not set</td>
</tr>
<tr>
<td>Other non hazardous ingredients secret</td>
<td>secret</td>
<td>10 approx</td>
<td>not set</td>
<td>not set</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>to 100</td>
<td>not set</td>
<td>not set</td>
</tr>
</tbody>
</table>

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 may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated 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

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, do NOT induce vomiting; 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

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 are likely to be irritating if inhaled.

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

Accidental release: In the event of a major spill, prevent spillage from entering drains or water courses. Wear full protective chemically resistant clothing including eye/face protection, gauntlets and self contained breathing apparatus. See below under Personal Protection regarding Australian Standards relating to personal protective equipment. Suitable materials for protective clothing include rubber, PVC. Eye/face protective equipment should comprise as a minimum, protective goggles. If there is a significant chance that vapours or mists are likely to build up in the cleanup area, we recommend that you use a respirator. It should be fitted with a type G cartridge, suitable for agricultural chemicals. Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned below (section 8). Otherwise, not normally necessary. Stop leak if safe to do so, and contain spill. Absorb onto sand, vermiculite or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect recoverable product into labelled containers for recycling or salvage, and dispose of promptly. Recycle containers wherever possible after careful cleaning. Refer to product label for specific instructions. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Full details regarding disposal of used containers, spillage and unused...
material may be found on the label. If there is any conflict between this MSDS and the label, instructions on the label prevail. Ensure legality of disposal by consulting regulations prior to disposal. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.

Section 7 - Handling and Storage

**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 Controls and 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

**Exposure Limits**

<table>
<thead>
<tr>
<th>TWA (mg/m³)</th>
<th>STEL (mg/m³)</th>
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</table>

Exposure limits have not been established by NOHSC for any of the significant ingredients in this product.

The ADI for Glyphosate (monoethanolamine 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, Sept 2005.

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.

**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 suitable material types.

**Protective Material Types:** We suggest that protective clothing be made from the following materials: 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:

- **Physical Description & colour:** Dark blue viscous liquid.
- **Odour:** Faint odour.
- **Boiling Point:** Approximately 100°C at 100kPa.
- **Freezing/Melting Point:** Approximately 0°C.
- **Vapour Pressure:** 2.37 kPa at 20°C (water vapour pressure).
- **Vapour Density:** No data.
- **Specific Gravity:** 1.27 approx
- **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

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. Oxides of phosphorus and other phosphorus compounds. Water. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product will not undergo polymerisation reactions.

Section 11 - Toxicological Information

An information profile for Glyphosate is available at http://extoxnet.orst.edu/pips/ghindex.html

Acute toxicity: Oral LD₅₀ 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 LD₅₀ values of greater than 5000 mg/kg for the acid and isopropylamine salt. The reported 4-hour rat inhalation LC₅₀ 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 foetuses 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.

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.

### Classification of Hazardous Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Risk Phrases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glyphosate</td>
<td>Conc&gt;=10%; Xi; R41</td>
</tr>
</tbody>
</table>

Section 12 - Ecological Information

Effects on birds: Glyphosate is not harmful to wild birds. The dietary LC₅₀ in both mallards and bobwhite quail is greater than 4500 ppm.

Effects on aquatic organisms: Technical glyphosate acid is practically nontoxic to fish and may be slightly toxic to aquatic invertebrates. The reported 96-hour LC₅₀ 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 LC₅₀ 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.
**Effects on other organisms:** Glyphosate is nontoxic to honeybees. Its oral and dermal LD50 is greater than 0.1 mg/bee. The reported contact LC50 values for earthworms in soil are greater than 5000 ppm for both the glyphosate trimethylsulfonium salt and formulated product.

**Environmental Fate:**

**Breakdown in 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.

**Breakdown in 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.

**Breakdown in vegetation:** 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 Considerations

**Disposal:** There are many pieces of legislation covering waste disposal and they differ in each state and territory, so each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. The Hierarchy of Controls seems to be common - the user should investigate: Reduce, Reuse, and Recycle and only if all else fails should disposal be considered. Note that properties of a product may change in use, so that the following suggestions may not always be appropriate. The following may help you in properly addressing this matter for this product. Special help is available for the disposal of Agricultural Chemicals. The product label will give general advice regarding disposal of small quantities, and how to cleanse containers. However, for help with the disposal of unwanted rural chemicals, contact ChemClear 1800 008 182 http://www.chemclear.com.au/ and for help with the disposal of empty drums, contact DrumMuster http://www.drummuster.com.au/ where you will find contact details for your area.

### 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.

### Section 15 - Regulatory Information

**AICS:** All of the significant ingredients in this formulation are compliant with NICNAS regulations. The following ingredients: Glyphosate (monoethanolamine salt), are mentioned in the SUSDP.

### Section 16 - Other Information

This MSDS contains only safety-related information. For other data see product literature.

#### Acronyms:

- **ADG Code:** Australian Code for the Transport of Dangerous Goods by Road and Rail
- **AICS:** Australian Inventory of Chemical Substances
- **CAS number:** Chemical Abstracts Service Registry Number
- **Hazchem Code:** Emergency action code of numbers and letters that provide information to emergency services especially firefighters
- **IARC:** International Agency for Research on Cancer
- **NOHSC:** National Occupational Health and Safety Commission
- **NOS:** Not otherwise specified
- **NTP:** National Toxicology Program (USA)
- **R-Phrase:** Risk Phrase
- **SUSDP:** Standard for the Uniform Scheduling of Drugs & Poisons
- **UN Number:** United Nations Number

#### Contact Points:

Call Farmoz on (02)9431 7800 and ask for the technical manager. Fax: (02)9431 7700

<table>
<thead>
<tr>
<th>Police and Fire Brigade:</th>
<th>Dial 000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency contact:</td>
<td>1800 024 973 (24 hours)</td>
</tr>
</tbody>
</table>

If ineffective: Dial Poisons Information Centre (13 1126 from anywhere in Australia)

The information contained in this Material Safety Data Sheet is provided in good faith and is believed to be correct at the date hereof. However, it is expected that individuals receiving the information will exercise their independent judgement in determining its appropriateness for a particular purpose. Farmoz Pty Ltd makes no representation as to the accuracy or comprehensiveness of the information and to the full extent allowed by law excludes all liability whatsoever, whether with respect to negligence or otherwise, for any loss or damage arising from or connection with the supply or use of the information in this Material Safety Data Sheet.
Please read all labels carefully before using product.

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http://www.kilford.com.au/ Phone (02)9251 4532