Verdict* 520 Herbicide

Hazardous according to the criteria of the National Occupational Health & Safety Commission (NOHSC). Risk Phrases: R20 – Harmful by inhalation, R22 – Harmful if swallowed.

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Company: Dow AgroSciences Australia Ltd, ABN 24 003 771 659
Address: Level 5, 20 Rodborough Road, Frenchs Forest NSW 2086
Website: www.dowagrosciences.com.au

Customer Service Toll Free Number: 1800 700 096 (Mon-Fri 8am-5pm EST)
Emergency Telephone Number: 1800 033 882 (24 hours) (EMERGENCIES ONLY)

IDENTIFICATION

Product Name: Verdict 520 Herbicide
Shipping Names: None
Product Code: GF-142
UN No: None allocated
Hazchem Code: None allocated
Dangerous Goods Class: None allocated
Sub Risk Class: None allocated
Packaging Group: None allocated
Poison Schedule: S6
Uses: For the post-emergent control of a wide range of annual and perennial grass weeds in grain, legume and oilseed crops, lucerne, medic and clover pasture and seed crops, forestry, bananas, citrus, grapes, pineapples, pome fruit, stone fruit, pyrethrum, tropical fruit and nut crops as specified on the label

PHYSICAL APPEARANCE & PROPERTIES

Appearance: Clear brown liquid
Boiling point: 202°C (solvent)
Volatile materials: No specific data, expected to be low at 100°C
Flashpoint: 92°C (PMCC)
Specific gravity: 1.16 g/mL at 20°C
Solubility in water: Emulsifiable, active ingredient has solubility of 93 mg/L at 25°C
Corrosiveness: Not corrosive
Vapour Pressure: 0.14 mm Hg at 20°C (glycolether), 13 x 10^-6 mm Hg at 25°C (haloxyfop R-methyl ester)

INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Entity</th>
<th>CAS No.</th>
<th>Proportion</th>
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<tbody>
<tr>
<td>Haloxyfop R-methyl ester (sufficient to give 520 g/L of the acid equivalent)</td>
<td>072619-32-0</td>
<td>562.5 g/L</td>
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<tr>
<td>Diethylene glycol monoethyl ether</td>
<td>000111-90-0</td>
<td>507.5 g/L</td>
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<tr>
<td>Other non hazardous ingredients</td>
<td></td>
<td>&lt; 100.0 g/L</td>
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</tbody>
</table>

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HEALTH HAZARD DATA

HEALTH EFFECTS

**Acute**
- **Swallowed:** The oral LD$_{50}$ (rat) is above 1227 mg/kg (moderate toxicity).
- **Eye:** Concentrate in eye may cause mild irritation.
- **Skin:** For a similar formulation the acute dermal LD$_{50}$ (rabbit) is above 4000 mg/kg (low toxicity). Prolonged or repeated contact with the concentrate may cause moderate irritation, drying or flaking of the skin.
- **Inhaled:** The inhalation LC$_{50}$ (rat) for a similar formulation is 4.7 mg/mL for 4 hours (low toxicity). Prolonged exposure to the solvent vapour from the concentrate may cause eye and respiratory irritation, headache, dizziness and narcotic effects.

**Chronic**
No specific data is available for the product for chronic exposure symptoms: Possible chronic health effects from exposure to Verdict 520 are based on the active ingredient. Repeated oral exposure caused liver toxicity in rats and mice. Rats administered haloxyfop in long-term carcinogenicity studies showed no increase in tumours. A slight increase in liver tumors was reported in female mice, but this result has been judged to be irrelevant to humans. Studies in rats and rabbits have indicated that haloxyfop does not cause birth defects or interfere with reproduction. Haloxyfop does not cause genetic change and does not accumulate in the body. The ingredients are not listed as carcinogenic in NOHSC’s document “Exposure Standards for Atmospheric Contaminants in the Occupational Environment” (May 1995).

PERSONAL PROTECTION AND SAFETY DIRECTIONS

Harmful if swallowed. Will irritate the eyes and skin. Avoid contact with eyes and skin. When preparing the spray, wear cotton overalls buttoned to the neck and wrist, a washable hat, elbow-length PVC gloves and face shield or goggles. If product is in the eyes, wash it out immediately with water. Wash hands after use. After each day's use, wash gloves, face shield or goggles and contaminated clothing.

FIRST AID

**General:** Consult The National Poisons Information Centre (Ph: 13 11 26) or a Doctor in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention immediately.

- **Swallowed:** If swallowed, contact the Poisons Information Centre or a doctor immediately.
- **Skin:** If on skin, remove contaminated clothing and wash skin thoroughly with soap and water.
- **Eyes:** If in eyes, hold eyes open and flood with water for at least 15 minutes and see a doctor.
- **Inhalation:** If affected, remove from contaminated area to fresh air.

PRECAUTIONS FOR USE

EXPOSURE STANDARDS
A time weighted average (TWA) concentration for an 8 hour day, and 5 day week has not been established by the National Occupational Health & Safety Commission for any of the major ingredients in this product. There is a blanket limit of 10mg/m³ for dusts or mists when limits have not otherwise been established. The nature of this product makes it unlikely that this level will be approached in normal use. The ADI (Acceptable Daily Intake) for haloxyfop is set at 0.0003mg/kg/day. The corresponding NOEL (No-observable-effect-level) is set at 0.03mg/kg/day. Values taken from Australian ADI List, January, 2001.

ENGINEERING CONTROLS
In industrial situations, concentration values below the TWA value should be maintained. Values may be reduced by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods. If you believe air borne concentrations of mists, dusts or vapours are high, you are advised to modify the process or environment to reduce the problem.
SAFE HANDLING INFORMATION

This product is classified as a C1 combustible product.

STORAGE & TRANSPORT
This product is an S6 Poison. Observe all relevant regulations regarding sale, transport and storage of this class of product. Store in the closed original container in a dry, cool, well-ventilated area, out of direct sunlight. Do not store near food, feedstuffs, fertilisers or seed.

SPILLS
Wear protective equipment (see PERSONAL PROTECTION). Clear area of all unprotected personnel. Prevent entry of chemical or used/damaged containers into drains, streams or waterways.

Small Spill: Apply absorbent material such as earth, sand or clay granules or cat litter to the spill. Sweep up material for disposal when absorption is complete and contain in a refuse vessel for disposal (See DISPOSAL). If necessary, wash the spill area with an alkali detergent and water and absorb as above the wash liquid for disposal.

Large Spill: Place leaking containers into salvage drums. Apply absorbent material such as earth, sand or cat litter to the spill area. Form a barricade around spill and in front of drains or waterways in spill vicinity, using earth or other available material. Sweep up material and contain in a refuse vessel for disposal (see DISPOSAL). Contact Emergency Services on 000 immediately and notify Dow AgroSciences Australia Limited on 1800 033 882 (24 hours) or 1800 700 096 (Mon-Fri, 8am to 5pm EST).

DISPOSAL
Contaminated material must be disposed of in accordance with all State and/or Local regulations.

Small quantities and containers: Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling container, replace cap and return clean containers to recycler or designated collection point. If not recycling break, crush, or puncture and bury empty containers in a local authority landfill. 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. Empty containers and product should not be burnt.

Large quantities: Contact Dow AgroSciences and seek advice.

FIRE & EXPLOSION HAZARD
Flashpoint: 92°C (PMCC)

Flammability limits: Upper value: 8.5%; Lower value: 1.2% (solvent).
Extinguishing Media: Carbon dioxide, dry chemical, foam, water fog.
Special Fire Fighting procedures: When fighting fires involving significant quantities of this product, wear safety boots, non-flammable overalls, gloves, hat, goggles and self contained breathing apparatus. All skin areas should be covered.

Unusual Fire & Explosion Hazards: Combustible liquid.
There is a moderate risk of an explosion from this product if it is involved in a fire. Fire decomposition products from this product may form toxic and corrosive mixtures in confined spaces.

Stability: This product is unlikely to spontaneously decompose.
Polymerisation: This product is unlikely to spontaneously polymerise.

Materials to avoid: Strong oxidising agents.
OTHER INFORMATION

ECOTOXICITY DATA
Haloxyfop-R-methyl ester has high toxicity to fish and moderate toxicity to other aquatic organisms. Haloxyfop-R-methyl ester has low toxicity to birds and earthworms, and is non-toxic to honey bees. Haloxyfop-R-methyl ester is rapidly hydrolyzed to haloxyfop acid which has low toxicity to birds, fish, aquatic organisms, earthworms and honey bees. Haloxyfop does not bioaccumulate in animal systems.

ENVIRONMENTAL FATE
Haloxyfop-R-methyl ester is rapidly hydrolyzed to haloxyfop acid in soil, plants and water. Haloxyfop acid in soil is degraded by microbial actions, with half-lives ranging between six and one hundred and thirty three days (average fifty three days) depending on soil and climatic conditions. Haloxyfop has limited potential to leach into soils and residues are generally found in the top fifteen to thirty centimetres of a soil profile. If used according to the label directions, Verdict Herbicide will not be harmful to the environment.

CONTACT POINT

FOR FURTHER PRODUCT INFORMATION CALL DOW AGROSCIENCES CUSTOMER SERVICE REPRESENTATIVES TOLL FREE 1800 700 096 DURING BUSINESS HOURS.

THIS MSDS SUMMARISES OUR BEST KNOWLEDGE OF THE HEALTH AND SAFETY HAZARD INFORMATION OF THE PRODUCT AND HOW TO SAFELY HANDLE AND USE THE PRODUCT IN THE WORKPLACE. EACH USER SHOULD READ THIS MSDS AND CONSIDER THE INFORMATION IN THE CONTEXT OF HOW THE PRODUCT WILL BE HANDLED AND USED IN THE WORKPLACE INCLUDING IN CONJUNCTION WITH OTHER PRODUCTS. IF CLARIFICATION OR FURTHER INFORMATION IS NEEDED TO ENSURE THAT AN APPROPRIATE RISK ASSESSMENT CAN BE MADE, THE USER SHOULD CONTACT THIS COMPANY. THE RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.