SAFETY DATA SHEET

Emergency Phone: 1800-033-882 (24 hrs)
+61 3 9663 2130 (24 hrs)
Dow AgroSciences Australia Ltd.
Frenchs Forest NSW 2086

Dow AgroSciences

Hotshot™ Herbicide

Effective Date: 6 April 2011
Product Code: 102641

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Hotshot™ Herbicide

PURPOSE: For the control of weeds in cereals and pastures

COMPANY IDENTIFICATION:

Dow AgroSciences Australia Ltd.
ABN 24 003 771 659
Level 5, 20 Rodborough Road,
Frenchs Forest NSW 2086

Customer Service Toll Free Number:
1800 700 096
(Mon-Fri, 8am–5pm EST)
Emergency Telephone Number:
Australia: 1800 033 882
Global: +61 3 9663 2130
(24 hours) (EMERGENCIES ONLY)
Transport Emergency Only Dial 000

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS

Classified as hazardous sccording to the criteria of NOHSC
Not Classified as Dangerous Goods for Land Transport (see Section 14)

Potential Health Effects:
May cause damage to the eyes.

RISK PHRASES:

R41:	Risk of serious damage to eyes.
R38:	Irritating to skin.
R50/53:	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SAFETY PHRASES:

S2:	Keep out of reach of children
S7/9:	Keep container tightly closed and in a well-ventilated place.
S20/21:	When using do not eat, drink or smoke.
S24/25:	Avoid contact with skin and eyes.
S36/37/39:	Wear suitable protective clothing, gloves and eye/face protection.
S26:	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S27/28:	After contact with skin take off immediately all contaminated clothing, and wash immediately with soap and water.
S29:	Do not empty into drains.
S61:	Avoid release to the environment. Refer to special instructions in Section 6,7 and 13 below.

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Ingredient	CAS #	Content
Aminopyralid triisopropanolammonium salt	566191-89-7	1.9%w/w
Fluroxypyr-meptyl	081406-37-3	20.2%w/w
Aromatic hydrocarbon	064742-94-5	30–60%w/w
Dipropylene Glycol Methyl Ether	034590-94-8	10-<30%w/w
Balance not contributing to hazard		10-<30%w/w

4. FIRST AID:

Consult the Poisons Information Centre (Australia 131126) 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.

EYE: Wash immediately and continuously with flowing water for at least 30 minutes. Obtain prompt medical consultation, preferably from an ophthalmologist.

SKIN: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call the Poison Information Centre or doctor for treatment advice. Wash clothing before reuse.

INGESTION: Immediately call a Poison Information Centre or doctor. Do not induce vomiting unless told to do so by the Poison Information Centre or doctor. Do not give anything by mouth to an unconscious person.

INHALATION: Move person to fresh air. If person is not breathing, call 000 or an ambulance, and then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc.) Call the Poison Information Centre or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

NOTE TO PHYSICIAN: Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. Maintain adequate ventilation and oxygenation of the patient. If hemolysis is suspected, monitor hemoglobin, hematocrit, plasma free hemoglovin, and urinalysis. Whole blood or packed RBC transfusion may be required in severe cases. Alkalinization of urine with bicarbonate may prevent renal damage. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: >65.5°C (PMCC)
COMBUSTIBLE: C1
FLAMMABLE LIMITS
LFL: Not determined
UFL: Not determined

EXTINGUISHING MEDIA: Foam, CO_2, or Dry chemical

FIRE AND EXPLOSION HAZARDS: Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic irritating gases may be formed under fire conditions.

FIRE-FIGHTING EQUIPMENT: Use positive-pressure, self-contained breathing apparatus and full protective equipment.

HAZCHEM: 2X

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: DO NOT touch or walk through spilled material. Wear a face shield or goggles, overalls buttoned to neck and wrist, chemical resistant gloves and boots. Stop leak when safe to do so. Dike area and prevent entry into waterways, and drains. **Small spills/leaks:** Absorb with material such as sand, soil or sawdust. Collect spilled product and place in sealable container for disposal. Spill residues may be cleaned using water and detergent. Contain and absorb wash water for disposal. Absorb and collect washings and place in the same sealable container for disposal. Dike the area of large spills and report them to Dow AgroSciences at 1800-033-882. Do not use water to clean up.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:
HANDLING: Keep out of reach of children. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapors and spray mist. Handle concentrate in ventilated area. Wash thoroughly with soap and water after handling and before eating, chewing gum, using tobacco, using the toilet or smoking.

STORAGE: Keep away from food, feedstuffs, and water supplies. Store in original container in a well-ventilated area.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINES:
Fluroxypyr 1-methylheptyl ester: Dow AgroSciences Industrial Hygiene Guide is 10 mg/M^3.
Dipropylene glycol methyl ether: NOHSC TWA is 50ppm (308 mg/M^3). ACGIH TLV is 100 ppm TWA, 150 ppm STEL. OSHA PEL is 100 ppm TWA.
Aromatic hydrocarbon: ACGIH TWA is 100 ppm and 525 mg/M^3. The manufacturer recommends an 8hr TWA exposure of 500 mg/M^3 total vapour/aerosol (approx 100 ppm vapour) or 5 mg/M^3 stable aerosols.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

EYE/FACE PROTECTION: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

SKIN PROTECTION: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse or dispose of properly.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. The following should be effective types of air-purifying respiratos: organic vapor cartridge with a particulate pre-filter.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Clear to yellow liquid
ODOR: Waxy
DENSITY: 0.993 g/mL
BOILING POINT: Not determined
SOLUBILITY IN WATER: Not determined
pH: 6.5 – 6.6

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) Stable under normal storage conditions.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) None known

HAZARDOUS DECOMPOSITION PRODUCTS: May produce oxides of nitrogen, oxides of carbon, ammonia and related products in fire.

HAZARDOUS POLYMERIZATION: Not know to occur.

11. TOXICOLOGICAL INFORMATION:

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause severe eye irritation. May cause severe corneal. Vapor may cause eye irritation experienced as mild discomfort and redness. Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust.

SKIN: Brief contact may cause moderate skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts. Prolonged skin contact with very large amounts may cause dizziness or drowsiness. The dermal LD_{50} for male and female rats is is >5000 mg/kg. Did not cause allergic skin reactions when tested in guinea pigs.

INGESTION: Very low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia. Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Toxicity from swallowing may be greater in humans that in animals. The oral LD_{50} for female rats is >5000 mg/kg.

INHALATION: Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. May cause central nervous system effects. The aerosol LC_{50} for male and female rats is >5.26 mg/L for 4 hours.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen. Cataracts and other eye effects have been reported in humans repeatedly exposed to vapor or dust containing ingredients within the solvent. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

CANCER INFORMATION: Fluroxypyr-meptyl and aminopyralid did not cause cancer in laboratory animals. Solvents contain ingredients which have caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in solvent production. Limited oral studies in rats were negative.

TERATOLOGY (BIRTH DEFECTS): Fluroxypyr-meptyl has been toxic to the fetus in laboratory animals only at doses toxic to the mother. The major components tested did not cause birth defects or any other fetal effects in laboratory animals.

REPRODUCTIVE EFFECTS: Fluroxypyr-meptyl and aminopyralid, in animal studies, did not interfere with reproduction.

MUTAGENICITY: For Fluroxypyr-meptyl and dipropylene glycol monomethyl ether, in-vitro and animal genetic toxicity studies were negative. For Fluroxypyr-meptyl and aminopyralid, animal genetic toxicity studies were negative. For naphthalene, in-vitro genetic toxicity studies were negative in some cases and positive in other cases.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL DATA:

MOVEMENT & PARTITIONING:

Based largely or completely on information for aminopyralid.
Bioconcentration potential is low (BCF is <100 or Log Pow <3). Potential for mobility in soil is very high (Koc is between 0 and 50).

Based largely or completely on information for fluroxypyr-meptyl.
Bioconcentration potential is low (BCF is <100 or Log Pow <3).
Potential for mobility in soil is slight (Koc is between 2000 and 5000)

Based largely or completely on information for the aromatic hydrocarbon solvent.
Bioconcentration potential is high (BCF is >3000 or Log Pow between 5 and 7).

Based largely or completely on information for dipropylene glycol methyl ether.
Bioconcentration potential is low (BCF is <100 or Log Pow <3).
Potential for mobility in soil is very high (Koc is between 0 and 50).

DEGRADATION & PERSISTENCE:

Based largely or completely on information for aminopyralid and the solvent.
Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Based largely or completely on information for dipropylene glycol methyl ether.
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
Material is ultimately biodegradable. Reaches more than 70% mineralization in OECD test(s) for inherent biodegradability.

ECOTOXICOLOGY:

Based largely or completely on information for aminopyralid.
Material is practically non-toxic to fish on an acute basis (LC_{50} is >100 mg/L).
Material is slightly toxicit to aquatic organisms on an acute basis (LC_{50} or EC_{50} is between 10 and 100 mg/L in the most sensitive species tested).
Material is practically non-toxic to birds on an acute basis (LD_{50} is >2000 mg/kg).
Material is practically non-toxic to birds on a dietary basis (LC_{50} is >5000 ppm).

Based largely or completely on information for fluroxypyr-meptyl.
Material is very highly toxic to aquatic organisms on an acute basis (LC_{50} or EC_{50} is <0.1 mg/L in the most sensitive species tested).
Material is practically non-toxic to birds on an acute basis (LD_{50} is >2000 mg/kg).
Material is practically non-toxic to birds on a dietary basis (LC_{50} is >5000 ppm).

Based largely or completely on information for the solvent.
Material is slightly toxic to aquatic organisms on an acute basis (LC_{50} or EC_{50} is between 10 and 100 mg/L in the most sensitive species tested).

Based largely or completely on information for dipropylene glycol methyl ether.
Material is practically non-toxic to aquatic organisms on an acute basis (LC_{50} or EC_{50} is >100 mg/L in the most sensitive species tested).

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: If wastes and/or containers cannot be disposed of according to the product label **directions,** disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION:

ROAD AND RAIL TRANSPORT: Not dangerous goods under the ADG 7 when being transported in IBCs or other receptacles < 500 L (kg), (Special Provision AU01).

SEA AND AIR TRANSPORT: Classified as dangerious goods for transport by sea and air in accordance with the International Maritime Dangerous Goods Code (IMDG) and the International Air Transport Association (IATA) Dangerous Goods Regulation.

UN No: 3082
Class: 9
Packing group: III
SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (AMINOPYRALID, FLUROXYPYR MEPTYL) Marine Pollutant

15. REGULATORY INFORMATION:

APVMA APPROVAL NUMBER: 59173

POISON SCHEDULE: 6

16. OTHER INFORMATION:

Glossary
ACGIH: American Conference of Governmental Industrial Hygienists.
AIHA WEEL: American Industrial Hygiene Association's Workplace Environmental Exposure Level.

BCF: Bioconcentration Factor - a measure for the characterization of the accumulation of a chemical in an organism. It is defined as the concentration of a chemical in an organism (plants, microorganisms, animals) divided by the concentration in a reference compartment (e.g. food, surrounding water).
Dow AgroSciences Industrial Hygiene Guideline: An internal company standard based on an 8 hour TWA.
EC_{50}: median effective concentration. Statistically derived concentration of a substance in an environmental medium expected to produce a certain effect in 50% of test organisms in a given population under a defined set of conditions.
Explosive Limits - The range of concentrations (% by volume in air) of a flammable gas or vapour that can result in an explosion for ignition in a confined space.
K_{oc} - the organic carbon partition coefficient (mL soil water /g organic carbon)**.**
LC_{50} - Lethal Concentration 50%. A concentration of chemical in air or water that will kill 50% of the test organisms.
LD_{50} - Lethal Dose-50%. The dose of a chemical that will kill 50% of the test animals receiving it.
pH - Measure of how acidic or alkaline a material is using a 1 - 14 scale. pH 1 is strongly acidic and pH 14 strongly alkaline.
NOHSC: National Occupational Health and Safety Commission of Australia now the Office of the Australian Safety and Compensation Council.
OSHA: American Occupational Safety and Health Administration.
PEL: Permissible Exposure Level, a maximum allowable exposure level by law.
Polymerisation - a chemical reaction in which small molecules 9monomers) combine to form much larger molecules (polymers). A hazardous polymerisation reaction is one that occurs at a fast rate and releases large amounts of energy.
P_{ow} - The octanol-water partition coefficient is the ratio of the concentration of a chemical in octanol and in water at equilibrium and at a specified temperature. Octanol is an organic solvent that is used as a surrogate for natural organic matter. This parameter is used in many environmental studies to help determine the fate of chemicals in the environment.
STEL: Short-Term Exposure Limit. A term used to indicate the maximum average concentration allowed for a continuous 15 minute exposure period.

TVL: Threshold Limit Value, an exposure limit set by a competent authority
TWA - Time Weighted Average. The average concentration of a chemical in air over the total exposure time - usually an 8 hour work day.

References
AS/NZS 1715-1994 Selection Use and Maintenance of Respiratory Protective Devices.
ASNZS 1716 - 1994 Respiratory protective devices.
Australian Dangerous Goods Code
NOHSC Hazardous Substances Information System.
Component MSDSs

VERSION CONTROL
Replaces version dated: 6 March 2006
Sections amended: 14, 16
Product number: GF-982

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

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