

SAFETY DATA SHEET



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

GARLON™ 600 HERBICIDE

Effective Date: 26 May 2009
Product Code: 38327

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Garlon* 600 Herbicide

PURPOSE: Woody and broadleaf weed control.

COMPANY IDENTIFICATION:

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

Transport Emergency Only Dial 000

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Classified as Hazardous according to the criteria of NOHSC.

Not classified as Dangerous Goods for Land Transport (see Section 14).

Risk Phrases:

R36/38 Irritating to eyes and skin

R43 May cause sensitization by skin contact

R50/53 Very toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.

R54 Toxic to flora

Safety Phrases:

S2 Keep out of reach of children

S13 Keep away from food, drink and animal feeding stuffs.

S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S62 If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

S28 After contact with skin, wash immediately with plenty of soap and water.

S24/25 Avoid contact with skin and eyes.

S36/37 Wear suitable protective clothing, gloves and eye/face protection.

S20/21 When using do not eat, drink or smoke.

S29 Do not empty into drains.

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Ingredient	CAS #	Content
Triclopyr butoxyethyl ester	064700-56-7	71.7%
Diethylene glycol monoethyl ether	000011-90-0	~ 20 %
Balance Ingredients not contributing to the hazards		~ 10 %

4. FIRST AID:

Consult the Poisons Information Centre (Ph 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.

EYES: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

SKIN: Wash the skin well with plenty of water.

INGESTION: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

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INHALATION: Move person to fresh air; if effects occur, consult a physician.

NOTE TO PHYSICIAN: The decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. 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: 95° C

FLAMMABLE LIMITS

LFL: Not available

UFL: Not available

EXTINGUISHING MEDIA: If material is involved in a fire use: water fog, foam, or dry agent. If possible, use foam blanket to contain product. Avoid using AFFF.

FIRE & EXPLOSION HAZARDS: If decomposition of the active ingredient occurs, formation of hazardous decomposition products may occur. Eruption of containers is likely if confined at high temperatures. Intact containers exposed to excessive heat should be cooled with water to reduce drum pressure.

FIRE-FIGHTING EQUIPMENT: Breathing apparatus is required.

HAZCHEM: 2X

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Absorb with material such as sand, sawdust or Zorball. Dike area in case of large spills. Do not use water for cleanup. Report large spills to Dow AgroSciences Emergency Services at 1800 033 882.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

HANDLING: Keep out of reach of children. Harmful if swallowed. Causes skin irritation and sensitivity. Avoid contact with skin and clothing. After work, remove protective clothing and equipment, wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

Clean up spilled material immediately, and wash clothes, equipment and work area after use.

STORAGE: Store in tightly closed original container in a cool, dry well-ventilated area out of direct sunlight when not in use. This product can be stored in an unheated building. Do not store with food, feedstuffs, fertilizers and seeds. See product label for further handling/storage precautions relative to the end use of this product.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

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

EXPOSURE GUIDELINE(S): 2 mg/m³-skin for Triclopyr (manufacturer's recommendation) – see skin in section 16

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

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: When respiratory protection is required for certain operations, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge.

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SKIN PROTECTION: When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task.

EYE PROTECTION: Use safety glasses.

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

9. PHYSICAL AND CHEMICAL PROPERTIES:

SOLUBILITY IN WATER: Emulsifiable
SPECIFIC GRAVITY: 1.20 @ 20° C
APPEARANCE: Clear brown liquid
pH: 6.7 (10% v/v water emulsion)
VAPOUR PRESSURE: Not determined for substance.
triclopyr butoxyethyl ester = 3.6×10^{-6} mm Hg @ 25 °C

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) This product is unlikely to spontaneously decompose.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Strong, oxidising agents.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke. Nitrogen, and under some circumstances, oxides of nitrogen. Oxides of sulfur. Hydrogen fluoride gas and fluorides. Water.

HAZARDOUS POLYMERISATION: Not known 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 slight eye irritation. Corneal injury is unlikely. Dust may irritate eyes. Mist may cause eye irritation.

SKIN: Prolonged and repeated contact may cause slight irritation. Prolonged skin contact is unlikely to result in absorption of harmful amounts, the rat dermal LD₅₀ is > 2000 mg/kg. Prolonged or frequently repeated skin contact may cause allergic skin reactions in some individuals.

INGESTION: The rat LD₅₀ for a similar substance is > 2000 mg/kg. 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.

INHALATION: No adverse effects are anticipated from single exposure to vapour. Dust may cause irritation to upper respiratory tract (nose and throat). Mist may cause irritation of upper respiratory tract (nose and throat).

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:

For the active ingredient, in animals, effects have been reported on the following organs: Blood, kidney, liver. For Glycol Ethers, in animals, effects have been reported in the testes.

CANCER INFORMATION: In long-term animal studies with ethylene glycol butyl ether, small but statistically significant increases in tumours were observed in mice but not rats. The effects are not believed to be relevant to humans. If the material is handled in accordance with proper industrial handling procedures, exposures should not pose a carcinogenic risk to man. Active ingredient did not cause cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): Did not cause birth defects in laboratory animals. Has been toxic to the fetus in lab animals at doses toxic to the mother.

REPRODUCTIVE EFFECTS: In laboratory animals studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

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MUTAGENICITY (EFFECTS ON GENETIC MATERIAL):

For the active ingredient: In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE: Triclopyr butoxyethyl ester is rapidly hydrolysed to triclopyr acid in soil and water.

MOVEMENT & PARTITIONING:

Based largely or completely on information for the active ingredient.

Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Measured log octanol/water partition coefficient (Log Pow) is 4.09.

Log air/water partition coefficient (Log Kaw) is -4.0.

DEGRADATION & PERSISTENCE:

Based largely or completely on information for the active ingredient.

Biodegradation under aerobic static laboratory conditions is moderate (BOD₂₀ or BOD₂₈/ThOD between 10 and 40%).

ECOTOXICOLOGY:

Based largely or completely on information for the active ingredient.

Fish LC₅₀ = 0.36 mg/L in the most sensitive species tested. Algae 24 hour EC₅₀ = 0.1 mg/L in the most sensitive species tested.

Bird acute LD₅₀ = 735 mg/kg 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:

DANGEROUS GOODS CLASSIFICATION

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

SEA and AIR TRANSPORT: Classified as Dangerous Goods

UN No: 3082

Class: 9

Packing group: III

SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (TRICLOPYR BUTOXYETHYL). Marine Pollutant.

15. REGULATORY INFORMATION:

APVMA APPROVAL NUMBER: 31898

POISON SCHEDULE: 6

16. OTHER INFORMATION:

Glossary

ACGIH: American Conference of Governmental Industrial Hygienists.

ASCC: Australian Safety and Compensation Council – now Safe Work Australia.

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).

BOD: Biochemical oxygen demand. The amount of oxygen required by aerobic microorganisms to decompose the organic matter in a sample of water, such as that polluted by sewage. It is used as a measure of the degree of water pollution. Also called biological oxygen demand.

Dow AgroSciences Industrial Hygiene Guideline: An internal company standard based on an 8 hour TWA.

EC₅₀: 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.

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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).

K_{ow}: See P_{ow}

LC₅₀: Lethal Concentration 50%. A concentration of chemical in air or water that will kill 50% of the test organisms.

LD₅₀: Lethal Dose-50%. The doses of a chemical that will kill 50% of the test animals receiving it.

NIOSH: American national Institute of Occupational Safety and Health, a federal agency which conducts research on occupational safety and health questions and recommends new standards.

NOHSC: National Occupational Health and Safety Commission of Australia now the Office of the Australian Safety and Compensation Council.

OASCC: Office of the Australian Safety & Compensation Commission.

OSHA: American Occupational Safety and Health Administration.

PEL: Permissible Exposure Level, a maximum allowable exposure level by law.

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.

Polymerisation: a chemical reaction in which small molecules (monomers) 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.

TLV: 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 workday.

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.

Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:3008 (1995)]

National Code of Practice for the Preparation of Material Safety Data Sheets 2nd Edition [NOHSC:2011(2003)];

Approved Criteria for Classifying Hazardous Substances [NOHSC:1008(2004)]; and List of Designated Hazardous Substances.

VERSION TRACKING

Replaces version dated: 13 Jan 2006

Sections amended: 14 & 15

Product code: IWD-3483

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

This MSDS has been compiled using publicly available information, information provided by suppliers of ingredients used in the product and internal studies on the product and/or its ingredients.

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 BASED ON PUBLICLY AVAILABLE AND INTERNALLY AVAILABLE INFORMATION. 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.

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References

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