

# MATERIAL SAFETY DATA SHEET



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

## STARANE\* 200 HERBICIDE

Effective Date: 9 June 2006  
Product Code: 64056

### 1. PRODUCT AND COMPANY IDENTIFICATION:

**PRODUCT:** Starane\* 200 Herbicide

**PURPOSE:** Broadleaf herbicide

#### 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:  
1800 033 882  
(24 hours) (EMERGENCIES ONLY)

Transport Emergency Only Dial 000

### 2. HAZARDOUS IDENTIFICATIONS:

#### EMERGENCY OVERVIEW

#### HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS

Classified as hazardous according to the criteria of NOHSC

Not Classified as Dangerous Goods for Land Transport

#### Potential Health Effects:

Irritant to eyes. Can cause lung damage if swallowed.

#### RISK PHRASES:

R65: Harmful: may cause lung damage if swallowed.  
R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

### SAFETY PHRASES:

S2: Keep out of the reach of children.  
S20/21: When using the do not eat, drink or smoke.  
S24/25: Avoid contact with skin and eyes.  
S23: Do not breathe spray.  
S62: If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.  
S60: This material and its container must be disposed of as hazardous waste.  
S61: Avoid release to the environment. Refer to special instructions (see section is 6, 7, 13)

### 3. COMPOSITION/INFORMATION ON INGREDIENTS:

Ingredient	CAS #	Content
Fluroxypyr Methylheptyl Ester	081406-37-3	30.0% w/w
Petroleum Solvent	064742-94-5	45.5% w/w
Balance not contributing to hazard		24.5% w/w

### 4. FIRST AID:

**Consult the Poisons Information Centre (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:** Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, and then continue rinsing eyes. Call the Poisons Information Centre or doctor for treatment advice.

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

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

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

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**NOTE TO PHYSICIAN:** Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury. 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. Maintain adequate ventilation and oxygenation of the patient. 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:** 67°C (PMCC)

**COMBUSTIBLE:** C1

#### FLAMMABLE LIMITS

LFL: Not available  
UFL: Not available

**EXTINGUISHING MEDIA:** Carbon dioxide, dry chemical, foam, and/or water fog.

**FIRE AND 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.

**FIRE-FIGHTING EQUIPMENT:** 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. Ensure that no spillage enters drains or water courses.

**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. Harmful if swallowed, inhaled, or absorbed through skin. Causes eye and skin irritation. Avoid contact with eyes, skin and clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

**STORAGE:** Store in tightly closed original container in a cool, dry well-ventilated area out of direct sunlight when not in use. 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. Reduce stacking height where local conditions can affect packaging strength.

### 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<sup>3</sup>.

**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.

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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. Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Examples of preferred glove barrier materials include: polyethylene, Viton, Polyvinyl chloride (PVC or vinyl), styrene/butadiene rubber, ethyl vinyl alcohol laminate (EVAL), butyl rubber, chlorinated polyethylene, Neoprene, natural rubber latex), nitrile/butadiene rubber (nitrile or NBR). Avoid gloves made of polyvinyl alcohol (PVA).

**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 respirators: 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:** Brown to black liquid  
**ODOR:** Aromatic  
**SPECIFIC GRAVITY:** 0.98 g/mL @ 20 °C  
**SOLUBILITY IN WATER:** Emulsifiable  
**CORROSIVENESS:** Not corrosive  
**VAPOR PRESSURE:**  $135 \times 10^{-3}$  mPa @ 20 °C  
**pH:** 6.5 (5% v/v emulsion)

### 10. STABILITY AND REACTIVITY:

**STABILITY:** This product is stable under normal use and storage conditions.

**INCOMPATIBILITY:** (specific materials to avoid): Avoid acids, oxidizing and base materials.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Under fire conditions, oxides of nitrogen, hydrogen chloride, and hydrogen fluoride may be produced.

**HAZARDOUS POLYMERIZATION:** 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. May cause slight corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness

**SKIN:** Brief contact is essentially non-irritating to skin. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The dermal LD<sub>50</sub> for rabbits is expected to be >2000 mg/kg. Did not cause allergic skin reactions when tested in guinea pigs.

**INGESTION:** Low toxicity if swallowed. The oral LD<sub>50</sub> for rats is expected to be >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:** For the active ingredient, no adverse effects are anticipated from single exposure to vapor. The LC<sub>50</sub> for rats is >6.2 mg/L for 4 hours. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). May cause central nervous system effects.

**SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:** Excessive exposure to the solvent may cause respiratory irritation and central nervous system depression. Based on available data, repeated exposures to the active ingredient are not anticipated to cause significant adverse effects.

**CANCER INFORMATION:** Fluroxypyr did not cause cancer in laboratory animals. This material contains a minor component which has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in the minor components production. Limited oral studies in rats were negative.

**TERATOLOGY (BIRTH DEFECTS):** Fluroxypyr has been toxic to the fetus in laboratory animals at doses toxic to the mother.

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**REPRODUCTIVE EFFECTS:** Fluroxypyr did not interfere with reproduction in laboratory animal studies.

**MUTAGENICITY:** For fluroxypyr, in-vitro genetic toxicity studies were negative. For a minor component, in-vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

### 12. ECOLOGICAL INFORMATION:

#### ENVIRONMENTAL DATA:

#### MOVEMENT & PARTITIONING:

Based largely or completely on information for the active ingredient.

Bioconcentration potential is low (BCF is <100 or Log Pow <3). Potential for mobility in soil is slight (Koc is between 2000 and 5000).

#### DEGRADATION & PERSISTENCE:

Based largely or completely on information for the active ingredient.

Stability in water (1/2 life): 12.8 – 16.5 hours.

#### ECOTOXICOLOGY:

Based largely or completely on information for the active ingredient.

Material is very highly toxic to fish and aquatic invertebrates on an acute basis (LC<sub>50</sub> or EC<sub>50</sub> <0.1 mg/L in most sensitive species).

Material is practically non-toxic to birds on an acute basis (LD<sub>50</sub> >2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC<sub>50</sub> >5000 ppm).

### 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 regulations. 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:** This material is not regulated for transport by air.

**AIR AND SEA TRANSPORT:** Classified as dangerous goods for transport by air and sea.

**UN No:** 3082

**Class:** 9

**Packing group:** III

**SHIPPING NAME:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, NOS (fluroxypyr)

### 15. REGULATORY INFORMATION:

**APVMA APPROVAL NUMBER:** 40352

**POISON SCHEDULE:** 5

### 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).

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

**EC<sub>50</sub>:** 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<sub>oc</sub>** - the organic carbon partition coefficient (mL soil water /g organic carbon).

**LC<sub>50</sub>** - Lethal Concentration 50%. A concentration of chemical in air or water that will kill 50% of the test organisms.

**LD<sub>50</sub>** - Lethal Dose-50%. The dose of a chemical that will kill 50% of the test animals receiving it.

**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.

**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<sub>ow</sub>** - 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.

**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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