

MATERIAL SAFETY DATA SHEET



Date of Issue: May 16, 2007

1. IDENTIFICATION OF MATERIAL AND SUPPLIER

Product name Decis Options[®] Insecticide

Other names None

Product codes and pack sizes 4275216 (5 L), 4210866 (20 L), 6362524 (110 L), 4210874 (200 L), 4273639 (1000 L)

Chemical group Synthetic pyrethroid

Recommended use Agricultural insecticide

Formulation Emulsifiable concentrate

Supplier Bayer CropScience Pty Ltd ABN 87 000 226 022

Address 391 - 393 Tooronga Road, East Hawthorn
Victoria 3123, Australia

Telephone (03) 9248 6888

Facsimile (03) 9248 6800

Website www.bayercropscience.com.au

Contact Development Manager (03) 9248 6888

Emergency Telephone Number 1800 033 111 – Orica SH&E Shared Services

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HAZARDOUS SUBSTANCE (see Risk phrases below) – **NON DANGEROUS GOOD** (road/rail)
Combustible liquid. Contact with skin or eyes may be very painful. Very toxic to aquatic organisms.

Hazard classification Hazardous (National Occupational Health and Safety Commission - NOHSC)

Risk phrases R20/22 - Harmful by inhalation and if swallowed.
R38 - Irritating to skin.
R41 - Risk of serious damage to eyes.
R65 - Harmful: May cause lung damage if swallowed.

Safety phrases See Sections 4, 5, 6, 7, 8, 10, 12, 13

ADG classification Not a "Dangerous good" for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. Class 9 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, Marine Pollutant, for transport over water - See Section 14.

SUSDP classification (Poison Schedule) Schedule 6 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

| Ingredients | CAS Number | Concentration (g/L) |
|---|-----------------|---------------------|
| Deltamethrin | [52918-63-5] | 27.5 |
| Hydrocarbon solvent | [64742-94-5] | 811 |
| Naphthalene (in hydrocarbon solvent) | [91-20-3] | (< 81) |
| Butylated hydroxy toluene | [128-37-0] | 1 |
| Other ingredients (surfactants/emulsifiers) | (non hazardous) | 71 |

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4. FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (telephone 13 11 26), and follow the advice given. Show this Material Safety Data Sheet to the doctor.

| | |
|-----------------------------|---|
| Inhalation | If inhaled, remove to fresh air and keep at rest. Loosen clothes. Obtain medical advice if symptoms persist. If breathing stops or shows signs of failing, start artificial respiration and obtain urgent medical attention. |
| Skin contact | Carefully remove contaminated clothing and footwear. Wash affected areas with soap and cold water. Apply Vitamin E cream, toilet milks or local anaesthetic creams to reduce pain. Seek medical advice if symptoms persist. Launder contaminated clothing before re-use. Dispose of heavily contaminated items. |
| Eye contact | Rinse eyes immediately with lukewarm water for at least 15 minutes and obtain urgent medical aid. |
| Ingestion | Wash out mouth with water. DO NOT induce vomiting. Give a glass of water. Do not give anything by mouth if the patient is semi-conscious or unconscious. Keep patient at rest and seek medical advice as above. Do not apply mouth-to-mouth resuscitation if the material has been ingested. |
| First Aid Facilities | Ensure eyewash and safety shower facilities are available in the workplace. |
| Medical attention | <p><u>Symptoms</u> <i>Local:</i> Skin and eye paraesthesia, which may be severe. Irritation of eyes, skin and mucous membranes. Inhalation may produce upper respiratory tract irritation, cough. Symptoms are usually transient with resolution within 24 hours. <i>Systemic:</i> Excitement, gastrointestinal discomfort, tremors, dizziness, headache, apathy, nausea, vomiting, abdominal pain, muscular fasciculation of limbs, anaesthesia or other CNS effects, pulmonary oedema; also, unconsciousness, convulsions, coma with very high doses/exposures.</p> <p><u>Treatment</u> <i>Local:</i> Skin – apply Vitamin E cream or simple toilet milks. Eyes - Instil local anaesthetic drops e.g. 1% amethocaine hydrochloride eye drops. Give analgesics as necessary. <i>Systemic:</i> Endotracheal intubation and gastric lavage, followed by administration of charcoal. (Paraesthesiae of mouth, tongue, larynx and pharynx may be present.) As this product contains a hydrocarbon solvent, care should be taken to prevent pulmonary aspiration. Monitor respiratory and cardiac functions. Observe electrocardiograph. Check for pulmonary oedema in event of inhalation. Keep airway clear - administer artificial respiration if necessary. Anti-convulsant therapy with diazepam. For adults 5-10 mg i.v. until fully sedated; 2.5 mg i.v. for children. There is no specific antidote. Contraindications – adrenergic compounds, atropine. Recovery should be spontaneous. Must NOT be confused with organophosphorus (anticholinesterase) compounds.</p> |

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5. FIRE FIGHTING MEASURES

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| Extinguishing media | Water spray, alcohol-resistant foam, dry chemical or carbon dioxide. |
| Hazards from combustion products | Heating/combustion will generate oxides of carbon and nitrogen, bromine compounds and other irritant and toxic fumes. |
| Precautions for fire fighters | The product is a Class C1 Combustible liquid. Fire fighters should wear full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). Keep unnecessary people away. If it can be done safely, remove intact containers from the fire. Otherwise, use water spray to cool them. Avoid spraying directly into containers due to danger of boilover. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of fire control water or other extinguishing agent and spillage safely later. Do not release contaminated water into the environment. |
| Hazchem code | 3Z |

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with the spilled material or contaminated surfaces. Extinguish or remove all possible sources of ignition. When dealing with spills do not eat, drink or smoke and wear protective clothing and equipment as described in Section 8 - PERSONAL PROTECTION. Keep people and animals away. Prevent spilled material from entering drains or watercourses. Contain spill and absorb with earth, sand, clay, or other absorbent material. Collect and store in properly labelled, sealed drums for safe disposal. Deal with all spillages immediately. If contamination of drains, streams, watercourses, etc. is unavoidable, warn the local water authority.

7. HANDLING AND STORAGE

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|---------------------|---|
| Handling | Keep out of reach of children. Product is poisonous if swallowed. Facial skin contact may cause temporary facial numbness. Will damage eyes and will irritate the skin. Avoid contact with eyes and skin. Avoid inhaling vapour or spray mist. If product in eyes, wash it out immediately with water. If product on skin, immediately wash area with soap and water. Wash hands after use. After each day's use, wash gloves, face shield and contaminated clothing. |
| Storage | Store in the closed, original container in a cool, secure, well-ventilated area. Do not store for prolonged periods in direct sunlight. Keep away from all ignition sources. |
| Flammability | Combustible liquid, Class C1 - flashpoint between 61° C and 150° C. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | |
|---------------------------|--|
| Exposure standards | The manufacturer of the solvent recommends the following Occupational Exposure Limits: Solvent naphtha (petroleum), heavy aromatic: TWA: 100 mg/m ³ (17 ppm). For the naphthalene present in the solvent the NOHSC Occupational Exposure Limits are: TWA: 10 ppm (52 mg/m ³ , STEL: 15 ppm (79 mg/m ³). For the 2,6-di-tert-butyl-p-cresol (butylated hydroxy toluene) the NOHSC Occupational Exposure Limits are: TWA: 10 mg/m ³ |
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8. EXPOSURE CONTROLS / PERSONAL PROTECTION - continued

Definitions:

Exposure standard – Time Weighted Average (TWA) means the average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week.

Exposure standard – Short term exposure limit (STEL) means a 15 minute TWA exposure which should not be exceeded at any time during the working day.

Biological limit values None allocated.

Engineering controls Control process conditions to avoid contact. Use in a well-ventilated area only.

Personal Protective Equipment It is important to protect eyes and skin as contact with this product may cause severe pain.

- Wear face shield
- Wear cotton overalls buttoned to the neck and wrist and a washable hat.
- Wear elbow-length PVC gloves.
- If working in a poorly ventilated area or if occupational exposure levels are likely to be exceeded, wear a respirator suitable for organic vapours - AS/NZS 1715/1716 approved.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear yellow liquid
Odour: Distinctive aromatic hydrocarbon
pH: 4.5 to 7.0 (5% in water)
Vapour pressure: 0.3 kPa at 38° C (hydrocarbon solvent)
Vapour density: > 1.0 (hydrocarbon solvent)
Boiling point: 179 - 213° C (hydrocarbon solvent)
Freezing/melting point: Not available
Solubility: Forms an emulsion in water
Specific Gravity: 0.91 at 20° C
Flash Point: 65 - 69° C (Pensky Martens Closed Cup)
Flammability (explosive) limits: LEL: 0.6; UEL: 7.0 Vol. % in air (hydrocarbon solvent)
Auto-ignition temperature: > 400° C
Partition coefficient (octanol/water): *Deltamethrin*: $\text{LogP}_{\text{ow}} = 4.6$ (25 °C)

10. STABILITY AND REACTIVITY

Chemical stability Stable under normal conditions of use.

Conditions to avoid Avoid sources of ignition and extreme heat.

Incompatible materials Avoid oxidising agents, strong acids and alkalis.

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10. STABILITY AND REACTIVITY - continued

Hazardous decomposition products Heating/combustion will generate oxides of carbon and nitrogen, and bromine compounds.

Hazardous reactions None known

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation Inhalation of product vapour may cause transient irritation of mucous membranes (nose, throat and respiratory tract), may cause cough, headaches, dizziness, drowsiness, could be anaesthetic, and may have other central nervous system effects lasting for up to 24 hours.

Skin contact Irritating. Contact with the skin, especially the face, may result in initial stinging, burning or tingling sensations (fingertips, nose), followed by numbness or pain which may persist for up to 24 hours. (Although skin irritation tests in animals show deltamethrin to be non-irritating, experience has shown it to cause these symptoms on human skin.) Repeated exposure may cause skin dryness or cracking.

Eye contact Severely irritating to the eyes.

Ingestion Symptoms include burning sensations and numbness in the mouth and throat, headache, excitement, tremors, dizziness, nausea, vomiting, listlessness, stomach pain, muscular twitching of arms or legs, unconsciousness, convulsions, and coma (very high doses). Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause bronchopneumonia or pulmonary oedema.

ANIMAL TOXICITY DATA – PRODUCT

Acute:

| | |
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| Oral toxicity | LD ₅₀ rat: 535 mg/kg (<i>similar product</i>) |
| Dermal toxicity | LD ₅₀ rabbit: > 2000 mg/kg (<i>similar product</i>) |
| Inhalation toxicity | LC ₅₀ rat: > 11.3 mg/L (6 h) (<i>similar product</i>) |
| Skin irritation | Slightly irritating (rabbit) (<i>similar product</i>) |
| Eye irritation | Irritating (rabbit) (<i>similar product</i>) |
| Sensitisation | Non-sensitising (guinea pig) (<i>similar product</i>) |

Chronic:

Deltamethrin is not mutagenic, carcinogenic or teratogenic.

This product contains naphthalene. The International Agency for Research on Cancer evaluated naphthalene and concluded that there was sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for cancer in exposed humans. Accordingly, IARC classified naphthalene as a possible human carcinogen (Group 2B).

Frequent or prolonged contact with the hydrocarbon solvent in this product may defat and dry the skin, leading to discomfort and dermatitis.

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12. ECOLOGICAL INFORMATION

Deltamethrin is highly toxic to fish, aquatic organisms and bees in laboratory studies, but it does not represent a significant hazard under normal field use conditions. DO NOT contaminate streams, rivers or waterways with Decis Options or the used containers.

Ecotoxicity

Deltamethrin:

Fish toxicity:

LC₅₀ (96 h) rainbow trout 0.91 µg/L

LC₅₀ (96 h) bluegill sunfish 1.4 µg/L

Daphnia toxicity:

EC₅₀ (48 h) 0.56 µg/L

Algal toxicity:

EC₅₀ (96 h) algae (*Selenastrum capricornutum*) > 9.1 mg/L

Bird toxicity:

Acute oral LD₅₀ for mallard duck > 4640 mg/kg

Environmental fate, persistence and degradability, mobility

Bioaccumulation: Bluegill sunfish Bioconcentration factor (BCF): 1400

Deltamethrin is not persistent in the environment. In soil it undergoes microbial degradation within 1-2 weeks. It is strongly adsorbed by soil colloids with no risk of leaching. In field DT₅₀ is < 23 days.

The hydrocarbon solvent is volatile and will evaporate if released into water. It is biodegradable.

13. DISPOSAL CONSIDERATIONS

5, 20, 200 litre containers – Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, 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.

110 litre container - If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. Empty container by pumping through dry-break connection system. Do not attempt to breach the valve system or the filling point, or contaminate the container with water or other products. Ensure that the coupler, pump, meter and hoses are disconnected, triple rinsed and drained after each use. When empty, or contents no longer required, return the container to the point of purchase. This container remains the property of Bayer CropScience Pty Ltd.

1000 litre container - If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. The container must be vented before discharging contents. To empty connect a camlock fitted hose to the bottom valve. Remove top cap when discharging for venting purposes. When the container is empty, close all caps and valves and return the container to the point of purchase.

Dispose of waste product via a reputable disposal contractor to an approved landfill. Do not discharge into drains or sewers.

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14. TRANSPORT INFORMATION

| | |
|---------------------------|--|
| UN number | Not applicable (road/rail) |
| Proper shipping name | Not applicable (road/rail) |
| Class and Subsidiary Risk | Not applicable (road/rail) |
| Packing Group | Not applicable (road/rail) |
| EPG | Not applicable (road/rail) |
| Hazchem code | 3Z |
| Marine Pollutant | Yes. By sea, this product is a Class 9, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains deltamethrin), UN 3082, Packing Group III, Marine Pollutant. |

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988

Australian Pesticides and Veterinary Medicines Authority approval number: 51849

See also Section 2.

16. OTHER INFORMATION

Trademark information Decis Options® is a Registered Trademark of Bayer.

Preparation information Replaces September 24, 2002 MSDS.
Reasons for revision: MSDS headings, Product Codes and Pack Sizes, Risk phrases, Composition/Information on Ingredients, First Aid Measures, Handling, Exposure Standards, Toxicological Information, Ecological Information, Disposal, Transport Information.

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.

Our 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.

END OF MSDS