

MATERIAL SAFETY DATA SHEET



Date of Issue: August 27th, 2008

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND SUPPLIER

Product name **Bulldock[®] 25 EC Insecticide**
Other names None
Product codes and pack sizes 4952765 (20 L), 4952773 (5 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) – **DANGEROUS GOOD**
Flammable liquid. Contact with skin or eyes may be painful. Dangerous to aquatic organisms and bees.

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.
Safety phrases See Sections 4, 5, 6, 7, 8, 10, 12, 13
ADG classification Classified as “Dangerous goods” for transport by road or rail according to the Australian Code for the Transport of Dangerous Goods by Road and Rail, FLAMMABLE LIQUID, N.O.S. (contains xylene), Class 3, Packing Group III, UN1993.
SUSDP classification Schedule 6 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Beta-cyfluthrin	[68359-37-5]	25
Xylene	[1330-20-7]	775
1-butanol	[71-36-3]	6
Calcium dodecylbenzenesulfonate	[26264-06-02]	32
Other ingredients (surfactants/emulsifiers)	(non hazardous)	62

MATERIAL SAFETY DATA SHEET



Date of Issue: August 27th, 2008

4. FIRST AID MEASURES

If poisoning occurs, immediately contact a doctor or Poisons Information Centre (telephone 13 11 26), and follow the advice given. Remove person from contaminated area. Apply artificial respiration if not breathing. Show this Material Safety Data Sheet to the doctor.

Inhalation	If inhaled, remove to fresh air and keep at rest. Obtain medical advice if at all worried. If breathing stops or shows signs of failing, start artificial respiration.
Skin contact	Carefully remove contaminated clothing and footwear. Wash affected areas with soap and water. Apply Vitamin E cream, toilet milks or local anaesthetic creams to reduce pain. Seek medical advice if at all worried. Launder contaminated clothing before re-use.
Eye contact	Rinse eyes immediately with clean water for at least 15. Seek medical advice if irritation develops and persists.
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>Bulldock 25 EC contains beta-cyfluthrin, which is a synthetic pyrethroid. It also contains xylene as the solvent.</p> <p><u>Symptoms</u></p> <p><i>Local:</i> skin and eye paraesthesia which may be severe (usually transient with resolution within 24 hours), eye and mucous membrane irritation, cough.</p> <p><i>Systemic:</i> discomfort in the chest, bronchial hypersecretion, pulmonary oedema, tachycardia, low blood pressure, palpitation, nausea, vomiting, diarrhoea, abdominal pain, salivation, dizziness, blurred vision, headache, apathy, anorexia, somnolence, coma, spasm, convulsions, tremors, ataxia, muscular fasciculation.</p> <p><u>Treatment</u></p> <p><i>Local:</i> The presenting signs of overexposure usually relate to hyperaesthesia of nerve endings in skin and mucous membranes exposed to the chemical. These signs can only be treated symptomatically and resolve spontaneously within 24-48 hours. The skin and mucous membrane hyperaesthesia results from direct contact, not from systemic distribution of the chemical.</p> <p><i>Systemic:</i> In cases of severe ingestions, cardiac and respiratory function should be monitored. In case of convulsions, diazepam is the anticonvulsant of choice. Thus seizure management should follow standard practice using benzodiazepines (with oxygen and airway protection), if insufficiently effective followed by Phenobarbital infusion as required for status epilepticus. A suggested regimen would be:</p> <p>Start with 10 to 30 mg diazepam by intravenous injection according to body weight, for children pro rata. This dose is to be repeated every 10 to 30 minutes according to the patient's response.</p> <p>Contraindications: adrenergic compounds (except for CRP) and high dose atropine. Pyrethroid poisoning should not be confused with carbamate or organophosphate poisoning.</p>

MATERIAL SAFETY DATA SHEET



Date of Issue: August 27th, 2008

5. FIRE FIGHTING MEASURES

Extinguishing media	Foam, dry agent, carbon dioxide, sand, water spray.
Hazards from combustion products	In a fire, formation of hydrogen chloride, hydrogen cyanide, hydrogen fluoride, carbon monoxide and nitrogen oxides can be expected.
Precautions for fire fighters	The product is a flammable liquid – flash point > 28° C. Liquid and vapour of xylene are flammable and the vapour will form explosive mixtures with air. The vapour is heavier than air and may travel along the ground so that distant ignition is a possibility. Firefighters 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	•3Y

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

Handling	Keep out of reach of children. Poisonous if swallowed. Avoid inhaling vapour or spray mist. Will damage eyes and skin. Avoid contact with eyes and skin. If clothing becomes contaminated with product remove clothing immediately. If product on skin, immediately wash area with soap and water. If product in eyes, wash it out immediately with water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, face shield or goggles and contaminated clothing.
Storage	Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Keep away from excessive heat, open flames and other sources of ignition.
Flammability	Flammable liquid.

MATERIAL SAFETY DATA SHEET



Bayer CropScience

Date of Issue: August 27th, 2008

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards For xylene, the NOHSC Occupational Exposure Limits are:
TWA: 350 mg/m³; STEL: 150 ppm (655 mg/m³)
For n-butanol, the NOHSC Occupational Exposure Limits are:
TWA: 50 ppm (152 mg/m³) (peak limitation) with a skin notation

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 even if the eight-hour TWA average is within the TWA exposure standard. Exposures at the STEL should not be longer than 15 minutes and should not be repeated more than four times per day. There should be at least 60 minutes between successive exposures at the STEL.

Peak limitation notice – means a maximum airborne concentration of a particular substance determined over the shortest analytically practicable period of time which does not exceed 15 minutes.

Skin notation – Absorption through the skin may be a significant source of exposure.

Biological limit values None allocated

Engineering controls Control process conditions to avoid contact. Use local exhaust ventilation during manufacture and spark proof equipment. Use in a well-ventilated area only.

Personal Protective Equipment

- Wear face shield or goggles
- Wear cotton overalls buttoned to the neck and wrist and a washable hat.
- Wear elbow-length PVC or nitrile 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 to brown liquid
Odour: Aromatic chemical
pH: 5.5 to 6.5 (1% in water)
Vapour pressure: 1 kPa at 20° C (xylene)
Vapour density: 3.7 – xylene (air = 1)
Boiling point: 138 - 142° C (boiling point range of xylene)
Freezing/melting point: Not available
Solubility: Forms an emulsion in water
Specific Gravity: 0.90 at 20° C
Flash Point: > 28° C (Pensky-Martens Closed Cup)
Flammability (explosive) limits: LEL: 1.1; UEL: 6.6 Vol. % (xylene)
Auto-ignition temperature: 500° C (xylene)
Partition coefficient (octanol/water): Xylene: Log P_{ow} = 3.12 – 3.2
Beta-cyfluthrin: K_{ow} log P = 6.18 (22° C)

MATERIAL SAFETY DATA SHEET



Date of Issue: August 27th, 2008

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 strong alkalis.
Hazardous decomposition products	In a fire, formation of hydrogen chloride, hydrogen cyanide, hydrogen fluoride, carbon monoxide and nitrogen oxides can be expected.
Hazardous reactions	None

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 headaches, nausea, dizziness, drowsiness, could be anaesthetic, and may have other central nervous system effects lasting 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 up to 24 hours. Xylene may cause defatting of the skin which can lead to dermatitis.
Eye contact	Risk of serious damage to eyes.
Ingestion	Poisonous if swallowed. Symptoms include burning sensations and numbness in the mouth and throat, headache, dizziness, drowsiness, nausea, vomiting, listlessness, stomach pain, muscular twitching of arms or legs, unconsciousness, convulsions, and coma (very high doses). Bulldock 25 EC also contains xylene, a hydrocarbon liquid. Small amounts aspirated into the respiratory system during ingestion or from vomiting may cause bronchopneumonia or pulmonary oedema.

ANIMAL TOXICITY DATA – *PRODUCT*

Acute:

Oral toxicity	LD ₅₀ rat: 630 - 757 mg/kg
Dermal toxicity	LD ₅₀ rat: > 5000 mg/kg
Inhalation toxicity	LC ₅₀ rat: 3.23 mg/L (4 h) aerosol
Skin irritation	Severely irritating (rabbit)
Eye irritation	Severely irritating (rabbit)
Sensitisation	Non-sensitising (guinea pig) (<i>Beta-cyfluthrin</i>)

Date of Issue: August 27th, 2008

11. TOXICOLOGICAL INFORMATION - continued

Chronic:

Beta-cyfluthrin is not mutagenic, carcinogenic or teratogenic and did not cause reproductive effects in animal studies. There was no evidence of delayed neurotoxicity.

Repeated over-exposure to xylene may cause liver and kidney damage. Xylene is not mutagenic, not carcinogenic and does not impair fertility.

12. ECOLOGICAL INFORMATION

Beta-cyfluthrin is very toxic to aquatic organisms. It is dangerous to bees. It has a low toxicity to birds, mammals and earthworms. DO NOT contaminate streams, rivers or waterways with Bulldock 25 EC or the used containers.

Ecotoxicity

Beta-cyfluthrin:

<i>Fish toxicity:</i>	LC ₅₀ (96 h) bluegill sunfish 280 ng/L LC ₅₀ (96 h) rainbow trout (<i>Oncorhynchus mykiss</i>) 89 ng/L
<i>Daphnia toxicity:</i>	EC ₅₀ (48 h) water flea (<i>Daphnia magna</i>) 0.3 µg/L;
<i>Algal toxicity:</i>	E _r C ₅₀ (<i>Scenedesmus subspicatus</i>) >0.01 mg/L
<i>Bird toxicity:</i>	Acute oral LD ₅₀ : > 2000 mg/kg; Japanese quail
<i>Bees:</i>	LD ₅₀ <0.1 µg/bee
<i>Worms:</i>	LC ₅₀ >1000 mg/kg

Xylene:

<i>Fish toxicity:</i>	LC ₅₀ (96 h) rainbow trout 13.5 mg/L
<i>Daphnia toxicity:</i>	EC ₅₀ (48 h) <i>Daphnia magna</i> 3.82 mg/L
<i>Algae toxicity:</i>	EC ₅₀ : >1 – <10 mg/L

Environmental fate, persistence and degradability, mobility

The degradation of beta-cyfluthrin is rapid in different soils. Leaching behaviour can be classified as immobile. The bioconcentration factor (BCF) of beta-cyfluthrin is 506. It is readily biodegradable.

Xylene is readily biodegradable, and oxidises rapidly in air by photochemical reactions. It is considered to be slightly bioaccumulative – BCF < 30.

13. DISPOSAL CONSIDERATIONS

(1 L container only)

Rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. Dispose of at 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.

(5, 20 L containers only)

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.

MATERIAL SAFETY DATA SHEET



Date of Issue: August 27th, 2008

14. TRANSPORT INFORMATION

UN number	1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S. (contains xylene)
Class and Subsidiary Risk	3 No subsidiary risk
Packing Group	III
EPG	Guide 14 - Dangerous Goods - Initial Emergency Response Guide
Hazchem code	3[Y]
Marine Pollutant	Yes

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988

Australian Pesticides and Veterinary Medicines Authority approval number: 40422

See also Section 2.

16. OTHER INFORMATION

Trademark information Bulldock® is a Registered Trademark of Bayer.

Preparation information Replaces November 27, 2003 MSDS.
Reasons for revision: Formulation composition, Medical attention, Exposure standards, Toxicological data, Ecological data, Disposal considerations.

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