

MATERIAL SAFETY DATA SHEET



Date of Issue: July 4th, 2008

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND SUPPLIER

Product name **Bulldock® Duo Insecticide**
Other names None
Product codes and pack sizes 4952749 (20 L), 2419460 (200 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**
Combustible 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 R23/25 – Toxic by inhalation and if swallowed.
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. For transport by sea this product is a Class 9 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, Marine Pollutant – See Section 14.
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
Hydrocarbon solvent	[64742-94-5]	773
Naphthalene (in hydrocarbon solvent)	[91-20-3]	(< 77)
1,2,4-trimethylbenzene (in hydrocarbon solvent)	[95-63-6]	(< 62)
Calcium dodecylbenzenesulfonate	[26264-06-2]	< 30
2-ethylhexanol	[104-76-7]	< 20
Other ingredients	(non hazardous)	≈ 42

MATERIAL SAFETY DATA SHEET



Date of Issue: July 4th, 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 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	Bulldock Duo contains beta-cyfluthrin, which is a synthetic pyrethroid. It also contains a hydrocarbon solvent. <u>Symptoms</u> <i>Local:</i> skin and eye paraesthesia which may be severe (usually transient with resolution within 24 hours), eye and mucous membrane irritation, cough. <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. <u>Treatment</u> <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. <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: 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. Contraindications: adrenergic compounds (except for CRP) and high dose atropine. Pyrethroid poisoning should not be confused with carbamate or organophosphate poisoning.

MATERIAL SAFETY DATA SHEET



Date of Issue: July 4th, 2008

5. FIRE FIGHTING MEASURES

Extinguishing media	Water spray, foam, dry agent, carbon dioxide or sand.
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 Class C1 Combustible liquid. 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	Not applicable

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. Will damage eyes and skin. Avoid inhaling vapour or spray mist. Avoid contact with eyes and skin. If product in eyes, wash it out immediately with water. If clothing becomes contaminated with product, remove clothing immediately. Wash area with soap and 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 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 all ignition sources.
Flammability	Combustible liquid, Class C1 - flashpoint between 61° C and 150° C.

MATERIAL SAFETY DATA SHEET



Date of Issue: July 4th, 2008

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/m³ (17 ppm).

For the naphthalene present in the solvent, the NOHSC Occupational Exposure Limits are: TWA: 10 ppm (52 mg/m³), STEL: 15 ppm (79 mg/m³).

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 adequate ventilation to keep airborne concentrations below the exposure limits. Use in a well-ventilated area only.

Personal Protective Equipment

- Wear face shield
- 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 liquid
Odour: Aromatic chemical
pH: 5.0 to 7.0 (1% 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: 63 °C (hydrocarbon solvent)
Flammability (explosive) limits: LEL: 0.6; UEL: 7.0 Vol. % in air (hydrocarbon solvent)
Auto-ignition temperature: > 400° C (hydrocarbon solvent)
Partition coefficient (octanol/water): *Beta-cyfluthrin*: $K_{ow} \log P = 6.18$ (22° C)

MATERIAL SAFETY DATA SHEET



Date of Issue: July 4th, 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 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, dizziness, drowsiness, could be anaesthetic, and may have other central nervous system effects lasting up to 24 hours.
Skin contact	May be irritating to the skin. 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. Repeated exposure may cause skin dryness or cracking.
Eye contact	May be irritating to the eyes.
Ingestion	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). Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause bronchopneumonia or pulmonary oedema.

ANIMAL TOXICITY DATA – *SIMILAR PRODUCT*

Acute:

Oral toxicity	LD ₅₀ rat: 630 - 757 mg/kg
Dermal toxicity	LD ₅₀ rat: > 5000 mg/kg
Inhalation toxicity	LC ₅₀ rat: approx. 3 mg/L (4 h) aerosol
Skin irritation	Moderately irritating (rabbit)
Eye irritation	Severely irritating (rabbit)
Sensitisation	Non-sensitising (guinea pig) (<i>Beta-cyfluthrin</i>)

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. 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).

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 Duo 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

Bulldock Duo

<i>Fish toxicity:</i>	LC ₅₀ (96 h): 0.08 µg/L; rainbow trout (<i>Oncorhynchus mykiss</i>)
<i>Algal toxicity:</i>	
<i>Growth rate:</i>	IC ₅₀ (96 h): 36.8 mg/L; green algae (<i>Desmodesmus subspicatus</i>)

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

13. DISPOSAL CONSIDERATIONS

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: July 4th, 2008

14. TRANSPORT INFORMATION

UN number	Not applicable
Proper shipping name	Not applicable
Class and Subsidiary Risk	Not applicable
Packing Group	Not applicable
EPG	Not applicable
Hazchem code	Not applicable
Marine Pollutant	Yes – if this product is shipped by sea, it is Class 9, ENVIRONMENTALLY HAZRDOUS SUBSTANCE, LIQUID, N.O.S. (betacyfluthrin), UN 3082, Packing Group III.

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988

Australian Pesticides and Veterinary Medicines Authority approval number: 51100

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: Risk phrases, ADG classification, Formulation details, Medical attention, Exposure standards, Ecological data, Disposal considerations, Marine pollutant status.

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