MATERIAL SAFETY DATA SHEET

Date of Issue: September 24, 2002

1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND SUPPLIER

Product name	**Sertin® 186 EC Selective Post-Emergence Herbicide**
Other names	None
Product code	TP-AUS008
Chemical group	Cyclohexanedione
Recommended use	Agricultural herbicide
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

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

Risk phrases
R20 - Harmful by inhalation.
R36 - Irritating 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.

SUSDP classification Schedule 5 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Sethoxydim	[74051-80-2]	186
Hydrocarbon solvent	[64742-94-5]	689
Naphthalene (in hydrocarbon solvent)	[91-20-3]	(20 – 42)
Other ingredients (surfactants)	(non hazardous)	55

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. Obtain medical advice if at all worried.
Skin contact	Carefully remove contaminated clothing. Wash affected areas with soap and water. Seek medical aid if at all worried.
Eye contact	Rinse eyes immediately with clean water for at least 15 minutes and obtain medical aid.
Ingestion	Wash out mouth with water. Do NOT induce vomiting. Give a glass of water. Keep patient at rest and seek medical advice as above. DO NOT attempt to give anything by mouth to a semi-conscious or unconscious person.
First Aid Facilities	Provide eyewash and safety shower facilities in the workplace.
Medical attention	Symptoms *Local:* Irritation of skin, eyes and respiratory tract. Repeated exposure may cause skin dryness or cracking. *Systemic:* Headache, dizziness, nausea, anaesthesia or other CNS effects, confusion. Treatment For *local contamination* treatment should be symptomatic after decontamination. In case of skin or eye contamination, treat as above under FIRST AID MEASURES. For systemic poisoning initial treatment should be symptomatic and supportive. As this product contains a hydrocarbon liquid, care should be taken to prevent pulmonary aspiration. Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause bronchopneumonia or pulmonary oedema.

5. FIRE FIGHTING MEASURES

Extinguishing media	Dry chemical, carbon dioxide, alcohol foam or water spray.
Hazards from combustion products	Toxic decomposition products may be produced in a fire. These include sulphur dioxide, nitrogen oxides and carbon monoxide.
Precautions for fire fighters	This product is a combustible liquid with a flash point of 65° C and a fire point of 76° C. There is a risk of explosion at temperatures above 60° C. Fire fighters should wear full protective gear, including self-contained breathing apparatus (AS/NZS 1715/1716). If it can be done safely, remove intact containers from the fire. Otherwise, use water spray to cool them. Bund area to prevent contamination of water sources. Dispose of fire control water or other extinguishing agent and spillage safely later.

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, loosely sealed drums for safe disposal. Thoroughly ventilate the area after cleanup. 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. Avoid contact with eyes, skin and clothing. Do not inhale vapour. Do not smoke while handling. 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, secure area. Do not store for prolonged periods in direct sunlight. Keep in a dry, low-fire risk area, away from sources of heat or ignition and electrostatic charges.

Flammability

Combustible liquid, Class C1 - flashpoint between 61° C and 150º C.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards

The manufacturer of the solvent recommends an Occupational Exposure Limit for 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). Skin notation.

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

Engineering controls

Control process conditions to avoid contact. 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 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 or pale brown oily liquid
Odour:	Negligible
pH:	3.0 to 5.0 (1% in water)
Vapour pressure:	0.3 kPa (at 38° C) – (hydrocarbon solvent)
Vapour density:	> 1.00 (hydrocarbon solvent)
Boiling point:	180º C
Freezing/melting point:	Not available
Solubility:	Emulsifies in water
Specific Gravity:	0.93 at 20° C
Flash Point:	65º C (Pensky-Martens Closed Cup)
Flammability (explosive) limits:	LEL: 0.6; UEL: 7.0 Vol. % in air (hydrocarbon solvent)
Auto-ignition temperature:	> 400º C (hydrocarbon solvent)
Fire point:	76° C
Partition coefficient (octanol/water):	*Sethoxydim:* K_{ow}logP = 4.51 (pH 5), 1.65 (pH 7)

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use.
Hazardous polymerisation	Will not polymerise.
Conditions to avoid	Avoid sources of ignition and extreme heat.
Incompatible materials	Incompatible with strong oxidising agents, strong bases and acids.
Hazardous decomposition products	Sulphur dioxide, nitrogen oxides and carbon monoxide can be released in a fire.

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	May cause irritation to the respiratory tract. Vapours may cause drowsiness and dizziness.
Skin contact	The product is of low acute dermal toxicity in the rat. May be mildly irritating to the skin. Repeated exposure may cause skin dryness or cracking. In animal studies sethoxydim was not a skin sensitiser.
Eye contact	Irritating to eyes.

11. TOXICOLOGICAL INFORMATION - continued

POTENTIAL HEALTH EFFECTS - continued

Ingestion The product is of low acute oral toxicity in the rat. Symptoms of poisoning include headache, dizziness, nausea, and confusion. May cause lung damage if swallowed.

ANIMAL TOXICITY DATA – PRODUCT

Acute:

Oral toxicity LD_{50} rat (female): 3047 mg/kg (*product*)
LD_{50} rat (male): 4216 mg/kg (*product*)

Dermal toxicity LD_{50} rat: > 5000 mg/kg *(product*)

Inhalation toxicity LC_{50} rat(4 h): 4.6 mg/L (*product)*

Skin irritation Mildly irritating (rabbit) (*product)*

Eye irritation Irritating (rabbit) (*product)*

Sensitisation Non-sensitising (guinea pig) (*product)*

Chronic:

Not mutagenic or carcinogenic. This product contains naphthalene. A National Toxicology Program (NTP) report states that lifetime inhalation exposure to naphthalene resulted in increases in tumours of the nose in rats. In a previous NTP study, lifetime inhalation exposure to naphthalene increased lung tumours in female mice. The relevance of the rodent findings to humans is questionable.

12. ECOLOGICAL INFORMATION

May be harmful to aquatic organisms. Low toxicity to bees.
DO NOT contaminate streams, rivers or waterways with Sertin 186 or the used containers.

Ecotoxicity

Sethoxydim:
Fish toxicity:
LC_{50} (96 h) for carp 148 mg/L
LC_{50} (96 h) for rainbow trout 30 mg/L
Daphnia toxicity: EC_{50} (48 h) for *Daphnia carinata* 120 mg/L
Bird toxicity: Acute oral LD_{50} for Japanese quail > 5000 mg/kg
Algae toxicity: IC_{50} (72 h) 212 mg/L

Environmental fate, persistence and degradability

Ready/inherent biodegradability (28 d) sethoxydim < 70%
The solvent is expected to degrade at a moderate rate and be “inherently” 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. Dispose of waste product through a reputable waste contractor.

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	No

15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Act 1988

National Registration Authority approval number: 31839 See also Section 2.

16. OTHER INFORMATION

Trademark information Sertin® is a Registered Trademark of Bayer.

Preparation information Replaces August 1, 2002 MSDS.
Reasons for revision: Updated MSDS for solvent, 16 heading format

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