

# MATERIAL SAFETY DATA SHEET



Date of Issue: April 8<sup>th</sup>, 2009

## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name **Velocity<sup>®</sup> Selective Herbicide**  
Other names None  
Product code and pack sizes 79374070 (10 L)  
Chemical group Pyrazole + hydroxybenzotrile + pyrazoline dicarboxylate  
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](http://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  
Combustible liquid. Dangerous to the aquatic environment.

Hazard classification Hazardous (National Occupational Health and Safety Commission – NOHSC)  
Risk phrases R45 – May cause cancer.  
R63 – Possible risk of harm to the unborn child.  
Safety phrases See Sections 4, 5, 6, 7, 8, 10, 12, 13.  
ADG classification See Section 14.  
SUSDP classification  
(Poisons Schedule) Schedule 6 (Standard for the Uniform Scheduling of Drugs and Poisons)

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Pyrasulfotole	[365400-11-9]	37.5
Bromoxynil octanoate	[1689-99-2]	153 (≡ 105 g/L bromoxynil)
Bromoxynil heptanoate	[56634-95-8]	148 (≡ 105 g/L bromoxynil)
Mefenpyr-diethyl (crop safener)	[135590-91-9]	9.4
Solvent naphtha (petroleum), heavy aromatic	[6472-94-5]	381
Other ingredients	Non-hazardous	413

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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. Seek medical advice immediately. Administer artificial respiration if breathing has stopped.

**Skin contact** Carefully remove contaminated clothing. Wash affected area with soap and water. Seek medical advice.

**Eye contact** Rinse eyes immediately with clean water for at least 15 minutes, holding eye open. Seek medical aid.

**Ingestion** Obtain immediate medical advice. Wash out mouth with water. Give water in small sips to drink. DO NOT induce vomiting. DO NOT attempt to give anything by mouth to a semi-conscious or unconscious person.

**First Aid Facilities** Provide eye wash and safety showers in the workplace.

**Medical attention**  
Symptoms  
*Local:* skin and eye irritation.  
*Systemic:* headaches, dizziness, drowsiness, other central nervous system effects, fatigue, thirst, high temperature, anxiety, hyperventilation, tachycardia and muscle rigidity, typical of malignant hyperthermia.

### Treatment

*Local:* Treat as above under First Aid Measures.

*Systemic:* As this product contains a hydrocarbon solvent, 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.

If more than a mouthful has been ingested the following measures should be considered:  
Monitor respiratory and cardiac functions and body temperature.  
Keep airway clear, administer artificial respiration if necessary.  
Gastric lavage with charcoal administration, and if necessary further treatment.  
Keep at rest.

In case of hyperthermia physical cooling is advisable. In case of muscle rigidity, relaxants and mechanical ventilation may support in counteracting hyperthermia.  
Against convulsions: give diazepam  
Contraindications: antipyretics

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## 5. FIRE FIGHTING MEASURES

Extinguishing media	Water, alcohol-resistant foam, dry powder, carbon dioxide.
Hazards from combustion products	Nitrogen oxides, hydrogen bromide, hydrogen chloride, hydrogen fluoride, sulphur oxides, hydrogen cyanide, carbon dioxide and carbon monoxide.
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). Toxic decomposition products may be produced in a fire. Isolate area. Keep unnecessary people away and upwind. If possible and without risk, remove intact containers from exposure to fire. Otherwise, spray unopened containers with water to keep cool. Contain fire-fighting water by bunding area with sand or earth to prevent it entering any bodies of water. Dispose of fire control water or other extinguishing agent and spillage safely later.
Hazchem Code	Not relevant.

## 6. ACCIDENTAL RELEASE MEASURES

Avoid contact with the spilled material or contaminated surfaces. Extinguish all possible sources of ignition. Do not smoke, eat or drink and wear personal protective clothing and equipment as described in Section 8 – PERSONAL PROTECTION. 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	Harmful if swallowed. Will irritate the eyes and skin. Avoid contact with eyes and skin. When opening the container and preparing the spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and elbow-length chemical resistant gloves. If product in eyes, wash it out immediately with water. Wash hands after use. After each day's use wash gloves 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 and protect from extreme heat.
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 an Occupational Exposure Limit for solvent naphtha (petroleum), heavy aromatic: TWA: 100 mg/m <sup>3</sup> (15 ppm). For the small amount of naphthalene present in the solvent the NOHSC Occupational Exposure Limits are: TWA: 10 ppm (52 mg/m <sup>3</sup> ), STEL: 15 ppm (79 mg/m <sup>3</sup> ). <u>Definitions:</u> <i>Exposure standard – Time Weighted Average (TWA)</i> means the average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day working week. <i>Exposure standard – Short term exposure limit (STEL)</i> means a 15 minute TWA exposure which should not be exceeded at any time during the working day.
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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION - continued

Biological limit values	None allocated.
Engineering controls	Control process conditions to avoid contact. Use local exhaust ventilation during manufacture. Use in a well-ventilated area only.
Personal Protective Equipment	Product is irritating to eyes and skin. <ul style="list-style-type: none"><li>• Wear a face shield or goggles if exposure is possible.</li><li>• Wear cotton overalls buttoned to the neck and wrist.</li><li>• Wear elbow-length PVC gloves.</li><li>• If airborne concentrations are likely to exceed the exposure standards above, an AS/NZS 1715/1716 approved respirator should be worn.</li></ul>

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear amber liquid
Odour:	Aromatic solvent odour
pH:	3.9 (10% solution)
Vapour pressure:	0.006 kPa (at 20 °C) (hydrocarbon solvent)
Vapour density:	> 1.00 (hydrocarbon solvent)
Boiling point:	220 to 290° C (boiling point range of solvent)
Freezing/melting point:	Not available
Solubility:	Emulsifies in water
Specific Gravity:	1.142
Flash Point:	91 °C (Pensky-Martens Closed Cup)
Flammability (explosive) limits:	LEL: 0.6; UEL: 7.0 Vol. % in air (hydrocarbon solvent)
Auto-ignition temperature:	395 °C
Viscosity	19.8 mPa.s at 25 °C
Partition coefficient (octanol/water):	Pyrasulfotole: Log P <sub>OW</sub> = -1.362 at 23 °C (pH 7) Bromoxynil octanoate: Log P <sub>OW</sub> = 5.9 (pH 7) Bromoxynil heptanoate: Log P <sub>OW</sub> = 5.4 (pH 7) Mefenpyr-diethyl: Log P <sub>OW</sub> = 3.83 at 21 °C (pH 6.3)

## 10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use and storage.
Conditions to avoid	Avoid sources of ignition and extreme heat.
Incompatible materials	Avoid strong oxidising agents, acids and bases.
Hazardous decomposition products	Nitrogen oxides, hydrogen bromide, hydrogen chloride, hydrogen fluoride, sulphur oxides, hydrogen cyanide, carbon dioxide and carbon monoxide may be released in a fire.
Hazardous reactions	None.

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## 11. TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

<b>Inhalation</b>	Product has low inhalation toxicity. Inhalation of solvent vapour may be irritating to respiratory tract, may cause headaches and dizziness, could be anaesthetic, and may have other central nervous system effects.
<b>Skin contact</b>	Will irritate the skin. The product had low acute dermal toxicity in the rat, and was not sensitising in the test with guinea pigs. Repeated exposure may cause skin dryness or cracking.
<b>Eye contact</b>	Will irritate the eyes.
<b>Ingestion</b>	May be harmful if swallowed. 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:

Oral toxicity	LD <sub>50</sub> rat: 500 mg/kg
Dermal toxicity	LD <sub>50</sub> rat: > 4000 mg/kg
Inhalation toxicity	LC <sub>50</sub> (4 h) rat: > 5mg/L (aerosol) - highest attainable concentration
Skin irritation	Mild skin irritation (rabbit)
Eye irritation	Moderate eye irritation (rabbit)
Sensitisation	Non-sensitising (guinea pig)

#### Chronic:

Pyrasulfotole is not mutagenic, and gave no indication of toxic effects in reproduction studies and was not teratogenic in animal studies. A possible carcinogenic effect is indicated at high doses in animal studies. The mechanism that triggers tumours in rodents is not relevant to humans.

Bromoxynil is classified by NOHSC as a Category 3 reproductive toxin.

Mefenpyr-diethyl shows no mutagenicity, reproductive toxicity or carcinogenicity in animal studies.

The solvent in this product contains small amounts of naphthalene, which is classified as a Category 3 carcinogen by NOHSC. Frequent or prolonged contact with the hydrocarbon solvent in this product may defat and dry the skin, leading to discomfort and dermatitis.

## 12. ECOLOGICAL INFORMATION

DO NOT contaminate streams, rivers or waterways with this product or used containers.

<b>Ecotoxicity</b>	<u>Pyrasulfotole:</u>	
	<i>Fish toxicity:</i>	LC <sub>50</sub> (96 h) for rainbow trout > 100 mg/L LC <sub>50</sub> (96 h) for bluegill sunfish > 100 mg/L LC <sub>50</sub> (96 h) for sheepshead minnow > 100 mg/L
	<i>Daphnia toxicity:</i>	EC <sub>50</sub> (48 h) for <i>Daphnia magna</i> > 100 mg/L
	<i>Algae toxicity:</i>	EC <sub>50</sub> (96 h) for algae 29.8 mg/L ( <i>Pseudokirchneriella subcapitata</i> )
	<i>Bird toxicity:</i>	LD <sub>50</sub> bobwhite quail > 2000 mg/kg

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## 12. ECOLOGICAL INFORMATION - continued

### Ecotoxicity

#### Bromoxynil octanoate:

*Fish toxicity:* LC<sub>50</sub> (96 h) for bluegill sunfish 0.06 mg/L  
*Daphnia toxicity:* EC<sub>50</sub> (48 h) for *Daphnia magna* 0.046 mg/L  
*Algae toxicity:* EC<sub>50</sub> (96 h) for algae 1 mg/L (*Desmodesmus subspicatus*)  
*Bird toxicity:* LD<sub>50</sub> bobwhite quail 170 mg/kg  
 LD<sub>50</sub> mallard duck 2350 mg/kg

#### Bromoxynil heptanoate:

*Fish toxicity:* LC<sub>50</sub> (96 h) for bluegill sunfish 0.029 mg/L  
*Daphnia toxicity:* EC<sub>50</sub> (48 h) for *Daphnia magna* 0.031 mg/L  
*Algae toxicity:* EC<sub>50</sub> (120 h) for algae 0.083 mg/L (*Selenastrum capricornutum*)  
*Bird toxicity:* LD<sub>50</sub> bobwhite quail 379 mg/kg

#### Mefenpyr-diethyl:

*Fish toxicity:* LC<sub>50</sub> (96 h) for rainbow trout 4.2 mg/L  
 LC<sub>50</sub> (96 h) for carp 2.4 mg/L  
*Daphnia toxicity:* LC<sub>50</sub> (48 h) for *Daphnia magna* 53 mg/L  
*Algae toxicity:* E<sub>b</sub>C<sub>50</sub> (72 h) for algae 5.8 mg/L (*Desmodesmus subspicatus*)  
*Bird toxicity:* LD<sub>50</sub> Japanese quail > 2000 mg/kg

### Environmental fate, persistence and degradability, mobility

Pyrasulfotole is not readily biodegradable. Pyrasulfotole is expected to be persistent under certain conditions and mobile in the environment.  
 Bromoxynil is degraded in soil by hydrolysis and debromination to less toxic substances such as hydroxybenzoic acid. DT<sub>50</sub> < 1 d (laboratory studies).  
 Mefenpyr-diethyl is completely mineralised in soil by hydrolysis, microbial and photolytic degradation processes; DT<sub>50</sub> < 10d.

## 13. DISPOSAL CONSIDERATIONS

### (10, 15 and 20 L containers)

Triple rinse containers before disposal. Add rinsings to spray tank. DO NOT dispose of undiluted chemicals on site. If recycling, replace caps and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. DO NOT burn empty containers or product. DO NOT re-use empty containers for any other purpose.

### (110 L returnable containers)

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 L minibulk container

If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. Empty product as required into application equipment. Do not attempted to breach the valve system or filling point, or contaminate the container with water or other products. Ensure that equipment used in transfer of the product is disconnected, triple rinsed and drained after each use. When the container is empty, close all caps and valves and return the container to the point of purchase.

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## 14. TRANSPORT INFORMATION

UN number	UN 3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (contains bromoxynil)
Class and Subsidiary Risk	Class 9
Packing Group	Packing Group III
Hazchem code	•3Z
Marine Pollutant	Yes – Bromoxynil is a Marine Pollutant, Class "P" (on IMDG list).
Note for Road and Rail Transport	According to AU01, Environmentally Hazardous Substances in packagings, IBC or any other receptacle not exceeding 500 kg or 500 L are not subject to the ADG Code

## 15. REGULATORY INFORMATION

Registered according to the Agricultural and Veterinary Chemicals Code Act, 1994

Australian Pesticides and Veterinary Medicines Authority approval number: 62444

See Section 2.

## 16. OTHER INFORMATION

Trademark information	Velocity® is a Registered Trademark of Bayer
Preparation information	Replaces 22 August, 2007 Experimental Product MSDS. Reasons for revision: Product code, Chemical group, Risk phrases, Medical attention, Handling, PPE, Chronic toxicological information, Ecological information, Disposal considerations, Regulatory information, Trademark 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