1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name	**Rovral® Liquid Fungicide**
Other names	None
Product codes and pack sizes	4207067 (5 L), 4207105 (20 L), 4782258 (60 L)
Chemical group	Dicarboximide
Recommended use	Fungicide for agricultural use
Formulation	Suspo-emulsion (SE)
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 phrase below) – NON DANGEROUS GOOD

Very toxic to aquatic organisms

Hazard classification	Hazardous (National Occupational Health and Safety Commission - NOHSC)
Risk phrases	R40 – Limited evidence of carcinogenic effect.
Safety phrases	See Sections 4, 5, 6, 7, 8, 10, 12, 13
ADG classification	See Section 14.
SUSDP classification (Poison schedule)	5 (Standard for the Uniform Scheduling of Drugs and Poisons)

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients	CAS Number	Concentration (g/L)
Iprodione	[36734-19-7]	250
Hydrocarbon liquid	[64742-56-9]	332
Other ingredients, including water	(non hazardous)	436

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 and footwear. Wash affected areas with soap and water. Seek medical aid if at all worried.
Eye contact	Rinse eyes immediately with plenty of clean water, including under eyelids for at least 15 minutes and obtain medical advice.
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.
First Aid Facilities	Ensure washing facilities are available.
Medical attention	Symptoms *Local:* May irritate the eyes and respiratory tract. *Systemic*: Nausea, vomiting, abdominal pain, loss of co-ordination may occur if swallowed. Treatment: *Local*: Treat as above under First Aid. Note for Physicians *Systemic*: 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. Due to the low oral toxicity, and the risk of aspiration into the lung, gastric lavage is not recommended. In case of ingestion of large amounts, it may be considered after adequate airway protection (intubation with block), as the risk of spontaneous vomiting with aspiration might be higher. Activated charcoal and cathartics (magnesium or sodium) should be given. Treatment should be supportive and symptomatic. Monitor kidney, liver and pancreas function.

5. FIRE FIGHTING MEASURES

Extinguishing media	Water spray, carbon dioxide, foam, dry chemical
Hazards from combustion products	In a fire, irritant and toxic fumes containing oxides of carbon and nitrogen, and hydrogen chloride may be released.
Precautions for fire fighters	This product itself is non-flammable. 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, spray unopened containers with water to keep cool. Bund area with sand or earth to prevent contamination of drains or waterways. Dispose of extinguishing agent and spillage safely later.
Hazchem code	Not applicable

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled material or contaminated surfaces. Do not smoke, eat or drink during the clean up process. Wear personal protective clothing and equipment as detailed in Section 8 PERSONAL PROTECTION. Keep people and animals away. Contain spillage. 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 drums for safe disposal. Clean floor with a damp cloth and place cloth in drum. Cover and label 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	Avoid contact with eyes and skin and avoid inhalation of vapour. Wear suitable protective clothing, gloves and goggles. If product on skin, 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, goggles and contaminated clothing.
Storage	Keep out of reach of children. Store in the closed, original container in a cool, secure, well-ventilated area. Do not store for prolonged periods in direct sunlight. Protect from frost.
Flammability	This product is not flammable.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards	There are no applicable NOHSC exposure standards.	
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	Eyes:	Safety goggles or face shield
	Clothing:	Cotton overalls buttoned to the neck and wrist and a washable hat.
	Gloves:	Elbow-length PVC gloves
	Respiratory:	Respiratory protection is not normally required. If inhalation is likely, an AS/NZS 1715/1716 approved respirator should be worn.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	White, viscous suspension
Odour:	Negligible odour
pH:	2.0 to 4.0
Vapour pressure:	Not available
Vapour density:	Not available
Boiling point:	Greater than 100° C
Freezing/melting point:	Not available
Solubility:	Miscible with water
Density:	1.018 g/mL at 20° C
Flash Point:	Not flammable

10. PHYSICAL AND CHEMICAL PROPERTIES continued

Flammability (explosive) limits:	Not available
Auto-ignition temperature:	430° C
Partition coefficient (octanol/water):	*Iprodione:* Log P_{ow} = 3.0 (pH 3 and 5)

10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal conditions of use, but may be unstable in conditions where the pH is 7 or higher.
Conditions to avoid	Avoid extreme heat.
Incompatible materials	Avoid strong acids, strong alkalis, and strong oxidising agents.
Hazardous decomposition products	Hydrogen chloride and oxides of carbon and nitrogen may be given off when exposed to extreme heat or fire.
Hazardous reactions	None

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

Inhalation	May irritate upper respiratory tract.
Skin contact	The dermal toxicity of this product is low. However, skin contact should be avoided. May irritate and dry the skin.
Eye contact	May irritate the eyes.
Ingestion	Product toxicity is low but may be harmful if a large amount is swallowed. Symptoms include nausea, vomiting, diarhoea, abdominal pain, and loss of co-ordination. 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_{50} rat: > 2000 mg/kg
Dermal toxicity	LD_{50} rat: > 2000 mg/kg
Inhalation toxicity	LC50 (rat): > 2.88 mg/L (4 hour)
Skin irritation	Non irritant (rabbit)
Eye irritation	Non irritant (rabbit)
Sensitisation	Non-sensitising (guinea pig).

11. TOXICOLOGICAL INFORMATION continued

Chronic:
Lifetime feeding studies in rodents have shown an increased incidence of tumours in animals treated at the maximum tolerated dose. Iprodione has been classified as a Category 3 carcinogen by NOHSC. Iprodione was not mutagenic in the Ames assay.

12. ECOLOGICAL INFORMATION

This product is very toxic to aquatic organisms, and may cause long-term adverse effects in the aquatic environment. It has a low hazard to birds, earthworms, bees and other beneficial insects. DO NOT contaminate streams, rivers or waterways with Rovral Liquid or the used containers.

Ecotoxicity	Iprodione:	
	Fish toxicity:	LC_{50} (96 h) 4.1 mg/L rainbow trout
		LC_{50} (96 h) 3.7 mg/L bluegill sunfish
	Daphnia toxicity:	EC_{50} (48 h) 0.25 mg/L *Daphnia magna*
	Algal toxicity:	EC_{50} (120 h) 15.3 mg/L *Selenastrum capricornutum*
	Bird toxicity:	LD_{50} > 2,000 mg/kg bobwhite quail
		LD_{50} > 10,400 mg/kg mallard duck
	Rovral Liquid:	
	Fish toxicity:	LC_{50} (96 h) 24 mg/L rainbow trout
	Daphnia toxicity:	EC_{50} (48 h) ≥ 0.48 mg/L *Daphnia magna*
	Algal toxicity:	EC_{50} (72 h) 12.8 mg/L *Scenedesmus subspicatus*
Environmental fate, persistence and degradability, mobility	Iprodione is rapidly metabolised in soil with formation of carbon dioxide. DT_{50} (lab.) 20 – 80 days; (field) 919 days. K_{oc} 202 – 543. Rate of degradation increases with successive treatments, and hence accumulation does not occur.	

13. DISPOSAL CONSIDERATIONS

5 and 20 L - 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. Do not re-use empty containers for any other purpose.

60 L - 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. 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.
Dispose of waste product via a reputable disposal contractor.

14. TRANSPORT INFORMATION

UN number	UN 3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S (contains iprodione)
Class and Subsidiary Risk	Class 9
Packing Group	Packing Group III
Hazchem code	▪3Z
Marine Pollutant	Yes
Note for Road and Rail Transport	According to AU01, Environmentally Hazardous Substances in packagings, IBCs 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: 30462 See also Section 2.

16. OTHER INFORMATION

Trademark information	Rovral® is a Registered Trademark of Bayer.
Hazard classification of hydrocarbon solvent	Note L in the List of Hazardous Substances (NOHSC) applies. The manufacturer of the hydrocarbon solvent has determined that the material contains less than 3% polyaromatics (DMSO extract) and therefore the R45 classification is not applicable. The hydrocarbon solvent is therefore classified as "non hazardous".
Preparation information	Replaces January 14th, 2009 edition. Reasons for revision: 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