

SAFETY DATA SHEET

Section 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name:	BRAVO[®] Fungicide
Other Names:	Proper shipping name: Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil) Applicable only for marine and air transport
	Product code: A12351M
Recommended Use:	Controls fungal diseases on Almonds, Bananas, Cucurbits, Grapes, Ornamentals, Peanuts, Stone Fruit, Tobacco and Vegetables as specified in the Directions for Use table.
Company Details:	Syngenta Crop Protection Pty Limited ABN 33 002 933 717
Address:	Level 1, 2-4 Lyonpark Road MACQUARIE PARK NSW 2113 AUSTRALIA
Telephone Number:	(02) 8876 8444
Emergency Telephone Number:	24 hours - 1800 033 111

Section 2: HAZARDS IDENTIFICATION

Hazard Classification:	Classified as a hazardous chemical according to the Australian criteria for the classification of chemicals
Risk Phrases:	R20/22 Harmful by inhalation and if swallowed. R37 Irritating to respiratory system. R40 Limited evidence of a carcinogenic effect. R43 May cause sensitisation by skin contact.
Safety Phrases:	—

Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE	
Chemical Identity of Pure Substance:	Chlorothalonil
Synonym:	Tetrachloroisophthalonitrile
CAS Number:	1897-45-6

MIXTURE		
Chemical Identity of Ingredients	CAS No	Proportion (% w/v)
Chlorothalonil	1897-45-6	72
Other ingredients determined not to be hazardous	-	to 100

Section 4: FIRST AID MEASURES

<p>Description of Necessary First Aid Measures:</p>	<p>In case of poisoning by any exposure route contact a doctor or Poisons Information Centre on 131 126. Have the product label or SDS with you when calling or going for treatment.</p> <p>Ingestion: If swallowed, seek medical advice immediately and show this container or label. Do not induce vomiting.</p> <p>Eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.</p> <p>Skin contact: Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.</p> <p>Inhalation: Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or Poison Information Centre immediately.</p>
<p>Poisoning Symptoms:</p>	<p>Poisoning symptoms in laboratory animals were non-specific.</p>
<p>Medical Advice:</p>	<p>There is no specific antidote available. Treat symptomatically.</p>

Section 5: FIRE FIGHTING MEASURES

<p>Suitable Extinguishing Media:</p>	<p><i>Extinguishing media - small fires</i> Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide extinguisher. DO NOT use direct jet of water.</p> <p><i>Extinguishing media - large fires</i> Use alcohol-resistant foam or water spray. DO NOT use direct jet of water.</p>
<p>Hazards from Combustion Products:</p>	<p>This product contains combustible organic components that may burn and decompose during a fire producing dense black smoke containing hazardous products of combustion. Combustion products are toxic and /or irritant. Exposure to decomposition products may be a hazard to health.</p>
<p>Special Protective Precautions and Equipment for Fire Fighters:</p>	<p>When fighting a major fire wear self-contained breathing apparatus and protective equipment.</p>

Section 6: ACCIDENTAL RELEASE MEASURES

<p>Emergency Procedures:</p>	<p>In case of spillage it is important to take all steps necessary to</p> <ul style="list-style-type: none"> • Avoid eye and skin contact • Avoid contamination of waterways
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Methods and Materials for Containment and Clean Up:	<p>Procedure for spill</p> <ol style="list-style-type: none"> (1) Keep all bystanders away (2) Wear full length clothing and PVC gloves (3) Reposition any leaking containers so as to minimise further leakage (4) Dam and absorb spill with an absorbent material (eg sand or soil) (5) Shovel the absorbed spill into drums (6) Disposal of the absorbed material will depend upon the extent of the spill <ul style="list-style-type: none"> • For quantities up to 50 L of product bury in a secure landfill site • For quantities greater than 50 L seek advice from the manufacturer (use emergency contact number below) before attempting disposal. Contain in a secure location until disposal method is established (7) Decontaminate spill area with detergent and water and rinse with the smallest volume of water practicable
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Section 7: HANDLING AND STORAGE

Precautions for Safe Handling:	<p>Attacks eyes and skin. Avoid contact with eyes and skin. DO NOT inhale spray mist. Repeated exposure may cause allergic disorders. Sensitive workers should use protective clothing. When preparing spray and using the prepared spray wear:</p> <ul style="list-style-type: none"> ▪ cotton overalls buttoned to the neck and wrist; ▪ a washable hat; ▪ elbow-length PVC gloves; ▪ goggles; and ▪ disposable mist mask. <p>If clothing becomes contaminated with product or wet with spray, remove clothing immediately. If product on skin, immediately wash area with soap and water. If product in eyes, wash it out immediately with water.</p> <p>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 and goggles and contaminated clothing</p>
Conditions for Safe Storage:	<p>Store in the closed, original container in a cool, well ventilated area. DO NOT store for prolonged periods in direct sunlight.</p>

Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

ALWAYS READ AND FOLLOW THE LABEL INSTRUCTIONS AND WARNINGS

	<i>Component</i>	<i>Exposure limit</i>	<i>Value type</i>
National Exposure Standards:	Propylene glycol	0.474 mg/L	TWA
		150 ppm	TWA
Syngenta Exposure Standards:	Chlorothalonil	0.1 mg/L	TWA
Biological Limit Values:	No biological limit allocated		
Engineering Controls:	No special requirements. Product is used outdoors.		

Personal Protective Equipment: Attacks eyes and skin. Avoid contact with eyes and skin. DO NOT inhale spray mist. Repeated exposure may cause allergic disorders. Sensitive workers should use protective clothing. When preparing spray and using the prepared spray wear:

- cotton overalls buttoned to the neck and wrist;
- a washable hat;
- elbow-length PVC gloves;
- goggles; and
- disposable mist mask.

If clothing becomes contaminated with product or wet with spray, 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 and goggles and contaminated clothing

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light grey viscous liquid	Boiling Point/Range:	100 °C
Odour:	Slightly pungent	Freezing/Melting Point:	- 5 °C
pH:	6.5 - 9.5 (1% v/v)	Solubility:	Dispersible
Vapour Pressure:	Not available	Specific Gravity or Density:	1.345 g/cm ³
Vapour Density:	Not available		

Flash Point:	Does not flash	Explosive Properties:	Not explosive
Upper and Lower Flammable (Explosive) Limits in Air:	Not available	Oxidising Properties:	Not oxidising
Ignition Temperature:	Not available	Combustibility:	Combustible
		Corrosiveness:	Not corrosive

Section 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable at normal ambient temperature and pressure.
Conditions to Avoid:	None known.
Incompatible Materials:	None known.
Hazardous Decomposition Products:	Combustion or thermal decomposition will evolve toxic and irritant vapours
Hazardous Reactions:	None known.

Section 11: TOXICOLOGICAL INFORMATION

Health Effects from Likely Routes of Exposure:	
Acute:	<p>Oral toxicity: HARMFUL Tests on rats indicate this product is harmful following single doses of undiluted product. (LD₅₀ = 2000 mg/kg)</p> <p>Dermal toxicity: LOW TOXICITY Tests on rabbits indicate this has a low toxicity following skin contact with undiluted product (LD₅₀ = >2000 mg/kg)</p> <p>Inhalation: HARMFUL Tests on rats indicate this product is harmful due to inhalation of undiluted product. LC₅₀ (4h) = 0.86 – 1.5 mg/L air)</p> <p>Skin irritation: SLIGHT IRRITANT</p> <p>Eye irritation: SEVERE IRRITANT</p> <p>Sensitisation: SENSITISER</p>
Chronic:	Chlorothalonil has been extensively tested in mammals and in test-tube systems. No evidence of mutagenic, neurotoxic, teratogenic or reproductive effects was obtained. Subchronic toxicity studies in dogs have shown kidney toxicity, and chronic toxicity studies in rats and mice have shown kidney and forestomach tumours at high doses. This is not considered to be a risk to humans when handled and used as directed on the label.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity:	<p><i>Toxicity to fish:</i> Very highly toxic to fish <i>Oncorhynchus mykiss</i> (rainbow trout): LC₅₀ = 61 µg/L, 96 h (similar formulation)</p> <p><i>Toxicity to daphnia and other aquatic invertebrates:</i> Highly toxic to aquatic invertebrates <i>Daphnia magna</i> (Water flea): EC₅₀ = 180 µg/L, 48 h (similar formulation)</p> <p><i>Toxicity to algae:</i> Highly toxic to algae <i>Pseudokirchneriella subcapitata</i> (green algae): E_rC₅₀ = 0.24 mg/L, 72 h (derived from components) <i>Pseudokirchneriella subcapitata</i> (green algae): E_bC₅₀ = 0.13 mg/L, 72 h (derived from components)</p> <p><i>Toxicity to soil dwelling organisms:</i> Slightly toxic to earthworms <i>Eisenia foetida</i> (earthworm): LC₅₀ = 881 mg/kg, 14 d</p> <p><i>Bees:</i> Non toxic to bees: Oral LD₅₀ > 200 µg/bee, Contact LD₅₀ >200 µg/bee</p>
Persistence and Degradability:	Chlorothalonil is not persistent in sol or water.
Mobility	Chlorothalonil has low to slight mobility in soil
Environmental Fate (Exposure):	Incorporated into organic molecules
Bioaccumulative Potential:	Chlorothalonil has low potential for bioaccumulation.

Section 13: DISPOSAL CONSIDERATIONS

Disposal Methods and Containers:	Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. If recycling, replace cap 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.
Special Precautions for Landfill or Incineration:	Not applicable

Section 14: TRANSPORT INFORMATION

LAND TRANSPORT ADG	Not a dangerous good in Australia		
UN Number:	None allocated	Packing Group:	None allocated
UN Proper Shipping Name:	None allocated	Special Precautions for User:	None allocated
Class:	None allocated	Hazchem Code:	None allocated
Subsidiary Risk:	None allocated		

SEA TRANSPORT IMDG			
UN Number:	3082	Subsidiary Risk:	None allocated
UN Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil)	Packing Group:	III
Class:	9	Marine Pollutant:	Yes

AIR TRANSPORT IATA - DGR			
UN Number:	3082	Subsidiary Risk:	None allocated
UN Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil)	Packing Group:	III
Class:	9		

Section 15: REGULATORY INFORMATION

APVMA Product Number:	54115
Poisons Schedule (SUSDP):	5

Section 16: OTHER INFORMATION

Date of preparation or last revision: May 2010

Source of Data: The information provided in this SDS is sourced from Syngenta internal studies which have been conducted according to Regulatory requirements including OECD and CIPAC Guidelines and EC Directives. A comprehensive package of toxicological and environmental data for the active ingredients of this product has been submitted to the government health and environment authorities and has been evaluated by expert toxicologists and environmental scientists.

Note: This product is a registered agricultural chemical and must, therefore, be used in accordance with the container label directions

CONTACT POINT: Regulatory Affairs Manager, Syngenta Crop Protection Pty Limited
(02) 8876 8444

24 HOURS EMERGENCY CONTACT: 1800 033 111

This Material Safety Data Sheet 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 SDS 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.

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