

## SAFETY DATA SHEET

### Section 1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND SUPPLIER

<b>Product Name:</b>	<b>BRAVO WeatherStik</b>
<b>Design Code:</b>	A12531M
<b>Recommended Use:</b>	For the control of fungal diseases in Fruit, Ornamentals, Turf, Vegetables and Wheat.
<b>Company Details:</b>	<b>Syngenta Crop Protection Limited</b>
<b>Address:</b>	<b>Tower II, Level 7, 110 Symonds Street Private Bag 92618, Symonds Street AUCKLAND NEW ZEALAND</b>
<b>Telephone number:</b>	<b>(weekdays) 09 - 306 1500</b>
<b>Emergency Telephone number:</b>	<b>(24 Hours) 0800 734 607</b>
<b>National Poisons &amp; Hazchem Information Centre :</b>	<b>0800 POISON (0800 764 766)</b>
<b>Date of Preparation:</b>	<b>6 March, 2013</b>

### Section 2: HAZARDS IDENTIFICATION

<b>Hazard classification:</b>	6.1B, 6.3B, 6.4A, 6.5B, 6.7B, 6.9A, 9.1A, 9.2B, 9.3B
<b>Priority Identifier:</b>	DANGER KEEP OUT OF REACH OF CHILDREN
<b>Secondary Identifiers:</b>	6.1B = May be fatal if inhaled 6.3B = May cause skin irritation 6.4A = May cause eye irritation 6.5B = May cause sensitisation from prolonged skin contact. 6.7B = May cause cancer 6.9A = May cause kidney damage from repeated oral exposure at high doses. 9.1A = Very toxic to aquatic organisms. 9.2B = Toxic to the soil environment. 9.3B = Toxic to terrestrial vertebrates.

### Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

<i>Pure Substance:</i>	
<b>Chemical Identity of pure substance:</b>	2,4,5,6-tetrachloro-1,3-benzenedicarbonitrile
<b>Common Name:</b>	Chlorothalonil
<b>Synonyms:</b>	
<b>CAS number:</b>	1897-45-6

<i>Mixture:</i>		
<b>Chemical Identity of ingredients:</b>		
<b>Ingredient</b>	<b>CAS no.</b>	<b>Content (% w/v)</b>
<b>Chlorothalonil (technical grade)</b>	1897-45-6	72
other ingredients determined not to be hazardous	-	to 100%

## Section 4: FIRST AID MEASURES

<b>Necessary First Aid measures:</b>	<p>For advice contact the National Poisons Centre on 0800 POISON (0800 764 766) or a doctor immediately. Begin artificial respiration if the victim is not breathing. Use mouth to nose rather than mouth to mouth. Obtain medical attention.</p> <p>Swallowed: If swallowed <b>DO NOT</b> induce vomiting.</p> <p>Eye: If concentrate or spray solution enters the eyes wash it out immediately with water. Remove contact lenses.</p> <p>Skin: If skin contact occurs remove contaminated clothing and wash affected areas thoroughly with running water.</p> <p>Inhaled: If inhaled move the victim to fresh air immediately</p>
<b>Poisoning symptoms:</b>	<p>No case of human poisoning due to this product is on record. The poisoning symptoms observed for laboratory mammals were non-specific. Ingestion of large amounts of the material may be expected to cause general depression, diarrhoea and irritation of the mouth, oesophagus and stomach. Eye contact may cause irritation, conjunctivitis and corneal opacity. Contact with skin may result in irritation. Inhalation of mists or aerosols may produce respiratory irritation.</p>
<b>Workplace facilities:</b>	<p>No specific facilities required. Standard emergency equipment must be available.</p>
<b>Hygiene Practices:</b>	<p>Avoid contact with skin and eyes and inhalation of concentrate or spray mist. When mixing or applying, wear protective clothing, including face shield, impervious gloves and footwear. If clothing becomes contaminated with product, remove clothing immediately. DO NOT eat, drink or smoke while using. Wash hands and exposed skin thoroughly with soap and water before meals and after work. Wash protective clothing daily after work.</p>
<b>Notes for Medical Personnel:</b>	<p>No specific antidote is available. If poisoning is suspected apply symptomatic therapy.</p>

## Section 5: FIRE-FIGHTING MEASURES

<b>Type of Hazard:</b>	<p>This product is non-flammable, non-explosive and is non-combustible.</p>
<b>Fire Hazard Properties:</b>	<p>Decomposition products in a fire are toxic and or irritant. Measures have to be taken to prevent the contaminated extinguishing agent from seeping into the ground or from spreading uncontrollably.</p>
<b>Regulatory Requirements:</b>	<p>not required</p>
<b>Extinguishing Media and methods:</b>	<p>Extinguish warehouse and factory fires using dry chemical extinguisher, foam, carbon dioxide or fine-water spray. DO NOT use direct jet of water.</p>
<b>Hazchem Code:</b>	<p>2X</p>
<b>Recommended Protective Clothing:</b>	<p>When fighting a major fire wear an air-supplied respirator. Wear protective equipment.</p>

## Section 6: ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions:</b>	<b>Emergency Procedures:</b> Ensure suitable personal protection during removal of spillages. This means wearing eye protection, chemically resistant gloves, boots and overalls.
<b>Environmental Precautions:</b>	Washings must be prevented from entering surface water drains or waterways.
<b>Procedure for spill:</b>	<ol style="list-style-type: none"><li>(1) Keep all bystanders away.</li><li>(2) Wear goggles, half face-piece respirator with combined dust and vapour cartridge, full length clothing and PVC gloves.</li><li>(3) Reposition any leaking containers so as to minimise further leakage.</li><li>(4) Dam and absorb spill with an absorbent material (e.g. sand or soil).</li><li>(5) Shovel the absorbed spill into drums.</li><li>(6) Decontaminate the spill area with detergent and water and rinse with the smallest volume of water practicable.</li></ol>
<b>Procedure for Disposal:</b>	Disposal of the absorbed material will depend upon the extent of the spill. Contaminated material must be disposed of in accordance with all local authority requirements. It is suggested: <ul style="list-style-type: none"><li>• For quantities up to 50 litres of product bury in a secure approved landfill site.</li><li>• For quantities greater than 50 litres seek advice from the manufacturer (use emergency contact number below) before attempting disposal. Contain in a secure location until disposal method is established.</li></ul>

## Section 7: HANDLING AND STORAGE

<b>Precautions for safe handling:</b>	<b>Handling:</b> No special technical protective measures required. No special handling advice required.
<b>Regulatory Requirements:</b>	This product must be tracked.
<b>Handling practices:</b>	Avoid contact with skin and eyes and inhalation of concentrate or spray mist. When using, do not eat, drink or smoke. Wash face and hands before eating, drinking or smoking.
<b>Approved Handlers:</b>	This product must be under the control of an Approved Handler.
<b>Conditions for Safe Storage:</b>	<b>Storage:</b> Keep out of reach of children. Keep in original containers and tightly closed. Keep away from food, drink and animal feeding stuffs. Store in a cool, dry, well ventilated place and protect from sunlight.
<b>Store Site Requirements:</b>	Signage and secondary containment will be required at sites holding 100 litres or more of any product classified as 9.1A (eg BRAVO WeatherStik)
<b>Packaging:</b>	Store in original container, tightly closed, away from foodstuffs.

## Section 8: EXPOSURE CONTROL / PERSONAL PROTECTION

ALWAYS READ AND FOLLOW THE LABEL INSTRUCTIONS AND WARNINGS

<b>Workplace Exposure Guidelines:</b>	
<b>Workplace Exposure Standards:</b>	Chlorothalonil TWA: 0.1 mg/m <sup>3</sup>
<b>Application in the workplace:</b>	Not required
<b>Exposure standards outside the workplace:</b>	Not required
<b>Engineering controls:</b>	<p>No special requirements. Product is used outdoors. Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use. If airborne mists or vapors are generated, use local exhaust ventilation controls. Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit.</p> <p>Follow precaution statements on the label and the use and safety directions in Code of Practice for the Management of agrichemical NZS8409.</p>
<b>Personal Protection:</b>	Use only protective equipment bearing the mark of the Standards Association with Australia/ New Zealand. In case of heavy exposure, wear half face-piece respirator with combined dust and vapour cartridge, chemical resistant gloves and heavy duty cotton overalls.
<b>General Hygiene:</b>	Change work clothes daily. May irritate the eyes and skin. Avoid contact with eyes and skin. Do not inhale spray mist. If product gets 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.

## Section 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	light grey viscous liquid
<b>Odour:</b>	Slightly pungent
<b>Boiling Point:</b>	>100°C
<b>Melting Point:</b>	-5°C
<b>Specific Gravity:</b>	1.35 g/cm <sup>3</sup>
<b>pH value</b>	6.5-9.5
<b>Flashpoint:</b>	Does not flash
<b>Explosive properties:</b>	Not applicable
<b>Water solubility:</b>	dispersible
<b>Vapour Pressure:</b>	Not available
<b>Oxidising properties:</b>	Not applicable

## Section 10: STABILITY AND REACTIVITY

<b>Stability of the Substance:</b>	Stable under standard conditions.
<b>Conditions to Avoid:</b>	None known
<b>Material to Avoid:</b>	none known
<b>Hazardous decomposition products</b>	none known
<b>Hazardous polymerisation Specific Data</b>	not known not applicable

## Section 11: TOXICOLOGICAL INFORMATION

### HSNO Classifications:

- 6.1B = May be fatal if swallowed, inhaled or absorbed through the skin.
- 6.3B = May cause skin irritation
- 6.4A = May cause eye irritation
- 6.5B = May cause sensitisation from prolonged skin contact.
- 6.7B = May cause cancer
- 6.9A = May cause kidney damage from repeated oral exposure at high doses.

### Acute Effects (Undiluted product)

Swallowed:	LD <sub>50</sub>	10,000 mg/kg (rat)
Dermal absorption:	LD <sub>50</sub>	10,000 mg/kg (rat)
Inhaled:	LC <sub>50</sub> (4 h)	0.1 mg/l (rat)
<b>Irritation</b>		
Eye:	<b>IRRITANT</b> (rabbit)	
Skin:	<b>IRRITANT</b> (rabbit )	
<b>Sensitization</b>	<b>SKIN SENSITISER</b> (guinea pigs)	

### Chronic / Long Term Effects (Active Ingredient)

**Chlorothalonil technical** has been extensively tested on laboratory mammals and in test-tube systems. No evidence of neurotoxic, mutagenic, 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: ENVIRONMENTAL INFORMATION

### HSNO Classifications:

- 9.1A = Very toxic to aquatic organisms.
- 9.2B = Toxic to the soil environment.
- 9.3B = Toxic to terrestrial vertebrates.

<b>Environmental Risk and Safety Phrases:</b>	Avoid contamination of any water supply with chemical or empty container
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The information presented below is for the active ingredient, chlorothalonil. A thorough review of environmental information is not possible in this document.

#### **Ecotoxicity Effects**

<b>Toxicity to Birds:</b>	LD <sub>50</sub> (8 d) = >4640 (mallard duck) 8 day dietary LC <sub>50</sub> = >10,000 mg/kg (bobwhite quail and mallard duck)
<b>Acute toxicity to fish:</b>	LC <sub>50</sub> (96 h) = 49 µg/L (Rainbow trout) LC <sub>50</sub> (96 h) = 62 µg/L (Bluegill sunfish) LC <sub>50</sub> (96 h) = 44 µg/L (Channel catfish)
<b>Growth inhibition, Algae:</b>	EC <sub>50</sub> (120 h) = 210 µ/L (Selenastrum capricornutum (green algae))
<b>Toxicity to aquatic Invertebrates:</b>	LC <sub>50</sub> (48h) = 70 µg/L (Daphnia magna (water flea))
<b>Toxicity to soil dwelling organisms:</b>	LC <sub>50</sub> (14 days) = >404 mg/kg (earthworms)
<b>Toxicity to Bees:</b>	LD <sub>50</sub> (48 h, oral) = >63 µg/bee LD <sub>50</sub> (48 h, contact) = >101 µg/bee

#### **Environmental Fate**

The information presented here is for the active ingredient, chlorothalonil.  
K<sub>oc</sub> 1600 (sand) to 14,000 (silt) indicating low mobility to immobile. In aerobic and anaerobic soil studies, DT<sub>50</sub> is 0.3-28 days (20°C). Stable to hydrolysis at pH 5-7; at pH 9 (22°C), DT<sub>50</sub> is 38 days. Degradation is faster in biotic aquatic systems; typical DT<sub>50</sub> (aerobic) <8 hours, (anaerobic) <10 days. A wide variety of metabolites are formed, which are, in turn, degraded further. K<sub>ow</sub> logP = 2.92 (25°C)

### **Section 13: DISPOSAL CONSIDERATIONS**

<b>Product Disposal:</b>	Dispose of this product only by using according to the label, or at an approved landfill or other approved facility.
<b>Container Disposal:</b>	Ensure the container is empty. Triple rinse empty container and add rinsate to the spray tank. Recycle empty container through Agrecovery (0800 247 326, <a href="http://www.agrecovery.co.nz">www.agrecovery.co.nz</a> ). Otherwise crush and bury in a suitable landfill. DO NOT reuse this container for any other purpose.

## Section 14: TRANSPORT INFORMATION

<b>Rail / Road (RID/ADR)</b>	UN-No:	3082
	Class:	9
	Packaging Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Chlorothalonil)
<b>Sea (IMDG-Code)</b>	UN-No:	3082
	Class:	9
	Packaging Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Chlorothalonil)
	MARINE POLLUTANT:	Yes
<b>Air (ICAO/IATA)</b>	UN-No:	3082
	Class:	9
	Packaging Group:	III
	Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Chlorothalonil)

## Section 15: REGULATORY INFORMATION

<b>HSNO Approval Number:</b>	HSR000670
<b>HSNO Controls (inc. Tracking and Record Keeping):</b>	See <a href="http://www.epa.govt.nz/search-databases/Pages/controls-search.aspx">http://www.epa.govt.nz/search-databases/Pages/controls-search.aspx</a> for controls.
<b>ACVM Registration:</b>	P 7065
<b>ACVM Controls:</b>	See <a href="http://www.foodsafety.govt.nz/industry/acvm">www.foodsafety.govt.nz/industry/acvm</a> for registration conditions.

## Section 16: OTHER INFORMATION

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

**CONTACT POINT:** Business Manager - Crop Protection: (09) 306 1503  
**24 HOURS EMERGENCY CONTACT:** 0800 734 607

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 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.

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### DISCLAIMER

This product complies with the specifications in its statutory registration. Implied terms and warranties are excluded. Syngenta's liability for breach of the express or any non-excludable implied warranty is limited to product replacement or purchase price refund. The purchaser must determine suitability for intended purpose and take all proper precautions in the handling, storage and use of the product including those on the label and/or safety data sheet failing which Syngenta shall have no liability.