

## SAFETY DATA SHEET

### Section 1: IDENTIFICATION OF THE MATERIAL AND SUPPLIER

<b>Product Name:</b>	<b>ZOLIAR® DF Herbicide</b>
<b>Other Names:</b>	<b>Proper shipping name:</b> Environmentally Hazardous Substance, Solid, N.O.S. (Norflurazon) <b>Applicable only for marine and air transport</b>
	<b>Product code:</b> A10146A
<b>Recommended Use:</b>	Pre-emergent selective residual control of grass and broadleaf weeds in cotton, citrus, grapes, nuts pome and stone fruit.
<b>Company Details:</b>	<b>Syngenta Crop Protection Pty Limited</b> ABN 33 002 933 717
<b>Address:</b>	<b>Level 1, 2-4 Lyonpark Road</b> <b>MACQUARIE PARK NSW 2113</b> <b>AUSTRALIA</b>
<b>Telephone Number:</b>	<b>(02) 8876 8444</b>
<b>Emergency Telephone Number:</b>	<b>24 hours - 1800 033 111</b>

### Section 2: HAZARDS IDENTIFICATION

<b>Hazard Classification:</b>	Classified as a hazardous chemical according to the Australian criteria for the classification of chemicals
<b>Risk Phrases:</b>	R22 Harmful if swallowed R36/38 Irritating to eyes and skin
<b>Safety Phrases:</b>	—

### Section 3: COMPOSITION / INFORMATION ON INGREDIENTS

<b>SUBSTANCE</b>	
<b>Chemical Identity of Pure Substance:</b>	Norflurazon
<b>Synonym:</b>	SAN9789
<b>CAS Number:</b>	27314-13-2

<b>MIXTURE</b>		
<b>Chemical Identity of Ingredients</b>	<b>CAS No</b>	<b>Proportion (% w/w)</b>
Norflurazon	27314-13-2	80
Other ingredients determined not to be hazardous	-	to 100

## Section 4: FIRST AID MEASURES

<p><b>Description of Necessary First Aid Measures:</b></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><b>Ingestion:</b> If swallowed, seek medical advice immediately and show this container or label. DO NOT induce vomiting.</p> <p><b>Eye contact:</b> 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><b>Skin contact:</b> 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><b>Inhalation:</b> 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><b>Poisoning Symptoms:</b> <b>Medical Advice:</b></p>	<p>Poisoning symptoms in laboratory animals were non-specific Treat symptomatically.</p>

## Section 5: FIRE FIGHTING MEASURES

<p><b>Suitable Extinguishing Media:</b></p> <p><b>Hazards from Combustion Products:</b></p> <p><b>Special Protective Precautions and Equipment for Fire Fighters:</b></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 water spray or alcohol-resistant foam. DO NOT use direct jet of water.</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. Exposure to decomposition products may be a hazard to health. Flash back possible over considerable distance.</p> <p>Wear full protective clothing and self-contained breathing apparatus.</p>
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## Section 6: ACCIDENTAL RELEASE MEASURES

<p><b>Emergency Procedures:</b></p>	<p>In case of spillage it is important to take all steps necessary to</p> <ul style="list-style-type: none"> <li>• Avoid eye and skin contact</li> <li>• Avoid contamination of waterways</li> </ul>
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<b>Methods and Materials for Containment and Clean Up:</b>	<p><b>Procedure for spill</b></p> <ol style="list-style-type: none"> <li>(1) Keep all bystanders away</li> <li>(2) Wear full length clothing and PVC gloves</li> <li>(3) Reposition any leaking containers so as to minimise leakage</li> <li>(4) Sweep spilt material into a pile</li> <li>(5) Shovel into drums</li> <li>(6) Disposal of the material will depend upon the extent of the spill             <ul style="list-style-type: none"> <li>• For quantities up to 50 kg of product bury in a secure landfill site</li> <li>• For quantities greater than 50 kg 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> </li> <li>(7) Decontaminate spill area with detergent and water and rinse with the smallest volume of water practicable</li> </ol>
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## Section 7: HANDLING AND STORAGE

<b>Precautions for Safe Handling:</b>	Avoid contact with skin and eyes. DO NOT inhale dust or spray mist. After use and before eating, drinking or smoking wash hands, arms and face thoroughly with soap and water
<b>Conditions for Safe Storage:</b>	Store in closed original container in a dry, well ventilated place cool as possible out of direct sunlight. Keep out of reach of children.

## 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>
<b>National Exposure Standards:</b>	No exposure standard allocated		
<b>Syngenta Exposure Standards:</b>	Norflurazon	3 mg/m <sup>3</sup>	TWA
<b>Biological Limit Values:</b>	No biological limits allocated		
<b>Engineering Controls:</b>	No special requirements. Product is used outdoors.		
<b>Personal Protective Equipment:</b>	Avoid contact with skin and eyes. DO NOT inhale dust or spray mist. 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 to dark brown granules	<b>Boiling Point/Range:</b>	Not applicable
<b>Odour:</b>	Odourless	<b>Freezing/Melting Point:</b>	177°C
<b>pH:</b>	~6.4	<b>Solubility in water:</b>	Miscible
<b>Vapour Pressure:</b>	<0.75 mbar at 25°C	<b>Bulk Density:</b>	0.704 g/cm <sup>3</sup>
<b>Vapour Density:</b>	Not available		

<b>Flash Point:</b>	Not applicable	<b>Explosive Properties:</b>	Not explosive
<b>Upper and Lower Flammable (Explosive) Limits in Air:</b>	Not applicable	<b>Oxidising Properties:</b>	Not oxidising
<b>Ignition Temperature:</b>	600°C	<b>Combustibility:</b>	Not applicable
		<b>Corrosiveness:</b>	Not corrosive

## Section 10: STABILITY AND REACTIVITY

<b>Chemical Stability:</b>	Stable under standard conditions.
<b>Conditions to Avoid:</b>	None known.
<b>Incompatible Materials:</b>	None known.
<b>Hazardous Decomposition Products:</b>	Combustion or thermal decomposition will evolve toxic and irritant vapours.
<b>Hazardous Reactions:</b>	None known. Hazardous polymerization does not occur.

## Section 11: TOXICOLOGICAL INFORMATION

<b>Health Effects from Likely Routes of Exposure:</b>	
<b>Acute:</b>	<p><b>Oral toxicity: HARMFUL</b> Tests on rats indicate this product is harmful following single doses of undiluted product. (LD<sub>50</sub> = 1140 mg/kg)</p> <p><b>Dermal toxicity: LOW TOXICITY</b> Tests on rabbits indicate this product has a low toxicity following skin contact with undiluted product. (LD<sub>50</sub> = &gt;2000 mg/kg)</p> <p><b>Inhalation: LOW TOXICITY</b> Tests on rats indicate this product is not harmful due to inhalation a similar formulation. (LC<sub>50</sub> (4h) = &gt; 2.6 mg/L air)</p> <p><b>Skin irritation: SLIGHT IRRITANT</b></p> <p><b>Eye irritation: SLIGHT IRRITANT</b></p> <p><b>Sensitisation: NOT A SENSITISER</b></p>
<b>Chronic:</b>	Norflurazon technical has been extensively tested on laboratory mammals and in test-tube systems. No evidence was obtained of mutagenic, carcinogenic, teratogenic neurotoxic or reproductive effects.

## Section 12: ECOLOGICAL INFORMATION

<b>Ecotoxicity:</b>	<p><i>Toxicity to fish:</i> <b>Slightly toxic to fish</b> <i>Oncorhynchus mykiss</i> (rainbow trout): LC<sub>50</sub> = 16 mg/L, 96 h</p> <p><i>Toxicity to daphnia and other aquatic invertebrates:</i> <b>Slightly toxic to aquatic invertebrates</b> <i>Daphnia magna</i> (Water flea): EC<sub>50</sub> = 19 mg/L, 48 h</p> <p><i>Toxicity to algae:</i> <b>Very highly toxic to algae</b> <i>Pseudokirchneriella subcapitata</i> (green algae): E<sub>b</sub>C<sub>50</sub> = 34 µg/L, 72 h</p>
<b>Persistence and Degradability:</b>	Norflurazon is persistent in soil and water.
<b>Mobility</b>	Norflurazon has medium mobility in soil.
<b>Environmental Fate (Exposure):</b>	Incorporated into organic molecules.
<b>Bioaccumulative Potential:</b>	Norflurazon does not bioaccumulate.

## Section 13: DISPOSAL CONSIDERATIONS

<b>Disposal Methods and Containers:</b>	Store in the closed, original container in a dry, well ventilated area, as cool as possible out of direct sunlight. Keep out of reach of children.
<b>Special Precautions for Landfill or Incineration:</b>	Not applicable.

## Section 14: TRANSPORT INFORMATION

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

<b>SEA TRANSPORT IMDG</b>			
<b>UN Number:</b>	3077	<b>Subsidiary Risk:</b>	-
<b>UN Proper Shipping Name:</b>	Environmentally Hazardous Substance, Solid, N.O.S. (Norflurazon)	<b>Packing Group:</b>	III
<b>Class:</b>	9	<b>Marine Pollutant:</b>	Yes

<b>AIR TRANSPORT</b> IATA - DGR	
<b>UN Number:</b> 3077	<b>Subsidiary Risk:</b> -
<b>UN Proper Shipping Name:</b> Environmentally Hazardous Substance, Solid, N.O.S. (Norflurazon)	<b>Packing Group:</b> III
<b>Class:</b> 9	

### Section 15: REGULATORY INFORMATION

<b>APVMA Product Number:</b> 45804
<b>Poisons Schedule (SUSDP):</b> Exempt

### Section 16: OTHER INFORMATION

<b>Date of preparation or last revision:</b> May 2010
<b>Source of Data:</b> 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.
<b>Note: This product is a registered agricultural chemical and must, therefore, be used in accordance with the container label directions</b>
<b>CONTACT POINT:</b> Regulatory Affairs Manager, Syngenta Crop Protection Pty Limited (02) 8876 8444 <b>24 HOURS EMERGENCY CONTACT: 1800 033 111</b>
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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