

**1. IDENTIFICATION**

**Product Identifier:** **Zoliar® 800 DF Herbicide**

**Other Means of Identification:** Norflurazon

**Recommended Use of the Chemical and Restrictions on Use:** **Herbicide**

**Details of Manufacturer or Importer:** AgNova Technologies Pty Ltd  
Unit 4, 482 Kingsford Smith Drive  
Hamilton Qld 4007 Australia  
(03) 9899 8100  
[agnova.com.au](http://agnova.com.au)

**Emergency Phone Number:** 1800 033 111 (24 hrs) IXOM ERS  
13 11 26 Poisons Information Centre

**2. HAZARD(S) IDENTIFICATION**

**GHS CLASSIFICATIONS**

**WARNING**

Suspected of causing cancer (H351)

Causes eye irritation (H320)

Harmful if swallowed (H302)

Very toxic to aquatic life (H400)



**HAZARD CLASSIFICATION**

<b>Health Hazards</b>	<b>Category</b>	<b>Physical Hazards</b>	<b>Category</b>
Carcinogenicity	2	None	--
Eye Irritation/Corrosion	2B		
Acute toxicity, oral	4	<b>Environmental Hazards</b>	<b>Category</b>
		Hazardous to the Aquatic Environment	1
		– Acute	

**HAZARDS NOT REQUIRING CLASSIFICATION**

None



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#### PRECAUTIONARY STATEMENTS

Obtain, read and follow all safety instructions before use. Wash hands thoroughly after handling. Do not touch eyes. Do not eat, drink, or smoke when using this product. Wear protective gloves/protective clothing/face protection. (P203+P264+P265+P270+P280) If exposed or concerned, get medical advice. (P318)

**IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical help. (P305+P351+P338+P337+P317)

**IF SWALLOWED:** Get medical help. Rinse mouth. (P301+P317+P330)

Avoid release to the environment not in accordance with the product label. Collect spillage. (P273+P391)

Store locked up. (P405)

Dispose of contents / container using instructions in the product label and in accordance with local / Federal regulations. (P501)

#### OTHER CLASSIFICATIONS

**ADG Classification:** Not classified as Dangerous Goods for land transport under the Australian Code for Transport of Dangerous Goods by Road and Rail, 7<sup>th</sup> Edition, special provision AU01 – refer Section 14

**SUSMP Classification:** Not scheduled (Standard for Uniform Scheduling of Medicines and Poisons)

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

Ingredients:	CAS Number:	Concentration (% w/w):
Norflurazon [3(2H)-Pyridazinone, 4-chloro-5-(methylamino)-2-[3-(trifluoromethyl)phenyl]-	27314-13-2	78.6

### 4. FIRST AID MEASURES

**If poisoning occurs, immediately contact a doctor or Poisons Information Centre (Phone 13 11 26), and follow the advice given. Show this Safety Data Sheet to a doctor.**

#### Description of Necessary First Aid Measures:

**Ingestion:** Call a poison control centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control centre or doctor. Do not give anything by mouth to an unconscious person.



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<b>Inhalation:</b>	Move person to fresh air. If person is not breathing, call 000, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control centre or doctor for further treatment advice.
<b>Skin Contact:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.
<b>Eye Contact:</b>	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.
<b>First Aid Facilities:</b>	Provide washing facilities in the workplace.
<b>Symptoms Caused by Exposure:</b>	No data available.
<b>Medical Attention and Special Treatment:</b>	Not specified.

#### 5. FIREFIGHTING MEASURES

<b>Suitable Extinguishing Equipment:</b>	Use dry chemical, foam or CO <sub>2</sub> . If water is used to fight fire, dike and collect runoff.
<b>Specific Hazards Arising from the Chemical:</b>	This material can be thermally unstable at elevated temperatures. During a fire, irritating and possible toxic gases may be generated by thermal decomposition or combustion.
<b>Special Protective Equipment and Precautions for Firefighters:</b>	Wear full protective clothing and self-contained positive pressure breathing apparatus. Evacuate personnel and keep upwind of fire. If area is heavily exposed to fire and if conditions permit, let fire burn itself out since water may increase the area contaminated. Do not allow run-off from firefighting to enter drains or water courses. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
<b>Hazchem Code:</b>	2Z



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#### 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures:**

Isolate area and keep unnecessary and unprotected personnel from entering. Wear suitable personal protective clothing and equipment as described in Section 8 of this document. Ensure adequate ventilation.

**Environmental Precautions:**

Contain spillage and minimise spread. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high-water mark. Keep out of drains, sewers, ditches and water ways. Do NOT contaminate water when disposing of rinse waters.

**Methods and Materials for Containment and Cleaning Up:**

Avoid creating dust during cleanup. Sweep, scoop or shovel spilled material and place into suitable closed containers for reuse or disposal. After decontamination, spill area can be washed with water. Collect washwater for approved disposal. Place leaking containers in oversize leakproof drums for transport.

#### 7. HANDLING AND STORAGE

**Precautions for Safe Handling:**

Avoid contact with skin, eyes, or clothing. In case of skin or eye contact, flush with plenty of water.

**Conditions for Safe Storage, including any Incompatibilities:**

Store in a well-ventilated, secure area out of reach of children and domestic animals. Do not contaminate water, food, or feed by storage or disposal.

#### 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Personnel who handle this product in its end-use application should use this product in accordance with its pesticide labelling.

**Exposure Standards:** None established.

**Biological Monitoring:** No data available.



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<b>Engineering Controls:</b>	General ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.
<b>Individual Protection Measures, for example, Personal Protective Equipment (PPE):</b>	No specific personal protective equipment required. Wash hands after use and before eating. Wash contaminated clothing before reuse.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Appearance:</b>	Light brown to dark brown granules
<b>Odour:</b>	Odourless
<b>Vapour Pressure:</b>	$1.0 \times 10^{-5}$ mmHg @ 24°C
<b>Vapour Density:</b>	705 kg/m <sup>3</sup>
<b>Bulk Density:</b>	0.72 g/cm <sup>3</sup> (typical)
<b>Boiling Point:</b>	No data available
<b>Melting/Freezing Point:</b>	174-180°C
<b>Solubility:</b>	33.7 ppm @ 25° C
<b>pH:</b>	6-9 (5% susp. in H <sub>2</sub> O @ 25°C)
<b>Flash Point:</b>	No data available
<b>Flammability:</b>	Combustible powder
<b>Flammability (explosive) Limits:</b>	Not applicable
<b>Auto-Ignition Temperature:</b>	Not available
<b>Partition Coefficient:</b>	Not available
<b>Decomposition Temperature:</b>	Not available



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#### 10. STABILITY AND REACTIVITY

<b>Reactivity:</b>	Not reactive under normal use and storage conditions.
<b>Chemical Stability:</b>	Stable under normal use and storage conditions.
<b>Possibility of Hazardous Reactions:</b>	Will not occur.
<b>Conditions to Avoid:</b>	None known.
<b>Incompatible Materials:</b>	None known.
<b>Hazardous Decomposition Products:</b>	None known.

#### 11. TOXICOLOGICAL INFORMATION

**Acute Toxicity:**

<b>Oral Toxicity:</b>	LD <sub>50</sub> Rat 1140 mg/kg
<b>Dermal Toxicity:</b>	LD <sub>50</sub> Rabbit >2000 mg/kg
<b>Inhalation Toxicity:</b>	LC <sub>50</sub> Rat 2.6 mg/L (4 hr exposure)
<b>Skin Corrosion/Irritation:</b>	Slightly irritating (rabbit)
<b>Serious Eye Damage/Irritation:</b>	Mildly irritating (rabbit)
<b>Respiratory or Skin Sensitisation:</b>	Not a sensitiser (guinea pig)
<b>Reproductive Toxicity:</b>	Norflurazon did not cause developmental toxicity in a rat study.
<b>Germ Cell Mutagenicity:</b>	Negative mutagenicity data and no positive analogues.



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<b>Carcinogenicity:</b>	US EPA: Group C: Possible human carcinogen ACGIH: Not Listed IARC: Not Listed NTP: Not Listed OSHA: Not Listed
<b>Specific Target Organ Toxicity (STOT) – single exposure:</b>	No data available
<b>Specific Target Organ Toxicity (STOT) – repeated exposure:</b>	No data available
<b>Aspiration Hazard:</b>	No data available
<b>Other information:</b>	There was no evidence of neurotoxicity or immunotoxicity in the database for norflurazon.

## 12. ECOLOGICAL INFORMATION

This product is very toxic to aquatic plants and moderately toxic to aquatic invertebrates.

*This information is based on the active ingredient: Norflurazon*

### **Ecotoxicity:**

#### **Aquatic Toxicity:**

Acute:

96 hr LC<sub>50</sub> Rainbow trout = 8.1 mg/L

96 hr LC<sub>50</sub> Sheepshead = 9.58 mg/L

48-hour EC<sub>50</sub> Eastern oyster = 3.8 mg/L

48-hour LC<sub>50</sub> Mysid Shrimp = 5.5 mg/L

72-hour IC<sub>50</sub> Duckweed = 0.006 mg/L

Chronic:

NOAEC Rainbow Trout = 0.77 mg/L

NOAEC Mysid Shrimp = 0.475 mg/L

NOAEC Duckweed = 0.005 mg/L

#### **Daphnia Toxicity:**

48 hr LC<sub>50</sub> Water flea (*Daphnia magna*) >15 mg/L

#### **Bird Toxicity:**

LD<sub>50</sub> Mallard >2510 mg/kg bodyweight

LC<sub>50</sub> Bobwhite quail dietary >10000 mg/kg



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<b>Bee Toxicity:</b>	LD <sub>50</sub> Honeybee >235 µg a.i./bee
<b>Persistence and Degradability:</b>	Persistent in soil. Stable in water
<b>Bioaccumulative Potential:</b>	Low bioaccumulation potential
<b>Mobility in Soil:</b>	Moderate mobility in soil
<b>Other Adverse Effects:</b>	Floats in water (after 24 h)

#### 13. DISPOSAL CONSIDERATIONS

<b>Disposal Containers and Methods:</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. Single rinse containers before disposal. Add rinsings to the spray tank. DO NOT dispose of undiluted chemicals on site. Puncture and bury the containers in a local authority landfill. If not 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.
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#### 14. TRANSPORT INFORMATION

<b>Road and Rail Transport (ADG):</b>	Not classified as Dangerous Goods under the ADG7 when being transported in IBCs or other receptacles <500 L (kg), (Special Provision AU01).
<b>Marine Transport (IMDG):</b>	Classified as Dangerous Goods for transport by sea according to the criteria of the UN Model Regulations for Transport of Dangerous Goods 13 <sup>th</sup> Edition
<b>Air Transport (IATA):</b>	Classified as Dangerous Goods for transport by air according to the criteria of the UN Model Regulations for Transport of Dangerous Goods 13 <sup>th</sup> Edition
<b>UN Number:</b>	<b>3077</b>
<b>Proper Shipping Name or Technical Name:</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (norflurazon)





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<b>Transport Hazard Class:</b>	9
<b>Packing Group Number:</b>	III
<b>Environmental Hazards for Transport Purposes:</b>	Marine Pollutant. Non-bulk packaging (max capacity of 450 L or less for liquids or 400 kg or less for solids) transported by motor vehicle, rail car or aircraft are excepted from all Marine Pollutants regulations and therefore treated as non-hazardous material. All bulk shipments or any shipment transported partially or entirely by vessel are treated as regulated Marine Pollutants and are shipped according to the requirements listed above.
<b>Special Precautions for User:</b>	None specified
<b>Additional Information:</b>	None
<b>Hazchem Code:</b>	2Z

#### 15. REGULATORY INFORMATION

<b>APVMA</b>	Registered according to the Agricultural and Veterinary Chemicals Code Act 1994 (Cwlth). APVMA Product Number: 63329
<b>SUSMP</b>	Not scheduled

#### 16. OTHER INFORMATION

<b>Date of Preparation or Revision:</b>	23 December 2022
<b>Reason for Revision:</b>	Updated to GHS7
<b>Abbreviations and Acronyms:</b>	ACGIH – American Conference of Governmental Industrial Hygienists, Inc. ADG7 – Australian Dangerous Goods Code for Road and Rail Transport, 7 <sup>th</sup> Edition



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APVMA – Australian Pesticides and Veterinary Medicines Authority  
EC – Effective Concentration  
EPA – Environmental Protection Agency (USA)  
GHS - Globally Harmonised System of Classification and Labelling of Chemicals  
IARC – International Agency for Research on Cancer  
IBC – Intermediate Bulk Container  
IC – Inhibitory Concentration  
LC – Lethal Concentration  
LD – Lethal Dose  
OSHA – Occupational Safety & Health Administration (USA)  
NOAEC – No Observed Adverse Effect Concentration  
NTP – National Toxicology Program  
SUSMP – Standard for the Uniform Scheduling of Medicines and Poisons

**Data Sources:** Manufacturer product safety data and published data

This SDS 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.

The opinions expressed herein are those of qualified experts with the manufacturer. Since the use of this information and of these opinions and the conditions of use of this product are not within the control of AgNova Technologies Pty Ltd, it is the user's obligation to determine the conditions of safe use of the product.

END OF SDS