

Syngenta Crop Protection, Inc.
Post Office Box 18300
Greensboro, NC 27419

In Case of Emergency, Call
1-800-888-8372

1. PRODUCT IDENTIFICATION

Product Name: **ZORIAL RAPID 80 HERBICIDE** Product No.: A10146A
 EPA Signal Word: Caution
 Active Ingredient(%): Norflurazon (78.6%) CAS No.: 27314-13-2
 Chemical Name: 4-Chloro-5-(methylamino)-2-(alpha, alpha, alpha-trifluoro-m-tolyl)-3-(2H)-pyridazinone
 Chemical Class: Fluorinated Phenol Pyridazinone Herbicide
 EPA Registration Number(s): 100-848 **Section(s) Revised: 2, 3, 8, 11, 14**

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Norflurazon (78.6%)	Not Established	Not Established	Not Established	No

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
 Syngenta Hazard Category: B, S

3. HAZARDS IDENTIFICATION
Symptoms of Acute Exposure

Causes mild eye and skin irritation. Harmful if swallowed.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Light brown to dark brown granules

Odor: Odorless

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

4. FIRST AID MEASURES

Have the product container, label or Material Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Have the person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.

Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Notes to Physician

There is no specific antidote if this product is ingested.

Treat symptomatically.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method): Not Applicable

Flammable Limits (% in Air): Lower: % Not Applicable Upper: % Not Applicable

Autoignition Temperature: Not Available

Flammability: Not Flammable

Unusual Fire, Explosion and Reactivity Hazards

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

In Case of Fire

Use dry chemical, foam or CO₂ extinguishing media. Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. If water is used to fight fire, dike and collect runoff.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Sweep up material and place in a compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact: Where eye contact is likely, use chemical splash goggles.

Skin Contact: Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

Inhalation: A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light brown to dark brown granules
Odor:	Odorless
Melting Point:	345 - 356°F
Boiling Point:	Not Applicable
Specific Gravity/Density:	44.00 lbs./cu.ft.
pH:	7.7 (5% suspension in H ₂ O)

Solubility in H₂O

Norflurazon: 33.7 ppm @ 77°F (25°C)

Vapor Pressure

Norflurazon: 1.0 x 10⁽⁻⁵⁾ mmHg @ 75°F (24°C)

10. STABILITY AND REACTIVITY

Stability:	Stable under normal use and storage conditions.
Hazardous Polymerization:	Will not occur.
Conditions to Avoid:	None known.
Materials to Avoid:	None known.
Hazardous Decomposition Products:	Can decompose at high temperatures forming toxic gases.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	<u>Slightly Toxic</u>	
	Oral (LD ₅₀ Rat) :	1,140 mg/kg body weight
Dermal:	<u>Slightly Toxic</u>	
	Dermal (LD ₅₀ Rabbit) :	> 2,000 mg/kg body weight
Inhalation:	<u>Practically Non-Toxic</u>	
	Inhalation (LC ₅₀ Rat) :	> 2.6 mg/l air - 4 hours
Eye Contact:	Mildly Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	Not a Sensitizer (Guinea Pig)	

Reproductive/Developmental Effects

Norflurazon: Delayed ossification (rabbit); Maternal toxicity at 750 ppm (rat).

Chronic/Subchronic Toxicity Studies

Norflurazon: Accelerated ageing changes in rats at high dose levels (1025 ppm). Effects in pituitary, adrenals, uterus and ovaries (rats). Hepatocellular hypertrophy in high dose (male mice). Slight increase in liver weight at 200 ppm (male dogs).

Carcinogenicity

Norflurazon: Increase in hepatomas at highest dose level (male mice).

Other Toxicity Information

None

Toxicity of Other Components

Not Applicable

Target Organs

Active Ingredients

Norflurazon: Pituitary, adrenal, uterus, ovary, liver

Inert Ingredients

: Not Applicable

12. ECOLOGICAL INFORMATION

Summary of Effects

Norflurazon:

Slightly toxic to fish and invertebrates. Practically non-toxic to birds and bees.

Eco-Acute Toxicity

Norflurazon:

Bees LC50/EC50 > 235 ug/bee

Invertebrates (Water Flea) LC50/EC50 > 15 ppm

Fish (Trout) LC50/EC50 10.7 ppm

Fish (Bluegill) LC50/EC50 18 ppm

Birds (8-day dietary - Bobwhite Quail) LC50/EC50 > 10,000 ppm

Birds (8-day dietary - Mallard Duck) LC50/EC50 > 10,000 ppm

Eco-Chronic Toxicity

Norflurazon:

Not Available

Environmental Fate

Norflurazon:

The information presented here is for the active ingredient, norflurazon.

Low bioaccumulation potential. Persistent in soil. Stable in water. Moderate mobility in soil. Floats in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA

Not regulated by U.S. DOT.

Air Transport - NAFTA

Not regulated by U.S. DOT

B/L Freight Classification

Herbicides, NOI

Comments

Water Transport - International

Not regulated by IMO

Air Transport - International

Not regulated by IATA.

ADR/RID European Road and Rail

Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Norflurazon)

Hazard Division or Class: Class 9

Identification #: UN 3077

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard

Section 313 Toxic Chemicals: Norflurazon (78.6%) (CAS No. 27314-13-2)

California Proposition 65

Not Applicable

CERCLA/SARA 302 Reportable Quantity (RQ)

None

RCRA Hazardous Waste Classification (40 CFR 261)

Not Applicable

TSCA Status

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 1
Flammability: 1
Instability: 0

HMIS Hazard Ratings

Health: 1
Flammability: 1
Reactivity: 0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 11/01/1995

Revision Date: 03/15/2005

Replaces: 04/30/2003

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.

RSVP# : SCP-955-848A-00162G

End of MSDS