



MATERIAL SAFETY DATA SHEET

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: **PREDICT 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): 100-849 **Section(s) Revised: 2, 3, 5, 7, 14**

2. HAZARDS IDENTIFICATION

Health and Environmental

Harmful if swallowed or inhaled. May be harmful in contact with skin. Causes mild eye and skin irritation.

May form flammable dust-air mixture.

Hazardous Decomposition Products

None known.

Physical Properties

Appearance: Light brown to dark brown granules

Odor: Odorless

Unusual Fire, Explosion and Reactivity Hazards

This material can be thermally unstable at elevated temperatures. The material is thermally stable at normal ambient temperatures. It is good practice to store the material away from sources of heat such as steam pipes, radiators or heaters.

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

See also Sec. 7.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Norflurazon (78.6%)	Not Established	Not Established	3 mg/m ³ TWA ***	No

*** Syngenta Occupational Exposure Limit (OEL)

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

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:	Combustible powder	

Unusual Fire, Explosion and Reactivity Hazards

This material can be thermally unstable at elevated temperatures. The material is thermally stable at normal ambient temperatures. It is good practice to store the material away from sources of heat such as steam pipes, radiators or heaters.

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

See also Sec. 7.

In Case of Fire

Use appropriate extinguishing media for combustibles in the area. 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

This material is capable of forming flammable dust clouds in air, which, if ignited, can produce a dust cloud explosion. Flames, hot surfaces, mechanical sparks and electrostatic discharges can serve as ignition sources for this material. Electrical equipment

should be compatible with the flammability characteristics of this material. The flammability characteristics will be made worse if the material contains traces of flammable solvents or is handled in the presence of flammable solvents.

This material can become readily charged in most operations.

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 AND PACKAGING 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 dust-proof chemical goggles.
- Skin Contact: Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear.
- Inhalation: A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH certified respirator with any N, R, P or HE filter.

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 lbs/ft³
- pH: 7.7 (5% suspension in H₂O)

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: None known.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product)

- Ingestion: Oral (LD50 Rabbit) : > 1140 mg/kg body weight
- Dermal: Dermal (LD50 Rat) : > 2000 mg/kg body weight
- Inhalation:

Inhalation (LC50 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

Ecotoxicity Effects

Norflurazon:

Fish (Rainbow Trout) 96-hour LC50 8.1 ppm

Green Algae 5-day EC50 13 ppb

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 > 15 ppm

Bird (Bobwhite Quail) 14-day LD50 > 1000 mg/kg

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.

Comments

Water Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Norflurazon), Marine Pollutant
Hazard Class or Division: Class 9
Identification # : UN 3077
Packing Group: PG III

Air Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Norflurazon)
Hazard Class or Division: Class 9
Identification # : UN 3077
Packing Group: PG III

Note: This product is currently not regulated for airfreight within the NAFTA region. However, effective 01/01/2011 the above classification must be used.

15. REGULATORY INFORMATION

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard
Fire 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: 2
Instability: 0

HMIS Hazard Ratings

Health: 1
Flammability: 2
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: 1/2/1994

Revision Date: 7/23/2010

Replaces: 9/25/2009

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.

End of MSDS