

**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: **FLEXSTAR** Product No.: A12967A  
 EPA Signal Word: Warning  
 Active Ingredient(%): Fomesafen Sodium Salt (22.1%) CAS No.: 108731-70-0  
 Chemical Name: 5-[2-chloro-4-(trifluoromethyl)phenoxy]-N-(methylsulfonyl)-2-nitrobenzamide, sodium salt  
 Chemical Class: Contact Broadleaf Herbicide  
 EPA Registration Number(s): 100-1101 **Section(s) Revised: 2, 11, 12**

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Cyclohexanol (<= 11.1%)	50 ppm TWA	50 ppm TWA (skin)	50 ppm TWA (skin)	No
Fomesafen Sodium Salt (22.1%)	Not Established	Not Established	2 mg/m <sup>3</sup> TWA (based on Fomesafen Technical)**	No

\*\*\* Syngenta Occupational Exposure Limit (OEL)

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

**3. HAZARDS IDENTIFICATION**
Symptoms of Acute Exposure

Causes eye and skin irritation. Toxic if swallowed or absorbed through the skin. Allergic skin reactions are possible.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Liquid (microemulsion)

Odor: Not determined

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.

Probable mucosal damage may contraindicate gastric lavage.

#### Medical Condition Likely to be Aggravated by Exposure

Not available.

## **5. FIRE FIGHTING MEASURES**

### Fire and Explosion

Flash Point (Test Method): > 212°F  
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. Cover entire spill with absorbing material and place into 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. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

**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: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P or R 95 or HE class filter and an organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmosphere-supplying respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid (microemulsion)  
Odor: Not determined  
Melting Point: Not Available  
Boiling Point: Not Available  
Specific Gravity/Density: 1.08 g/ml  
pH: 7.2 - 9 (1% w/w dilution in deionized water)

### Solubility in H<sub>2</sub>O

Fomesafen Sodium Salt: Not Applicable

### Vapor Pressure

Fomesafen Sodium Salt: Not Available

## 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: Oxidizing agents.  
Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity/Irritation Studies (Finished Product)

Ingestion: Slightly Toxic  
Oral (LD50 Rat) : > 3,863 mg/kg body weight  
Dermal: Slightly Toxic  
Dermal (LD50 Rat) : > 2,000 mg/kg body weight  
Inhalation: Practically Non-Toxic  
Inhalation (LC50 Rat) : > 2.1 mg/l air - 4 hours  
Eye Contact: Moderately Irritating (Rabbit)  
Skin Contact: Moderately Irritating (Rabbit)  
Skin Sensitization: A moderate skin sensitizer in animal tests.

### Reproductive/Developmental Effects

Fomesafen Sodium Salt: Non-genotoxic in in vitro and in vivo assays.  
Hepatic changes and a small effect on reproductive performance seen in a 3-generation rat study at the 1000 ppm dose level. (based on Fomesafen Technical).

### Chronic/Subchronic Toxicity Studies

Fomesafen Sodium Salt: Liver effects seen at 10 pm and 100 ppm in 90-day rat feeding studies and in 6-month dog studies at 25 mg/kg/d. (based on Fomesafen Technical).  
No evidence of neurotoxicity from subacute or longer-term studies in mammals. (based on Fomesafen Technical)

### Carcinogenicity

Fomesafen Sodium Salt: Increased rates of malignant liver tumors in a 2-yr mouse feeding study (1000 ppm), but the results are not considered relevant to man. (based on Fomesafen Technical).

### Other Toxicity Information

None

### Toxicity of Other Components

Cyclohexanol (<= 11.1%)

May cause severe eye irritation, possible burns. Causes skin irritation. Ingestion causes gastrointestinal irritation. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness and nausea. Inhalation of high concentrations may cause central nervous system effects.

### Target Organs

#### Active Ingredients

Fomesafen Sodium Salt: Liver (based on Fomesafen Technical)

#### Inert Ingredients

Cyclohexanol: Eye, skin, gastrointestinal tract, CNS

## 12. ECOLOGICAL INFORMATION

### Summary of Effects

Fomesafen Sodium Salt:  
Toxic to fish. (based on Fomesafen Technical)

### Eco-Acute Toxicity

Fomesafen Sodium Salt: Rainbow Trout 96-hour LC50 170 mg/L  
Bluegill Sunfish 96-hour LC50 1,507 mg/L  
Mallard Oral LD50 >5,000 mg/kg  
Mallard 5-day Dietary LC50 >20,000 mg/kg  
Daphnia magna 48-hour EC50 0.33 g/L  
Green Algae EC50 170 ug/L  
Bobwhite Quail 5-day LC50 >20,000 mg/kg  
The above Ecotoxicity Data are based on Fomesafen Technical, not Fomesafen Sodium Salt

### Eco-Chronic Toxicity

Fomesafen Sodium Salt: Not Available

### Environmental Fate

Fomesafen Sodium Salt:  
The information presented here is for the active ingredient, fomesafen.  
Persistent in soil. Stable in water. Highly mobile in soil. Will leach. Sinks 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

Not regulated.

B/L Freight Classification

Herbicides, NOIBN

Comments

None.

**15. REGULATORY INFORMATION**

EPCRA SARA Title III Classification

Section 311/312 Hazard Classes: Acute Health Hazard  
Chronic Health Hazard

Section 313 Toxic Chemicals: Fomesafen Sodium Salt (22.1%) (CAS No. 108731-70-0)  
Cyclohexanol (<= 11.1%) (CAS No. 108-93-0)

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: 2  
Flammability: 1  
Instability: 0

HMIS Hazard Ratings

Health: 2  
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: 02/10/1998

Revision Date: 06/28/2004

Replaces: 04/27/2004

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-955-00362C

End of MSDS