

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: **ORION HERBICIDE** Product No.: A15898A
 EPA Signal Word: Caution
 Active Ingredient(%): Florasulam (0.39%) CAS No.: 145701-23-1
 Chemical Name: 2',6',8-trifluoro-5-methoxy[1,2,4]triazolo[1,5-c]pyrimidine-2-sulfonanilide
 Chemical Class: Herbicide
 Active Ingredient(%): MCPA-2-Ethylhexyl (42.25%) CAS No.: 29450-45-1
 Chemical Name: Acetic acid, (4-chloro-2-methylphenoxy)-, 2-ethylhexyl ester
 Chemical Class: Herbicide
 EPA Registration Number(s): 100-1307 **Section(s) Revised: 14**

2. HAZARDS IDENTIFICATION
Health and Environmental

May be harmful if swallowed. Irritating to eyes and skin. May cause an allergic skin reaction. May cause irritation of the upper respiratory tract (nose and throat) and lungs.

Hazardous Decomposition Products

None known.

Physical Properties

Appearance: Tan white liquid

Odor: Mild

Unusual Fire, Explosion and Reactivity Hazards

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Propylene Glycol	Not Established	Not Established	10 mg/m ³ TWA ****	No
Florasulam (0.39%)	Not Established	Not Established	Not Established	No
MCPA-2-Ethylhexyl (42.25%)	Not Established	Not Established	Not Established	No

**** Recommended by AIHA (American Industrial Hygiene Association)

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

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.

Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.

Medical Condition Likely to be Aggravated by Exposure

None known.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	> 212°F (Pensky-Martens CC)	
Flammable Limits (% in Air):	Lower: Not Applicable	Upper: Not Applicable
Autoignition Temperature:	Not Available	
Flammability:	Not Applicable	

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 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 chemical splash goggles.
Skin Contact:	Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, 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 approved respirator with any N, R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Tan white liquid
Odor:	Mild
Melting Point:	Not Applicable
Boiling Point:	Not Available
Specific Gravity/Density:	1.034 g/ml
pH:	Not Available

Solubility in H₂O

Florasulam:	0.121 g/l in pure water @ 68°F (20°C)
MCPA-2-Ethylhexyl:	Immiscible with water

Vapor Pressure

Florasulam:	7.5 x 10 ⁽⁻⁸⁾ mmHg
MCPA-2-Ethylhexyl:	2 x 10 ⁽⁻⁶⁾ mmHg @ °64F

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 Female Rat) :	3129 mg/kg body weight
Dermal:	Dermal (LD50 Rabbit) :	> 5000 mg/kg body weight
Inhalation:	Inhalation (LC50 Rat) :	> 5.64 mg/l air - 4 hours
Eye Contact:	See "Other Toxicity Information", Sec. 11	
Skin Contact:	See "Other Toxicity Information", Sec. 11	
Skin Sensitization:	Sensitizing (Mouse)	

Reproductive/Developmental Effects

Florasulam: Teratology (Birth Defects): Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects to the mother.

Reproductive Effects: Did not interfere with reproduction in laboratory animal studies.

Mutagenicity: In-vitro and animal genetic toxicity studies were negative.

MCPA-2-Ethylhexyl: Caused birth defects in laboratory animals only at doses toxic to the mother.

In animal studies, did not interfere with reproduction.

In-vitro and animal genetic toxicity studies were negative.

Chronic/Subchronic Toxicity Studies

Florasulam: Not Available

MCPA-2-Ethylhexyl: Not Available

Carcinogenicity

Florasulam: Did not cause cancer in laboratory animals.

MCPA-2-Ethylhexyl: Did not cause cancer in laboratory animals.

Other Toxicity Information

Eye: May cause slight eye irritation. Corneal injury is unlikely.

Skin: Brief contact may cause moderate skin irritation with local redness.

Toxicity of Other Components

Propylene Glycol

Test results reported in Section 11 for the final product take into account any acute hazards related to the propylene glycol in the formulation.

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea.

Chronic dietary exposure caused kidney and liver injury in experimental animals.

Target Organs

Active Ingredients

Florasulam: Kidney, liver

MCPA-2-Ethylhexyl: Not Applicable

Inert Ingredients

Propylene Glycol: CNS, kidney, liver

12. ECOLOGICAL INFORMATION

Ecotoxicity Effects

Florasulam:

Bird (Dietary) LC50 > 5000 ppm

Aquatic Organisms LC50/EC50 0.1 - 1.0 mg/l

Bird LD50 501 - 2000 mg/kg

MCPA-2-Ethylhexyl:

Fish (Rainbow Trout) 96-hour LC50 3.2 mg/l

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 0.29 mg/l

Algae 72-hour EC50 0.11 mg/l

Environmental Fate

Florasulam:

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

Half-life in soils is dependent on soil type and conditions and is approximately 2-18 days. Degradation is microbially mediated and occurs readily, dependent on conditions. There is no evidence of any significant leaching, therefore it is

unlikely to contaminate ground water. Average half-life in water is 9-29 days.

MCPA-2-Ethylhexyl:

The information presented here is for the active ingredient, MCPA-2-Ethylhexyl.

Fairly mobile, but rapidly degraded in aerobic soils. Rapidly degraded in aerobic soils (MCPA aerobic half-life = 24 days). The ester has been shown to quickly hydrolyze to the acid. Potential for bioaccumulation is low based on log Pow MCPA (-0.81 @ pH7).

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, Liquid, N.O.S. ([2-Ethylhexyl(4-Chloro-2-MethylPhenoxy)Acetate], Florasulam), Marine Pollutant

Hazard Class: Class 9

Identification Number: UN 3082

Packing Group: PG III

Air Transport - International

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. ([2-Ethylhexyl(4-Chloro-2-MethylPhenoxy)Acetate], Florasulam)

Hazard Class: Class 9

Identification Number: UN 3082

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
Chronic Health Hazard

Section 313 Toxic Chemicals: Not Applicable

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: 10/10/2007

Revision Date: 10/4/2010

Replaces: 10/28/2009

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