



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: LAST CALL™ Selective Herbicide

EPA Reg. No.: 228-719

Product Type: Herbicide

Company Name: Nufarm Americas Inc.
11901 S. Austin Avenue
Alsip, IL 60803
1-800-345-3330

Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night: 1-800-424-9300
For Medical Emergencies Only, Call 1-877-325-1840

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not the same as the FIFRA label. Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

2. HAZARDS IDENTIFICATION

PHYSICAL HAZARDS:

Not Hazardous

HEALTH HAZARDS:

Skin corrosion/skin irritation	Category 2
Reproductive Toxicity	Category 1B
Specific target organ toxicity – Repeated Exposure	Category 2

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, acute	Category 2
Hazardous to aquatic environment, chronic	Category 2

SIGNAL WORD:

DANGER

HAZARD STATEMENTS:

Causes skin irritation. May damage fertility of the unborn child. May cause damage to kidneys through prolonged or repeated exposure. Toxic to aquatic life with long lasting effects.



PRECAUTIONARY STATEMENTS

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors, mists or spray. Wash thoroughly after handling. Wear protective clothing and gloves. Avoid release to the environment.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash it before reuse. IF exposed or concerned: Get medical advice. Store locked up. Dispose of contents in accordance with local, state, and federal regulations

OTHER HAZARDS: Dimethyl sulfoxide is extremely rapidly absorbed through the skin and may increase the absorption of other ingredients in this product. Avoid all skin contact.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
1-Methylheptyl Ester of Fluroxypyr	81406-37-3	3.8 – 4.2
Fenoxaprop-P-ethyl	71283-80-2	2.6 – 2.9
Dicamba (3,6-Dichloro-o-Anisic Acid)	1918-00-9	2.6 – 2.9
N-Methyl-2-pyrrolidinone	872-50-4	9.5 – 10.5
Dimethyl Sulfoxide	67-68-5	40 - 60
Other Ingredients	Trade Secret	Trade Secret

Synonyms: Mixture of Fluroxypyr, Fenoxaprop, and Dicamba

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

If on Skin or Clothing: Take off contaminated clothing. Wash skin immediately with plenty of soap and water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

If in Eyes: Hold eye open and rinse slowly and gently with water for several minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation persists.

If Swallowed: Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. If symptoms develop, get medical advice.

If Inhaled: Move person to fresh air. If symptoms develop, get medical advice.

Most Important symptoms/effects, acute and delayed: Exposure to eye causes mild irritation. Exposure to skin causes moderate irritation. May cause adverse reproductive effects. May damage the kidneys. May be rapidly absorbed through the skin accentuating the effects of the hazardous ingredients.

Indication of Immediate medical attention and special treatment if needed: None expected. For ingestion there is no specific antidote available. Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.

Special Fire Fighting Procedures: Firefighters should wear NIOSH approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion Hazards: If water is used to fight fire, contain runoff, using dikes to prevent contamination of water supplies. Dispose of fire control water later.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as hydrogen chloride and oxides of carbon, sulfur and nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.

Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.

Methods for Clean-Up and Disposal: Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.

Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

HANDLING:

Do not get in eyes, on skin or on clothing. Keep product away from excessive heat and open flames. Users should wash hands, face, and arms with soap and water before eating, smoking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

STORAGE:

Always use original container to store pesticides in a secured warehouse or storage building. Protect from freezing. Store at temperatures above 25° F. Do not store over 100°F or below 40°F. Do not store near oxidizing agents. Protect product from freezing. If allowed to freeze, remix before using. This does not alter the product. Containers should be opened in well-ventilated areas. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not store near open containers of fertilizer, seed or other pesticides. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation.

Personal Protective Equipment:

Eye/Face Protection: To avoid contact with eyes, wear goggles or safety glasses.

Skin Protection: To avoid contact with skin, wear long pants, long-sleeved shirt, and shoes plus socks. When mixing, loading or using any hand-held equipment, wear chemical-resistant gloves. Washing facilities should be readily accessible to the work area.

Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides.

General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) Do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored. 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

Component	OSHA		ACGIH		Unit
	TWA	STEL	TWA	STEL	
Fluroxypyr	NE	NE	NE	NE	
Fenoxaprop	NE	NE	NE	NE	
Dicamba	NE	NE	NE	NE	
N-Methyl-2-pyrrolidinone*	NE	NE	NE	NE	
Dimethyl sulfoxide	NE	NE	250 AIHA WEEL	NE	ppm
Other Ingredients	NE	NE	NE	NE	

NE = Not Established

*California OSHA PEL: 1 ppm. ACGIH BEI: 100 mg/l at end of shift. AIHA WEEL 10 ppm skin

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear orange liquid
Odor:	Mild, sweet citrus
Odor threshold:	No data available
pH:	3.08 (1% w/w dilution in DIW) @ 25° C
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	204° F (95.5° C) Setaflash
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	No data available

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Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	1.070 g/mL @ 25° C; 1.080 g/mL @ 38° C
Solubility(ies):	No data available
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	8.83 cPs @ 25° C; 6,19 cPs @ 38° C

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical Stability: This material is stable under normal handling and storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Excessive heat. Do not store near heat or flame.

Incompatible Materials: Strong oxidizing agents: bases and acids.

Hazardous Decomposition Products: Under fire conditions may produce gases such as hydrogen chloride and oxides of carbon, sulfur and nitrogen.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, eye and skin contact.

Eye Contact: Mildly irritating.

Skin Contact: Moderately irritating based on toxicity studies. Overexposure by skin absorption may cause symptoms similar to those for ingestion. May be rapidly absorbed through the skin accentuating the effects of the hazardous ingredients.

Ingestion: May cause nausea, vomiting, and abdominal pain.

Inhalation: Low inhalation toxicity. May cause symptoms similar to those from ingestion.

Delayed, immediate and chronic effects of exposure: May damage the kidneys through prolonged or repeated exposure. May adversely affect reproduction..

Toxicological Data:

Data from laboratory studies conducted on a similar, but not identical, formulation:

Oral: Rat LD₅₀: >5,000 mg/kg (female)

Dermal: Rat LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >5.04 mg/L (no mortalities at highest dose tested)

Eye Irritation: Rabbit: Mildly irritating

Skin Irritation: Rabbit: Moderately irritating (PDII= 2.5)

Skin Sensitization: Not a contact sensitizer in the Local Lymph Node Assay in Mice.

Subchronic (Target Organ) Effects: Repeated overexposure to Fluroxypyr may cause effects to bone marrow, kidney, liver and respiratory tract. Fenoxaprop-p-ethyl caused kidney, liver and/or adrenal effects in long-term dietary studies in rats, mice and dogs. Repeated overexposure to Dicamba may cause liver changes or a decrease in body weight.

Carcinogenicity/Chronic Health Effects: Fluroxypyr did not cause cancer in laboratory animals. Dicamba did not cause cancer in long-term animal studies. Fenoxaprop-p-ethyl caused liver and adrenal gland tumors at the highest dose tested in mice. However, there was no evidence of carcinogenicity in a combined chronic/carcinogenicity study in rats treated with Fenoxaprop-p-ethyl. The U.S. EPA has given Dicamba a Class D classification (not classifiable as to human carcinogenicity). No increase in tumors was seen in rats via dietary or inhalation exposure to NMP for two years; however, an increase in liver tumors was noted in mice receiving high dietary doses over a similar period. Liver tumors are not uncommon when non-genotoxic chemicals such as NMP are tested in the mouse bioassay. Taking into account all of the information, there is no indication that NMP is carcinogenic.

Reproductive Toxicity: Fluroxypyr has been shown not to interfere with reproduction. Fenoxaprop-p-ethyl was not a reproductive toxicant in a two-generation study in rats. In animal studies. Dicamba did not interfere with fertility in reproduction studies in laboratory animals. NMP may adversely affect reproduction in rats after ingestion.

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Developmental Toxicity: Fluroxypyr did not cause birth defects in animals; other effects were seen in the fetus only at doses which caused toxic effects in the mother. Fenoxaprop-p-ethyl is not a primary developmental toxicant in rats and rabbits. Developmental effects were observed in both species but not considered secondary to maternal toxicity. Animal tests with Dicamba have not demonstrated developmental effects. Fetal developmental effects were observed following ingestion, inhalation and dermal exposures to NMP in pregnant animals.

Genotoxicity: In vitro and in vivo animal tests with these actives did not demonstrate genotoxic or mutagenic effects. Neither *in vitro* nor *in vivo* tests on NMP demonstrated mutagenic effects.

Assessment Carcinogenicity:

This product contains substances that are considered to be probable or suspected human carcinogens as follows:

Component	Regulatory Agency Listing As Carcinogen			
	ACGIH	IARC	NTP	OSHA
Fluroxypyr methylheptyl ester	No	No	No	No
Fenoxaprop	No	No	No	No
Dicamba	No	No	No	No
N-Methyl-2-pyrrolidinone	No	No	No	No
Dimethyl Sulfoxide	No	No	No	No
Other ingredients	No	No	No	No

12. ECOLOGICAL INFORMATION

Environmental Hazards:

Drift or runoff from treated areas may be hazardous to aquatic organisms and non-target plants.

Data on Fluroxypyr 1-Methylheptyl Ester*:

Acute LC₅₀ Blue Gill: above water solubility Bobwhite Quail Acute Oral LD₅₀: >2,000 mg/kg
Acute LC₅₀ Rainbow Trout: above water solubility Mallard Duck Acute Oral LC₅₀: >2,000 mg/kg
Acute Immobilization EC 50 Daphnia Magna: >499 µg/L

*Fluroxypyr 1-Methylheptyl Ester is highly insoluble in water.

Data on Fenoxaprop:

96-hour LC₅₀ Rainbow Trout: 0.46 mg/L Bobwhite Quail Oral LD₅₀ > 2,000 mg/kg
96-hour LC₅₀ Bluegill Sunfish: 0.58 mg/L Mallard Duck Oral LC₅₀: >2,000 mg/kg
72-hour IC₅₀ Algae: > 0.51 mg/L Honeybee (Oral) LC₅₀ 17 mg/bee

Data on Dicamba:

96-hour LC₅₀ Bluegill: 135 mg/l Bobwhite Quail 8 day Dietary LC₅₀: >10,000 ppm
96-hour LC₅₀ Rainbow Trout: 135 mg/l Mallard Duck 8 day Dietary LC₅₀: >10,000 ppm
48 hour EC₅₀ Daphnia: 110 mg/l

Environmental Fate:

Fluroxypyr has a hydrolysis half-life of 12.8 to 16.5 hours. Under aerobic and anaerobic soil conditions the half-life for Fluroxypyr is 7 days. Fenoxaprop-p-ethyl is slightly soluble in water, adsorbs strongly to soils, and has low mobility. Dicamba has low bioaccumulation potential, is not persistent in soil, is highly mobile in soil and degrades rapidly.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Pesticide wastes are toxic. If container is damaged or if pesticide has leaked, contain all spillage. Absorb and clean up all spilled material with granules or sand. Place in a closed, labeled container for proper disposal. Improper disposal of excess pesticide, spray mixtures, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling and Disposal:

Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse container (or equivalent) promptly after emptying. **Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water

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and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this SDS.

DOT

Non Regulated

IMDG

UN3082, Environmentally hazardous substance, liquid, n.o.s. (Fenoxaprop-P-ethyl, 1-Methylheptyl Ester of Fluroxypr), 9, III

IATA

UN3082, Environmentally hazardous substance, liquid, n.o.s. (Fenoxaprop-P-ethyl, -Methylheptyl Ester of Fluroxypr), 9, III

15. REGULATORY INFORMATION

EPA FIFRA INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing

U.S. FEDERAL REGULATIONS

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use.

SARA Hazard Notification/Reporting:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370.66):

Acute Health, Chronic Health

Section 313 Toxic Chemical(s):

Dicamba (CAS No. 1918-00-9), 2.6 – 2.9% by weight in product

N-Methyl-2-pyrrolidinone (CAS No. 872-50-4), 9.5 – 10.5% by weight in product

Reportable Quantity (RQ) under U.S. CERCLA:

Dicamba (CAS No. 1918-00-9) 1,000 pounds

RCRA Waste Code:

Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65: WARNING. This product contains chemicals known to the State of California to cause birth defects or other reproductive harm. (N-Methyl-2-pyrrolidinone)

16. OTHER INFORMATION

National Fire Protection Association (NFPA) Hazard Rating:

Rating for this product: Health: 2 Flammability: 1 Reactivity: 0

Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and

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others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of Federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Nufarm Americas Inc. makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Nufarm Americas Inc. be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS AND ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED.

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