

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****Product Name:** Thistrol® Herbicide**EPA Reg. No.:** 71368-5**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 on the FIFRA label. Certain sections are superseded by federal law governed by EPA for a registered pesticide.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:

Eye irritation	Category 2A
Skin irritation	Category 2
Skin sensitization	Category 1

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, chronic and acute	Category 3
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SIGNAL WORD:

WARNING

HAZARD STATEMENTS:

Causes serious eye irritation. Causes skin irritation. May cause an allergic skin reaction. Harmful to aquatic life with long-lasting effects.

**PRECAUTIONARY STATEMENTS**

Avoid breathing vapors or mists. Wash thoroughly after handling. Contaminated clothing should not be allowed out of the workplace. Wear protective clothing, protective gloves and eye protection. Avoid unintended release to the environment.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical attention. Take off and wash contaminated clothing before reuse.

IF IN EYES: .Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Dispose of contents in accordance with local, state, and federal regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
Sodium salt of 4-(4-chloro-2-methylphenoxy)butyric acid (MCPB)	6062-26-6	22.75 – 24.2
Other Ingredients	Trade Secret	Trade Secret

Synonyms: Mixture of Na⁺ salt of MCPB (2-Methyl-4-chlorophenoxybutyric acid or 4-Chloro-2-methylphenoxybutyric acid)

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

4. FIRST AID MEASURES

If in Eyes: Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

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

If Inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Most important symptoms/effects: May cause moderate eye irritation. May cause moderate skin irritation.

Indication of immediate medical attention and special treatment needed: Immediate medical attention is generally not required. 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/MSHA 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 or cool containers, dike to prevent runoff contamination of municipal sewers and waterways.

Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as hydrogen chloride and oxides of carbon 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 Cleanup 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 or on clothing. Avoid contact with skin. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Wash with plenty of soap and water before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

SAFETY DATA SHEET

Thistrol Herbicide

Remove 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:

Store in original container in a dry, secured storage area. Keep container tightly closed when not in use. Protect from freezing. If allowed to freeze, hold in warm temperature for several days and remix before using. 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 chemical goggles or shielded safety glasses. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: To avoid contact with skin wear long-sleeved shirt and long pants, shoes plus socks, chemical resistant gloves. An emergency shower or water supply 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	
Sodium Salt of 4-(4-chloro-2-methylphenoxy)butyric acid (MCPB)	NE	NE	NE	NE	
Other Ingredients	NE	NE	NE	NE	

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Dark amber liquid
Odor:	Slightly phenolic
Odor threshold:	No data available
pH:	7.30 (1% w/w dispersion in DIW)
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	>212° F (>100° C)
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper/lower flammability or explosive limits:	No data available
Vapor pressure:	No data available
Vapor density:	No data available
Relative density:	1.105 mg/L @ 20° 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:	5.636 cSt @ 20° C; 3.410 cSt @ 40° 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: This product is not normally reactive.

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

Conditions to Avoid: Keep away from heat, sparks and open flame. Minimize dust generate and accumulation.

SAFETY DATA SHEET

Thistrol Herbicide

Possibility of Hazardous Reactions: : Hazardous polymerization will not occur.

Incompatible Materials: Strong oxidizing agents. Strong acids, Strong bases.

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

11. TOXICOLOGICAL INFORMATION

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

Symptoms of Exposure:

Eye Contact: Moderately irritation to the eye.

Skin Contact: Moderately irritating to the skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Ingestion: Harmful if swallowed.

Inhalation: Not toxic according to studies.

Delayed, immediate and chronic effects of exposure: None reported.

Toxicological Data:

Data from the MCPB EPA RED are given below:

Oral, Rat LD₅₀: 5,000 mg/kg

Dermal, Rabbit LD₅₀: >5,000 mg/kg

Inhalation, Rat 4-hr LC₅₀: >2.07 mg/L (no mortalities at highest dose tested)

Eye Irritation, Rabbit: Moderately irritating (MMTS= 41.0)

Skin Irritation, Rabbit: Moderately Irritating (PDII=4.3)

Skin Sensitization, Guinea Pig: Contact Sensitizer

Subchronic (Target Organ) Effects: Repeated overexposure to phenoxy herbicides may cause effects to liver, kidneys, blood chemistry, and gross motor function. Rare cases of peripheral nerve damage have been reported, but extensive animal studies have failed to substantiate these observations, even at high doses for prolonged periods.

Carcinogenicity / Chronic Health Effects: The International Agency for Research on Cancer (IARC) lists exposure to chlorophenoxy herbicides as a class 2B carcinogen, the category for limited evidence for carcinogenicity in humans. However, newer rat and mouse lifetime feeding studies did not show carcinogenic potential for MCPB. US EPA classifies MCPB as not likely to be carcinogenic in humans

Reproductive Toxicity: Studies with MCPB do not indicate an enhanced sensitivity or susceptibility to young animals.

Developmental Toxicity: Studies with MCPB do not indicate an enhanced sensitivity or susceptibility to young animals.

Genotoxicity: There have been some positive and some negative studies, but the weight of evidence is that MCPB is not mutagenic.

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
Chlorophenoxy Herbicides (MCPB)	No	2B	No	No
Other Ingredients	No	No	No	No

IARC Group 2B: Possibly carcinogenic to humans.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on MCPB Acid:

96-hour LC ₅₀ Bluegill:	12.7 mg/l	Bobwhite Quail 8-day Dietary LC ₅₀ :	>4,550 ppm
96-hour LC ₅₀ Rainbow Trout:	3.9 mg/l	Bobwhite Quail Oral LD ₅₀ :	257 mg/kg
48-hour LC ₅₀ Daphnia magna:	50.0 mg/l	Mallard Duck 8-day Dietary LC ₅₀ :	>4,550 ppm
Honey bee LD ₅₀ :	23 µg/bee		

Environmental Fate:

MCPB Sodium Salt is rapidly dissociated to parent acid in the environment. MCPB is not volatile, not persistent and not likely to bioconcentrate. Studies indicate that MCPB may be prone to leaching and runoff. MCPB is not readily biodegradable in tests.

13. DISPOSAL CONSIDERATIONS**Waste Disposal Method:**

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture 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 Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container Handling and Disposal:

Nonrefillable Containers 5 Gallons or Less: Nonrefillable container. Do not reuse or refill this container. 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 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 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.

Nonrefillable Containers Larger than 5 Gallons: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable Container Larger than 5 Gallons: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

14. TRANSPORTATION INFORMATION**DOT:**

Not Regulated

IMDG:

Not Regulated

IATA:

Not Regulated

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.

SAFETY DATA SHEET

Thistrol Herbicide

WARNING. Causes substantial but temporary eye injury. Harmful if swallowed. Do not get in eyes or on clothing. Avoid contact with skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

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):

Immediate

Section 313 Toxic Chemical(s):

None Listed

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

None

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: Not Listed.

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 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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