



DAGGER® 5.2 LB. MCPA ESTER HERBICIDE

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY DESCRIPTION

Product Name: Nufarm Dagger 5.2 Lb. MCPA Ester Herbicide

Synonyms: MCPA 2EHE; MCPA IOE; 2-methyl-4-chlorophenoxyacetic acid, isooctyl (2-ethylhexyl) ester.

EPA Reg. No.: 228-267-71368

Company Name: Nufarm Americas, Inc.
Burr Ridge, IL 60521

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

Date: March 13, 2002

Revisions: New or updated information in all sections.

Reasons for Revisions: General revision utilizing more specific data.

Supersedes: March 10, 2000

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS REG. NO.	% BY WEIGHT
2-methyl-4-chlorophenoxyacetic acid, isooctyl (2-ethylhexyl) ester*	26544-20-7	91
Inert ingredients including emulsifier and other ingredients (trade secret)		9
*OSHA hazard		

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance and Odor: Amber liquid, aromatic odor.

Warning Statements: WARNING. Keep out of reach of children. May be fatal if absorbed through skin. Harmful if swallowed. Do not get in eyes, on skin, or on clothing.

Potential Adverse Health Effects:

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

Eye Contact: Moderately irritating.

Skin Contact: Moderately irritating. Overexposure by skin absorption may cause headache, dizziness, nausea, vomiting, gastrointestinal irritation, weakness and central nervous system depression.

Inhalation: Low inhalation toxicity.

Ingestion: Harmful if swallowed. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation, weakness and central nervous system depression.

Medical Conditions Possibly Aggravated By Exposure: Inhalation of product may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Skin contact may aggravate existing skin disease.

Subchronic (Target Organ) Effects: (An adverse effect with symptoms that develop slowly over a long period of time): Repeated overexposure may cause effects to liver, kidneys, blood chemistry, testes 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.

Chronic Effects/Carcinogenicity: 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. Newer rat and mouse lifetime feeding studies did not show carcinogenic potential for MCPA.

Reproductive Toxicity: Testicular effects and lower male fertility have been noted in animal studies.

Developmental Toxicity: MCPA studies in laboratory animals have shown decreased fetal body weights and delayed development in the offspring at doses toxic to mother animals.

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

4. FIRST AID MEASURES

If swallowed: Call a physician or Poison Control Center. Drink 1 to 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

If on skin: Wash promptly with soap and water and rinse thoroughly. Get medical attention.

If in eyes: Immediately flush eyes with plenty of water for 15 minutes and get medical attention at once.

Note to Physician: No specific antidote. Treatment based on sound judgment of physician and individual reactions of patient.

5. FIRE FIGHTING MEASURES

Flash Point: >200° F (93.3° C) by Tag closed cup method.

Autoignition Temperature: Not determined.

Flammability Limits: Not determined.

Extinguishing Media: Recommended (large fire): foam, water spray. Recommended (small fires): dry chemical, carbon dioxide.

Special Fire Fighting Procedures: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Unusual Fire and Explosion hazards: Under fire conditions, toxic, corrosive fumes are emitted. Containers will burst from internal pressure under extreme fire conditions.

Hazardous Decomposition Materials (Under Fire Conditions): Hydrogen chloride, oxides of nitrogen, and oxides of carbon.

6. ACCIDENTAL RELEASE MEASURES

Evacuation Procedures and Safety: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8.

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

Cleanup and Disposal of Spill: Pump any free liquid into an appropriate closed container. Collect washings for disposal. Decontaminate tools and equipment following cleanup. (See Section 13.)

Environmental and Regulatory Reporting: Prevent material from entering public sewer system or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of top soil. The affected area should

be removed and placed in an appropriate container for disposal. Spills may be reportable to federal, state and/or local agencies.

7. HANDLING AND STORAGE

Handling:

Handle containers carefully to avoid damage and spills.

Storage:

Store in original container in a dry, secured storage area. Do not contaminate water, food or feed by storage or disposal. Avoid storage in close proximity to insecticides, fungicides, fertilizers and seeds. Keep container tightly closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

General:

These recommendations provide general guidance for handling this product. Because specific work environments and material handling practices vary, safety procedures should be developed for each intended usage, including maintenance and repair of equipment. Contact personal protective equipment manufacturers for assistance with selection, use and maintenance of such equipment.

Personal Protective Equipment:

Respiratory Protection: When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations. Under normal conditions, in the absence of other airborne contaminants, the following devices should provide protection from this material up to the conditions specified by the appropriate OSHA or ANSI standard(s): Air-purifying (half-mask/full-face) respirator with cartridges/canister approved for use against pesticides. Under conditions immediately dangerous to life or health, or emergency conditions with unknown concentrations, use a full-face positive pressure air-supplied respirator equipped with an emergency escape air supply unit or use a self-contained breathing apparatus unit.

Eye/Face Protection: Eye and face protection requirements will vary dependent upon work environment conditions and material handling practices. Appropriate ANSI Z87 approved equipment should be selected for the particular use intended for this material. Eye contact should be prevented through use of protective eyewear such as chemical safety glasses with side shields or splash proof goggles. An emergency eye wash should be readily accessible to the work area.

Skin Protection: Skin contact should be avoided through the use of permeation resistant clothing, gloves and footwear, selected with regard for use conditions and exposure potential. An emergency shower should be readily accessible to the work area. Consider both durability and permeation resistance of clothing.

Work Practice Controls: 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:

Exposure Limits:	OSHA PEL*	ACGIH TLV®*	STEL	Units
2-methyl-4-chlorophenoxyacetic acid, isooctyl (2-ethylhexyl) ester	Not Established	Not Established	Not Established	Not Applicable

*8-hour TWA unless otherwise noted.

Ventilation:

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

9. PHYSICAL AND CHEMICAL PROPERTIES

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.

Physical Appearance:	Amber liquid.
Odor:	Aromatic.
pH:	Not Available.
Specific Gravity:	Approximately 1.07
Water Solubility:	Product is emulsifiable in water.
Melting Point Range:	Not Applicable.
Boiling Point Range:	Not Available. Based on components, expected to be >175°C.
Vapor Pressure:	7.36 x 10 ⁻⁶ mm Hg @ 26.5°C (data on MCPA 2EHE)
Molecular Weight:	312.8 (data on MCPA2EHE)

10. STABILITY AND REACTIVITY

Chemical Stability: This material is stable under normal handling and storage conditions described in Section 7.

Conditions To Be Avoided: Excessive heat.

Incompatibility With Other Materials: Strong oxidizing agents: bases, acids.

Hazardous Decomposition Products:

Decomposition Type: Thermal

Decomposition Products: Hydrogen chloride, oxides of carbon and nitrogen.

Hazardous Polymerization: Does not occur.

11. TOXICOLOGICAL INFORMATION**Toxicological Data:**

Data on MCPA 2EHE:

Eye Irritation: Mildly irritating (Rabbit).

Skin Irritation: Minimally irritating (Rabbit).

Dermal: Slightly toxic. (Rabbit LD₅₀ >2000 mg/kg).

Inhalation: Slightly toxic. (Rat 4-hr LC₅₀: >4.5 mg/L)

Oral: Slightly toxic. (Rat LD₅₀ 1550 mg/kg).

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

Ingredients Name	Regulatory Agency Listing As Carcinogen			
	OSHA	IARC	NTP	ACGIH
Chlorophenoxy herbicides	No	2B	No	No

(Also see Section 3.)

12. ECOLOGICAL INFORMATION**Aquatic Toxicity:**

Data on MCPA 2EHE:

96-hr LC₅₀ Bluegill: 3.9 ± 0.7 mg/l
96-hr LC₅₀ Rainbow Trout: 3.2 mg/l
48-hr EC₅₀ Daphnia: 0.28 mg/l

Avian Toxicity:

Data on MCPA 2EHE:

Bobwhite Quail Dietary LC₅₀: >5620 ppm
Mallard Duck 8-day Dietary LC₅₀: >5620 ppm

Environmental Fate:

MCPA 2EHE rapidly hydrolyzes to parent MCPA acid. In soil, MCPA is microbially degraded with typical half-life of approximately 10 to 14 days.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Handling and Disposal:

Do not reuse empty container. Triple rinse (or equivalent) adding rinsate to application equipment. Then offer empty container for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

14. TRANSPORTATION INFORMATION

NOTE: Information is for surface transportation of package sizes generally offered and does not address regulatory variations due to changes in package size, mode of shipment or other conditions.

DOT Proper Shipping Name: Not Applicable.
DOT Hazard Class / I.D. No.: Not Applicable.
DOT Label: Not Applicable.
U.S. Surface Freight Classification: Weed killing compound, N.O.I.B.N.

15. REGULATORY INFORMATION

Federal Regulations:

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

SARA Hazard Notification:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370):

Fire:	Reactive:	Release of Pressure:	Acute Health:	Chronic Health:
No	No	No	Yes	Yes

Section 313 Toxic Chemical(s): Not Applicable.

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

Ingredient	RQ
Not Applicable.	Not Applicable.

Selected State Regulations:

This product contains the following components that are regulated under California Proposition 65:

Ingredient Name	Cancer List	Reproductive List	Risk Level (ug/day)	
			California	Nufarm
Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable

16. OTHER INFORMATION

National Fire Protection Association (NFPA®) Hazard Ratings:

Ratings for This Product		Key to Ratings	
2	Health Hazard	0	Minimal
1	Flammability	1	Slight
0	Instability	2	Moderate
		3	Serious
		4	Severe

Abbreviations and Acronyms Not Defined Elsewhere:

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
DOT	Department of Transportation
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
IARC	International Agency for Research on Cancer
MSHA	Mine Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
SARA	Superfund Amendments and Reauthorization Act of 1986
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
USEPA	U.S. Environmental Protection Agency

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This MSDS 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.

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