



MATERIAL SAFETY DATA SHEET

1333 Burr Ridge Parkway
Suite 125A
Burr Ridge, IL 60527-0866
Phone: 708.754.3330

Fax: 708.754.0314
E-Mail: www.nufarm.com
In Case of Emergency, Call
CHEMTREC: 1-800-424-9300

1. CHEMICAL IDENTIFICATION

Product Name:	Flouronil™	EPA Reg. No.: 55146-81
EPA Signal Word:	Danger	
Active Ingredient (%):	Chlorothalonil (72%)	CAS No.: 1897-45-6
Chemical Name:	Tetrachloroisophthalonitrile	
Chemical Class:	Chlorinated Benzonitrile Fungicide	
Active Ingredient (%):	Mefenoxam (4.5%)	CAS No.: Mixture
Chemical Name:	(R,S)-2-[(2,6-dimethylphenyl)-methoxyacetyl-amino]-propionic acid methyl ester and related compounds	
Chemical Class:	Fungicide	

2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Kaolin Clay	5 mg/m ³ (Respirable)	2 mg/m ³ (Respirable)	Not Established	No
Amorphous Silica	80 mg/m ³ /%SiO ₂	10 mg/m ³	Not Established	1ARC, 3
Surfactant	Not Established	Not Established	15 mg/m ³ (Total Dust)*	No
Wetting Agent	Not Established	Not Established	Not Established	No
Chlorothalonil (72%)	Not Established	Not Established	Not Established	1ARC, 3
Mefenoxam (4.5%)	Not Established	Not Established	Not Established	No

* recommended by manufacturer

3. HAZARDS IDENTIFICATION

Notes to Physician

There is no specific antidote if this product is ingested.

If a large amount has been ingested and emesis is inadequate, lavage stomach.

Contact with eyes may require specialized ophthalmologic attention.

An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Symptoms of Acute Exposure

Exposure causes severe irritation or injury to eyes and slight irritation to skin. A skin sensitization (allergic) reaction can occur in some individuals.

Hazardous Decomposition Products

None Known

Physical Properties

Appearance: Light Gray Powder
Odor: Sweet

Unusual Fire, Explosion and Reactivity Hazards

None Known

4. FIRST AID MEASURES

If poisoning is suspected, immediately contact a physician, the nearest hospital, or the nearest Poison Control Center. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

Ingestion: If victim is fully conscious, drink promptly a large quantity of milk, egg white, gelatin solution or if these are not available, large quantities of water and induce vomiting. Never give anything by mouth to an unconscious person.

Eye Contact: Immediately rinse eyes with a large amount of running water. Hold eyelids apart to rinse the entire surface of the eyes and lids. Do not apply any medicating agents except on the advice of a physician.

Skin Contact: Wash with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except on the advice of a physician. Remove contaminated clothing and decontaminate prior to use.

Inhalation: Move victim from contaminated area to fresh air. Apply artificial respiration if necessary.

Notes to Physician

There is no specific antidote if this product is ingested.
If a large amount has been ingested and emesis is inadequate, lavage stomach.
Contact with eyes may require specialized ophthalmologic attention.
An aqueous suspension of activated charcoal can be administered to absorb remaining toxicant.

Medical Condition Likely to be Aggravated by Exposure

Persons with allergic history or pre-existing dermatitis should use extra care in handling this product.

5. FIRE FIGHTING MEASURES

Fire and Explosion

Flash Point (Test Method):	Not Applicable
Flammable Limits (% in Air):	Not Applicable
Autoignition Temperature:	Not Available
Flammability:	Not Flammable

Unusual Fire, Explosion and Reactivity Hazards

None Known

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.

6. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Wear chemical goggles or full-face shield, rubber gloves, rubber boots, long-sleeved shirt, long pants, head covering, and a NIOSH-approved self-contained breathing apparatus (SCBA) or a supplied-air respirator. For small spills, sweep up, keeping dust to a minimum, and place in an approved chemical container. Wash the spill area with water containing a strong detergent, absorb with pet litter or other absorbent material, sweep up and place in a chemical container. Seal the container and handle in an approved manner. Flush the area with water to remove any residue. Do not allow wash water to contaminate water supplies.

7. HANDLING AND STORAGE

Store the material in a well-ventilated, secure area out of the reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco usage, and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS

Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling.
Eye Contact: To avoid eye contact, wear chemical goggles or full-face shield.
Skin Contact: To avoid skin contact, wear rubber gloves, rubber boots, long-sleeved shirt, long pants and a head covering.
Inhalation: To avoid breathing dust, wear a NIOSH-approved dust or pesticide respirator with a dust prefilter.

Applicators/Handlers: Please refer to the product label for personal protective clothing/equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Light Gray-Brown Powder
Odor: No discernable odor
Melting Point: Available
Boiling Point: Not Applicable
Specific Gravity/Density: 32.5 lbs./cu.ft.
pH: 4 – 5.5 (1% suspension in water)

Solubility in H₂O

Chlorothalonil 0.6 mg/L @ 20°C
Mefenoxam 26.0 g/L @ 25°C

Vapor Pressure

Chlorothalonil 1.30E-02 mbar @ 40°C
Mefenoxam 3.30E-03 Pa @ 25°C

10. STABILITY AND REACTIVITY

Reactivity

Stability: Stable
Hazardous Polymerization: Will Not Occur
Conditions to Avoid: None Known

Hazardous Decomposition Products

None Known

11. TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies

Ingestion: slightly toxic
Oral LD50 (Rat) 2,438 mg/kg body weight
Dermal: slightly toxic
Dermal LD50 (Rabbit) > 2,020 mg/kg body weight
Inhalation: moderately toxic
Inhalation LC50 (Rat) 0.216 mg/l air - 4 hours
Eye Contact: corrosive (Rabbit)
Skin Contact: slightly irritating (Rabbit)
Skin Sensitization: sensitizing (Guinea Pig)

Mutagenic Potential

Chlorothalonil: Positive in in-vitro mutagenicity assays.
Mefenoxam: None Observed

Reproductive Hazard Potential

Chlorothalonil: None observed
Mefenoxam: None Observed

Chronic/Subchronic Toxicity Studies

Chlorothalonil: Kidney, liver, esophagus, and stomach effects (rats)
Mefenoxam: Liver effects at high dose levels

Carcinogenic Potential

Chlorothalonil: IARC lists chlorothalonil as a (Group 3) carcinogen not classifiable as human carcinogen (No Data Available) with limited animal evidence. EPA classifies chlorothalonil as a probable human carcinogen (Class B2). Increased incidence of stomach and kidney tumors (mice and rats); No carcinogenic effect observed in humans (20 year observation of plant workers)
Mefenoxam: None Observed

Other Toxicity Information

Not Available

Toxicity of Other Components

Amorphous Silica: Amorphous Silica is listed as an IARC (Group 3) carcinogen not classifiable as human carcinogen (No Data Available) with limited animal evidence. Prolonged exposure to Amorphous Silica may cause damage to respiratory system and irritation to skin and eyes.
Kaolin Clay: Long-term overexposure to high concentrations of this dust without the use of a respirator may produce x-ray evidence of dust in the lungs and may affect respiratory function.
Surfactant: Exposure can result in eye, skin and respiratory tract irritation.
Wetting Agent: Exposure to skin and eyes may result in irritation.

Target Organ

Active Ingredients

Chlorothalonil: Eyes, Liver, Kidneys and Gastrointestinal Tract
Mefenoxam: Liver

Inert Ingredients

Amorphous Silica: Respiratory Tract, Skin and Eyes
Kaolin Clay: Respiratory Tract
Surfactant: Eyes, Skin and Respiratory Tract
Wetting Agent: None Known

12. ECOLOGICAL INFORMATION

Summary of Effects

Chlorothalonil: Very toxic to fish and practically non-toxic to birds.
Mefenoxam: Not Available

Eco-Acute Toxicity

Chlorothalonil: Rainbow Trout 96-hour LC50 0.25 ppm
Bluegill Sunfish 96-hour LC50 0.39 ppm
Bobwhite 8-day Dietary LC50 5,200 ppm
Peking Duck LD50 >21,500 ppm
Mefenoxam: Not Available

Eco-Chronic Toxicity

Chlorothalonil: Not Available
Mefenoxam: Not Available

Environmental Fate

Chlorothalonil: Not Available
Mefenoxam: Not Available

13. DISPOSAL CONSIDERATION

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:

Pesticides, Solid, Toxic, N.O.S. (chlorothalonil), Class 6.1, UN2588, PGII

B/L Freight Classification

Insecticides of Fungicides; Agricultural, N.O.S.

International Transportation

Toxic Solid, Organic, N.O.S. (contains 72% chlorothalonil), Class 6. 1, UN281 1, PGII

HAZARDS IDENTIFICATION (0-minimal, 1-slight, 2-moderate, 3-serious, 4-severe)

NFPA: HEALTH-2 FIRE-0 REACTIVITY-0

15. REGULATORY INFORMATION

SARA Title III Classification

Section 311/312: Acute Health Hazard
Chronic Health Hazard

Section 313 chemical(s): Chlorothalonil (72%) (CAS No. 1897-45-6)

Proposition 65

This product contains a chemical (chlorothalonil) known to the state of California to cause cancer [listed Jan. 1989].

CERCLA Reportable Quantity (9Q)

None

RCRA Classification

Not Applicable

TSCA Status

Exempt from TSCA

16. OTHER INFORMATION

Flouronil™ is a trademark of Nufarm Americas Inc.

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.

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