



1. IDENTIFICATION

Product Name: Patron 170 Herbicide

EPA Reg. No.: 228-167

Product Type: Herbicide

Company Name: Nufarm America 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 Certain sections of this SDS are superseded by federal law governed by EPA for a registered pesticide.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:

Acute Toxicity Oral	Category 4
Eye Irritation	Category 2B
Skin Irritation	Category 2
Aspiration Hazard	Category 1

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, acute	Category 1
Hazardous to aquatic environment, chronic	Category 1

SIGNAL WORD:

DANGER

HAZARD STATEMENTS:

Harmful if swallowed. Causes eye and skin irritation. May be fatal if swallowed or enters airways. Very toxic to aquatic life with long lasting effects.



PRECAUTIONARY STATEMENTS

Wash thoroughly after handling. Do not eat, drink, or smoke when using this product. Wear protective gloves. Avoid release to the environment.

IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice. Take off contaminated clothing and wash 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 advice. Collect spillage.

Store locked up.

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
2-ethylhexyl ester of 2,4-Dichlorophenoxyacetic acid (2,4-D 2-EHE)	1928-43-4	31 – 33
2-ethylhexyl ester of Dichlorprop-p (2,4-DP-p)	865363-39-9	15.6 – 16.6
Distillates (Petroleum), Hydrotreated Light	64742-47-8	41.3 – 44
Solvent Naphtha (Petroleum), Heavy Aromatic	64742-94-5	0.9 – 1.0
2-Ethyl Hexanol	104-76-7	< 0.35
1-Hexanol	111-27-3	< 0.25
Naphthalene	91-20-3	< 0.1
Other Ingredients	Trade Secret	Trade Secret

Synonyms: Mixture containing the Ethylhexyl esters of 2,4-Dichlorophenoxyacetic acid and Dichlorprop-p
 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. Rinse skin immediately with plenty of water. If irritation or rash occurs, get medical advice.

If Swallowed: DO NOT induce vomiting. Get immediate medical attention.

If in Eyes: Hold eye open and rinse slowly and gently with water. Remove contact lenses, if present, then continue rinsing eye. Get immediate medical attention.

If Inhaled: Move person to fresh air. If breathing is difficult, administer oxygen. If symptoms develop, get medical advice.

Most important symptoms/effects, acute and delayed: Causes mild to moderate eye irritation. Causes skin irritation. Harmful if swallowed. Contains petroleum distillate. Vomiting may cause aspiration pneumonia; may be fatal if swallowed.

Indication of immediate medical attention and special treatment needed, if necessary: Get immediate medical attention for ingestion.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Recommended for large fires: Water spray, fog or foam. Recommended for small fires: dry chemical, CO₂, water spray or foam.

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.

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, on skin or on clothing. Wash hands 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

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clean clothing. If pesticide gets on skin, wash immediately with soap and water. 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:

Do not store below 32° F or above 100° F. Store in original container in a well-ventilated area separately from fertilizer, feed, and foodstuffs. Avoid cross-contamination with other pesticides. Do not contaminate water, food, or feed by storage and 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:

Some materials that are chemical-resistant to this product are barrier laminate, butyl rubber, nitrile rubber or Viton. If you want more options, follow the instructions for category A on an EPA chemical-resistance category selection chart.

Eye/Face Protection: To avoid contact with eyes, wear chemical goggles or face shield. An emergency eyewash or water supply should be readily accessible to the work area.

Skin Protection: To avoid contact with skin, wear long pants, long-sleeved shirt, shoes plus socks, and chemical-resistant gloves. Wear a chemical-resistant apron when mixing, loading, cleaning up spills or equipment, or otherwise exposed to the concentrate. 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	
2,4-D 2-EHE	10*	NE	10*	NE	mg/m ³
2,4-DP-p 2 EHE	10*	NE	10*	NE	mg/m ³
Distillates (Petroleum), Hydrotreated Light	NE	NE	NE	NE	
Solvent Naphtha (Petroleum), Heavy Aromatic	NE	NE	NE	NE	
2-Ethyl Hexanol	NE	NE	NE	NE	
1-Hexanol	NE	NE	NE	NE	
Naphthalene	10	NE	10 (Skin)	15 (Skin)	ppm
Other Ingredients	NE	NE	NE	NE	

*Based on adopted limit for 2,4-D

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Dark yellow liquid
Odor:	Pungent
Odor threshold:	No data available
pH:	3.27 (1% w/w dispersion in DIW)
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	> 230° F (> 110° 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:	0.952 g/cm ³ @ 21° C; 0.939 g/cm ³ @ 38° C
Solubility(ies):	No data available

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Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	9.32 cPs @ 21° C; 5.02 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.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Eye contact, Skin contact

Symptoms of Exposure:

Eye Contact: Slightly to moderately irritating. Vapors and mist may cause irritation.

Skin Contact: Irritating. Overexposure by skin absorption may cause symptoms similar to those for ingestion.

Ingestion: Harmful if swallowed. May cause nausea, vomiting, abdominal pain, decreased blood pressure, muscle weakness, muscle spasms. The petroleum hydrocarbon component, if aspirated into the respiratory system during ingestion or vomiting may cause mild or severe pulmonary injury, possibly progressing to death.

Inhalation: Low inhalation toxicity. May cause symptoms similar to those from ingestion. Overexposure to petroleum hydrocarbon component may cause irritation to respiratory tract, headaches, anaesthesia, drowsiness, unconsciousness and other central nervous system effects, possibly including death.

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

Toxicological Data:

Data from laboratory studies conducted on this formulation:

Oral: Rat LD₅₀: 1,750 mg/kg

Dermal: Rat LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.09 mg/l (no mortalities at highest dose tested)

Eye Irritation: Rabbit: Moderately irritating (MMTS=22.0)

Skin Irritation: Rabbit: Severely irritating (PDII=5.2)

Skin Sensitization: Guinea Pig: Not a 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: Prolonged overexposure can cause liver, kidney and muscle damage. 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 2,4-D or dichlorprop/dichlorprop-p. The U.S. EPA has given 2,4-D a Class D classification (not classifiable as to human carcinogenicity).

Reproductive Toxicity: No impairment of reproductive function attributable to 2,4-D or dichlorprop has been noted in laboratory animal studies.

Developmental Toxicity: Studies in laboratory animals with 2,4-D have shown decreased fetal body weights and delayed development in the offspring at doses toxic to mother animals. Rat and rabbit studies on dichlorprop-p resulted in fetal mortality, decreased fetal body weight, decreased body weight gain and developmental delays at doses that were also toxic to mother animals. There was no evidence of birth defects in either species.

Genotoxicity: There have been some positive and some negative studies, but the weight of evidence is that 2,4-D is not mutagenic. Genotoxicity studies on dichlorprop-p have been inconclusive with some positive and some negative results.

Assessment of Carcinogenicity:

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

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Component	Regulatory Agency Listing As Carcinogen			
	ACGIH	IARC	NTP	OSHA
Chlorophenoxy Herbicides (2,4-D 2-EHE)	No	2B	No	No
2,4-DP-p 2 EHE	No	2B	No	No
Distillates (Petroleum), Hydrotreated Light	No	No	No	No
Solvent Naphtha (Petroleum), Heavy Aromatic	No	No	No	No
2-Ethyl Hexanol	No	No	No	No
1-Hexanol	No	No	No	No
Naphthalene	No	2B	Yes*	No
Other Ingredients	No	No	No	No

*Reasonably anticipated to be a human carcinogen

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on 2,4-D 2EHE:

96-hour LC ₅₀ Bluegill:	>5 mg/l	Bobwhite Quail Oral LD ₅₀ :	>5,620 mg/kg
96-hour LC ₅₀ Rainbow Trout:	7.2 mg/l	Mallard Duck 8-day Dietary LC ₅₀ :	>5,620 ppm
48-hour EC ₅₀ Daphnia:	>5 mg/l		

Data on Dichlorprop-p:

96-hour LC ₅₀ Bluegill:	100 mg/l	96-hour EC ₅₀ Algae:	676 mg/l
48-hour EC ₅₀ Daphnia Magna:	>100 mg/l	Bobwhite Quail Oral LD ₅₀ :	>2,000 mg/kg

Environmental Fate:

In laboratory and field studies, 2,4-D 2-ethylhexyl ester rapidly de-esterified to parent acid in the environment. The typical half-life of the resultant 2,4-D acid ranged from a few days to a few weeks. Dichlorprop-p ester rapidly de-esterified to parent dichlorprop-p in the environment. In soil, dichlorprop-p has a typical half-life of approximately 7 days.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Pesticide wastes are toxic. Wastes resulting from this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mix, or rinsate is a violation of federal law. If these wastes cannot be disposed of according to label instructions, contact the state agency responsible for pesticide regulation or the 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. 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 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. If recycling or reconditioning not available, 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. 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

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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 containers 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. 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

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

DOT

< 53 gallons per complete package

Non Regulated

≥ 53 but < 119 gallons per complete package

UN3082, Environmentally hazardous substance, liquid, n.o.s., (2,4-D Ester), 9, III, RQ

≥119 gallons per complete package

UN3082, Environmentally hazardous substance, liquid, n.o.s., (2,4-D Ester), 9, III, RQ Marine Pollutant

IMDG

UN3082, Environmentally hazardous substance, liquid, n.o.s., (2,4-D Ester), 9, III, Marine Pollutant

IATA

UN3082, Environmentally hazardous substance, liquid, n.o.s., (2,4-D Ester), 9, III, Marine Pollutant

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.

WARNING. Causes skin irritation. Harmful if swallowed. Causes moderate eye irritation. Do not get on skin or clothing. Avoid contact with eyes.

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):

Acute Health

Section 313 Toxic Chemical(s):

2,4-D 2-ethylhexyl ester (CAS No. 1928-43-4) 31 – 33% by weight in product

Naphthalene (CAS No. 91-20-3) <0.1% by weight in product

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

2,4-D 2-ethylhexyl ester (CAS No. 1928-43-4) 100 pounds

Naphthalene (CAS No. 91-20-3) 100 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:

Check individual state requirements.

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California Proposition 65: WARNING. This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

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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