

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Nufarm Sethoxydim SPC Herbicide
EPA Reg. No.: 228-619
Synonyms: Sethoxydim: 2-[1-ethoxymino)butyl]-5-[2-(ethylthio)propyl]3-hydroxy-2-cyclohexen-1-one
Product Type: Herbicide

Company Name: Nufarm Americas Inc.
150 Harvester Drive, Suite 200
Burr Ridge, IL 60527

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

Date of Issue: July 24, 2012
Sections Revised: 7, 13
Supersedes: December 28, 2009

2. HAZARDS IDENTIFICATION**Emergency Overview:**

Appearance and Odor: Amber colored liquid with a typical aromatic odor.

Warning Statements: Keep out of reach of children. CAUTION. Causes moderate eye irritation. Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes or clothing. Combustible; flash point: 165° F (74° C).

Potential Health Effects:

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

Eye Contact: Moderately irritating based on toxicity studies.

Skin Contact: Slightly toxic and slightly irritating based on toxicity studies.

Ingestion: May be harmful if swallowed. 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 based on toxicity studies. Overexposure to petroleum hydrocarbon component may cause irritation to respiratory tract, headaches, anaesthesia, drowsiness, unconsciousness and other central nervous system effects, possibly including death.

Medical Conditions 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.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

Potential Environmental Effects:

Sethoxydim is practically non-toxic to mammals, birds, fish and honey bees.

See Section 12: ECOLOGICAL INFORMATION for more information.

3. COMPOSITION / INFORMATION ON INGREDIENTS
--

COMPONENT	CAS NO.	% BY WEIGHT
Sethoxydim	74051-80-2	13.0
Other Ingredients Including:		87.0
Petroleum Hydrocarbon (may contain)		
Naphthalene	91-20-3	

4. FIRST AID MEASURES

If Swallowed: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. 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 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 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.

Note to Physician: May pose an aspiration pneumonia hazard. Contains petroleum distillate.

5. FIRE FIGHTING MEASURES

Flash Point: 165° F (74° C) closed cup

Autoignition Temperature: 746° F (397° C)

Flammability Limits: 1.3 – 5.3%

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: Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Containers will burst from internal pressure under extreme fire conditions. 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 oxides of carbon, hydrogen, nitrogen and sulfur.

National Fire Protection Association (NFPA) Hazard Rating:

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

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

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:

Avoid contact with skin, eyes or clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. 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:

Residential:

Keep pesticide in original container. Do not put concentrate or dilute spray into food, feed or drink containers. Avoid contamination of feed and foodstuffs. Store in a cool, dry place, preferably in a locked storage area. Do not store diluted spray.

Commercial:

Do not store below 32° F or above 100° F. Store in original container in a cool, dry place away from heat or open flame and in a secured area inaccessible to children. Do not put concentrate or dilute spray into food, feed or drink containers. Avoid contamination of feed or foodstuffs. 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: Not normally required. 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, long pants, shoes, socks and 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	
Sethoxydim					
Naphthalene	10	NE	10 (Skin)	15 (Skin)	ppm

NE = Not Established

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Odor: Amber colored liquid with a typical aromatic odor.

Boiling Point:	Not determined	Solubility in Water:	Emulsifiable
Density:	7.5 pounds/gallon	Specific Gravity:	0.91 @ 20° C
Evaporation Rate:	Not determined	Vapor Density:	Not determined
Freezing Point:	Not determined	Vapor Pressure:	Not determined
pH:	3 - 4	Viscosity:	1.50 mmHg

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

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

Conditions to Avoid: Avoid temperatures near or above flash point 165° F (74° C), open flame, spark and static electricity.

Incompatible Materials: Oxidizing agents.

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

Hazardous Reactions: Hazardous polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Data from laboratory studies on this product are summarized below:

Oral: Rat LD₅₀: >2,200 mg/kg

Dermal: Rat LD₅₀: >2,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >5.0 mg/L

Eye Irritation: Rabbit: Moderately irritating

Skin Irritation: Rabbit: Slightly irritating

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure to sethoxydim may cause affects the liver.

Carcinogenicity / Chronic Health Effects: Prolonged overexposure to sethoxydim can cause effects to the liver. Sethoxydim did not cause cancer in laboratory animal studies in both rats and mice. The hydrocarbon component may contain naphthalene, which is listed by IARC as a class 2B and the U.S. National Toxicology Program as reasonably anticipated to be a human carcinogen.

Reproductive Toxicity: Sethoxydim did not demonstrate reproductive effects in animal studies.

Developmental Toxicity: In animal studies development effects were observed at doses that were also maternally toxic.

Genotoxicity: Animal, in vivo and in vitro studies sethoxydim did not cause mutagenic effects.

Assessment of 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
Naphthalene	No	2B	Yes*	No

*Reasonably anticipated to be a human carcinogen

See Section 2: HAZARDS IDENTIFICATION for more information.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on Sethoxydim Technical:

96-hour LC ₅₀ Bluegill:	265 mg/L	Bobwhite Quail 8-day Dietary LC ₅₀ :	>5,620 ppm
96-hour LC ₅₀ Rainbow Trout:	170 mg/L	Mallard Duck Oral LD ₅₀ :	2,510 mg/kg
48-hour EC ₅₀ Daphnia:	>78.1 mg/L	Mallard Duck 8-day Dietary LC ₅₀ :	>5,620 ppm
14-day EC ₅₀ Green Algae:	>0.3 ppm	Honey Bee LD ₅₀ :	>10 ug/bee

Environmental Fate:

Sethoxydim is highly soluble and mobile with a low octanol/water partition coefficient. Sethoxydim has a weak tendency to adsorb to soil particles. On soil, photodegradation of sethoxydim is <4 hours. Under aerobic conditions half-lives were <1 day and in water photodegradation was <1 hour.

13. DISPOSAL CONSIDERATIONS

Residential:

Nonrefillable container. Do not reuse or refill this container. **If empty:** Place in trash or offer for recycling if available. **If partly filled:** Call your local solid waste agency for disposal instructions. Never place unused product down any indoor (including toilet) or outdoor (including sewer) drain.

Commercial:

Pesticide Disposal: Pesticide wastes are toxic. 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 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. 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.

14. TRANSPORTATION INFORMATION

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

DOT**< 119 gallons per completed package**

Non Regulated

≥ 119 gallons and < 1,330 gallons per completed package

NA 1993, COMBUSTIBLE LIQUID, N.O.S., (NAPHTHALENE), III

≥ 1,330 gallons per completed package

RQ, NA 1993, COMBUSTIBLE LIQUID, NOS, (NAPHTHALENE), III

IMDG

UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, (SETHOXYDIM), 9, III, MARINE POLLUTANT

IATA

Non Regulated

15. REGULATORY INFORMATION**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, Delayed and Fire

Section 313 Toxic Chemical(s):

Sethoxydim (CAS No. 74051-80-2), 13% by weight in product

Naphthalene (CAS No. 91-20-3), <1.0% by weight in product

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

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

RCRA Waste Code:

Naphthalene (CAS No. 91-20-3) U165

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 cancer or birth defects or other reproductive harm.

16. OTHER INFORMATION

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.

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.