



1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Nufarm Chlorpyrifos SPC 4 Insecticide
EPA Reg. No.: 228-624
Product Type: Insecticide

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 exactly 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 Certain sections are superseded by federal law governed by EPA for a registered pesticide.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:

Flammable Liquid Category 4

HEALTH HAZARDS:

Acute Toxicity Oral Category 4
 Aspiration Hazard Category 1
 Skin Irritation Category 2
 Carcinogen Category 2

ENVIRONMENTAL HAZARDS:

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

SIGNAL WORD:

DANGER

HAZARD STATEMENTS:

Combustible liquid. Harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation. Suspected of causing cancer. Very toxic to aquatic life with long lasting effects.



PRECAUTIONARY STATEMENTS

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from flames and hot surfaces. –No smoking. Wear protective gloves and eye protection. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment.

IF EXPOSED OR CONCERNED: Get medical advice.

SAFETY DATA SHEET

Nufarm Chlorpyrifos SPC 4 Insecticide

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

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

IN CASE OF FIRE: Use dry chemical, carbon dioxide, foam, water spray or fog for extinction.

Store in a well-ventilated place. Keep cool. Store locked up.

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENTS	CAS NO.	% BY WEIGHT
Chlorpyrifos	2921-88-2	43.4 – 46.0
Solvent Naphtha (Petroleum), Heavy Aromatic	64742-94-5	45.6 – 48.3
Naphthalene	91-20-3	<5.0
Other ingredients	Trade Secret	Trade Secret

Synonyms: Mixture of Chlorpyrifos: O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate
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 several minutes. Remove contact lenses, if present, 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. Do not give any liquid to the person. 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 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.

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

Most important symptoms/effects, acute and delayed: Causes skin irritation. May cause mild eye irritation. Harmful or fatal if swallowed – Aspiration hazard. Suspected of causing cancer.

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

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry chemical, carbon dioxide, foam, water spray or fog.

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 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: Avoid creation of dusty conditions. Scrape up and place in appropriate closed container. Wash entire spill area with a detergent slurry, absorb and sweep into container 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 or skin. 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 Personal Protective Equipment (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 secure dry storage area. 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.

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 pants, long-sleeved shirt, socks and shoes. 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	
Chlorpyrifos	NE	NE	0.1(IFV) (Skin, BEI*)	NE	mg/m ³
Solvent Naphtha (Petroleum), Heavy Aromatic	2000*	NE	100*	NE	mg/m ³
Other ingredients	NE	NE	NE	NE	

NE = Not Established IFV = Inhalable Fraction and Vapor

*As Acetylcholinesterase Inhibiting Pesticides = Cholinesterase activity in red blood cells = 70% of individual's baseline

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear liquid
Odor:	No data available
Odor threshold:	No data available
pH:	4.00 (1% w/w solution)
Melting point/freezing point:	No data available
Initial boiling point and boiling range	No data available
Flash point:	156°F (69°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:	1.088 g/ml
Solubility(ies):	Emulsifiable
Partition coefficient: n-octanol/water:	No data available
Autoignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	4.098 cSt (20° C) 2.566 (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: 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: Avoid temperatures near or above flash point 156° F (69° C), open flame, spark and static electricity.

Incompatible Materials: Strong oxidizing agents and bases.

Hazardous Decomposition Products: Under fire conditions may produce gases such as hydrogen chloride, organic sulfides, and oxides of carbon and sulfur.

11. TOXICOLOGICAL INFORMATION

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

Symptoms of Exposure:

Eye Contact: Mildly irritating based on toxicity studies.

Skin Contact: Moderately irritating based on toxicity studies.

Ingestion: Harmful if ingested based on toxicity studies. Aspiration hazard – may be fatal if aspirated into the lungs during swallowing or vomiting.

Inhalation: Low inhalation toxicity based on toxicity studies.

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

Toxicological Data:

Data from laboratory studies conducted on a substantially similar product are summarized below:

Oral: Rat LD₅₀: 654 mg/kg (female) (estimated based on mortalities for doses tested)

Dermal: Rat LD₅₀: >5,000 mg/kg

Inhalation: Rat 4-hr LC₅₀: >2.03 mg/L (no mortalities at highest dose tested)

Eye Irritation: Rabbit: Mildly irritating (MMTS = 23.3)

Skin Irritation: Rabbit: Moderately irritating (PDII = 5.3)

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

Symptoms of Cholinesterase Inhibition: Chlorpyrifos is a cholinesterase inhibitor. Signs and symptoms of cholinesterase inhibition may include, but may not be limited to, headache, dizziness, incoordination, muscle twitching, weakness, nausea, vomiting, diarrhea, constriction of the pupil of the eye, blurred or dark vision, excessive salivation or nasal discharge, profuse sweating and abdominal cramps. Incontinence, unconsciousness, convulsions and breathing difficulties are indicative of severe poisoning. In untreated severe poisoning, death is due to respiratory failure or cardiac arrest.

Subchronic (Target Organ) Effects: Prolonged overexposure to chlorpyrifos may show same effects as those associated with cholinesterase inhibition. Repeated overexposure to chlorpyrifos may cause effects to adrenal gland.

Carcinogenicity / Chronic Health Effects: Prolonged overexposure to chlorpyrifos may show same effects as those associated with cholinesterase inhibition. Chlorpyrifos did not cause cancer in laboratory

animal studies. 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: Chlorpyrifos did not interfere with in laboratory animal studies. Some evidence of toxicity in the offspring occurred, but only at doses toxic to the parent animals.

Developmental Toxicity: Chlorpyrifos did not cause birth defects in laboratory animals.

Genotoxicity: There have been some positive and some negative studies, but the weight of evidence is that chlorpyrifos is considered to have minimal mutagenic potential.

Assessment Carcinogenicity:

Component	Regulatory Agency Listing As Carcinogen			
	ACGIH	IARC	NTP	OSHA
Chlorpyrifos	No	No	No	No
Naphthalene	A3	2B	R	No

R = Reasonably Anticipated to be a Human Carcinogen

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on Chlorpyrifos Technical:

Chlorpyrifos is highly toxic to aquatic organisms on an acute basis with an LC₅₀ or EC₅ <0.1 mg/l in the most sensitive species. Chlorpyrifos is highly toxic to birds on a dietary basis (LC₅₀ between 50 and 500 ppm) and moderately toxic to birds on an acute basis (LD₅₀ between 51 and 500 mg/kg).

Environmental Fate:

The major route of dissipation appears to be aerobic and anaerobic metabolism. Abiotic hydrolysis, photodegradation and volatilization do not appear to be significant routes of dissipation. Chlorpyrifos is moderately persistent in soils. Chlorpyrifos adsorbs strongly to soil particles and is not readily soluble in water. Degradation of chlorpyrifos in the soil is expected within days to weeks. Under aerobic soil conditions the half-life averages 30 to 60 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. Improper disposal of excess pesticide is a violation of Federal law.

Container Handling and Disposal: Nonrefillable Containers 5 Gallons or Less: Non-refillable 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: Non-refillable 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 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 and, if possible, spray all sides while adding water. If practical, 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. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

14. TRANSPORTATION INFORMATION

DOT

< 119 gallons per completed package

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

≥ 119 gallons per completed package

NA 1993, COMBUSTIBLE LIQUID, N.O.S. (NAPHTHALENE), 3, III, RQ, MARINE POLLUTANT, (CHLORPYRIFOS)

IMDG

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

IATA

UN 3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CHLORPYRIFOS), 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 and moderate eye irritation. Harmful if swallowed. Do not get on skin or on 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, Fire Hazard

Section 313 Toxic Chemical(s):

Chlorpyrifos (CAS No. 2921-88-2) < 46.0% by weight in product

Naphthalene (CAS 91-20-3) < 5% by weight in product

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

Chlorpyrifos (CAS No. 2921-88-2) 1 lbs


Naphthalene (CAS 91-20-3) 100 lbs

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:  **ATTENTION.** This product can expose you to chemicals including naphthalene which is known to the State of California to cause cancer and Chlorpyrifos which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

16. OTHER INFORMATION**National Fire Protection Association (NFPA) Hazard Rating:**

Rating for this product: Health: 2 Flammability: 2 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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