

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Nufarm Chlorpyrifos SPC 2.32% G Insecticide  
**EPA Reg. No.:** 228-620  
**Synonyms:** Chlorpyrifos: O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate  
**Product Type:** Insecticide

**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:** December 14, 2012                      **Supersedes:** July 14, 2010  
**Sections Revised:** 1, 13

## 2. HAZARDS IDENTIFICATION

**Emergency Overview:**

**Appearance and Odor:** Tan colored granules.

**Warning Statements:** Caution. Keep out of reach of children. Causes moderate eye irritation. Harmful if swallowed. Avoid contact with eyes and clothing.

**Potential Health Effects:**

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

**Eye Contact:** Mildly irritating based on toxicity studies.

**Skin Contact:** Minimally toxic and irritating based on toxicity studies.

**Ingestion:** Slightly toxic if ingested based on toxicity studies.

**Inhalation:** Low inhalation toxicity based on toxicity studies.

**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. Cholinesterase inhibitor – individuals with depressed cholinesterase levels due to other factors such as certain medications, may be more sensitive.

See Section 11: TOXICOLOGICAL INFORMATION for more information.

**Potential Environmental Effects:**

This product is toxic to birds, fish and aquatic invertebrates. Birds feeding in treated areas may be killed.

See Section 12: ECOLOGICAL INFORMATION for more information.

## 3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
Chlorpyrifos	2921-88-2	2.32
Other Ingredients		97.68

**4. FIRST AID MEASURES**

**If Swallowed:** Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. 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 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 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 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:** Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate degree of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidotes immediately after establishing an open airway and respiration.

**5. FIRE FIGHTING MEASURES**

**Flash Point:** Not applicable

**Autoignition Temperature:** Not determined

**Flammability Limits:** Not determined

**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:** 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, organic sulfides, and oxides of carbon 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:** Avoid creation of dusty conditions. If dry, sweep or scoop up material and place into container for disposal. If wet, pump any free liquid into an appropriate closed container. 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 eyes and clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

**Storage:**

Store in original container in a cool, dry locked place out of the reach of children. 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 and shoes and shoes. Loaders must also wear chemical-resistant gloves and a chemical-resistant apron. An emergency shower or water supply should be readily accessible to the work area.

**Respiratory Protection:** Not normally required, except for loaders who must wear a NIOSH-approved dust mist filtering respirator with MSHA/NIOSH approved prefix TC-21C or a NIOSH-approved respirator with any N, R, P or HE filter. In other situations 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 <sup>3</sup>

NE = Not Established

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance and Odor:** Tan colored granules.

<b>Boiling Point:</b>	Not applicable	<b>Solubility in Water:</b>	Relatively insoluble
<b>Density:</b>	0.592 g/ml (tapped)	<b>Specific Gravity:</b>	Not applicable
<b>Evaporation Rate:</b>	Not applicable	<b>Vapor Density:</b>	Not applicable
<b>Freezing Point:</b>	Not applicable	<b>Vapor Pressure:</b>	Not applicable
<b>pH:</b>	5 – 6 (1% solution)	<b>Viscosity:</b>	Not applicable

**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:** 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, organic sulfides, and oxides of carbon 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 LD<sub>50</sub>: >5,000 mg/kg (female)

**Dermal:** Rat LD<sub>50</sub>: >5,000 mg/kg

**Inhalation:** Rat 4-hr LC<sub>50</sub>: >2.07 mg/L

**Eye Irritation:** Rabbit: Mildly irritating

**Skin Irritation:** Rabbit: Slightly irritating

**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.

**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:** None listed with ACGIH, IARC, NTP or OSHA.

See Section 2: HAZARDS IDENTIFICATION for more information.

**12. ECOLOGICAL INFORMATION****Ecotoxicity:**

Data on Chlorpyrifos Technical:

Chlorpyrifos is highly toxic to aquatic organisms on an acute basis with an LC<sub>50</sub> or EC<sub>5</sub> <0.1 mg/l in the most sensitive species. Chlorpyrifos is highly toxic to birds on a dietary basis (LC<sub>50</sub> between 50 and 500 ppm) and moderately toxic to birds on an acute basis (LD<sub>50</sub> 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:**

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. Completely empty bag into application equipment. Then offer for recycling if available, or place empty container in trash..

### 14. TRANSPORTATION INFORMATION

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

**DOT****< 43 pounds per complete container**

Not Regulated

**≥43 pounds and < 882 pounds per complete container**

UN 3077, Environmentally hazardous substance, solid, n.o.s., (Chlorpyrifos) 9, III, RQ

**≥ 882 pounds per complete container**

UN 3077, Environmentally hazardous substance, solid, n.o.s., (Chlorpyrifos) 9, III, Marine Pollutant, RQ

**IMDG**

UN 3077, Environmentally hazardous substance, solid, n.o.s., (Chlorpyrifos) 9, III, Marine Pollutant

**IATA**

Not 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 and Delayed

**Section 313 Toxic Chemical(s):**

None

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

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

**RCRA Waste Code:**

None

**State Information:**

Other state regulations may apply. Check individual state requirements.

California Proposition 65: Not Listed

<b>16. OTHER INFORMATION</b>
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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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