

## 1. IDENTIFICATION

**Product Name:** CPF 4E  
**EPA Registration No.** 83222-20  
**Chemical Name of Active Ingredient(s):** Chlorpyrifos: O,O-diethyl-O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate  
**Company Name:** Direct Ag Source, LLC  
30473 260<sup>th</sup> St.  
Eldora, IA 50627  
Phone: 1-800-424-9300  
**For Medical and Chemical Emergencies, Spill, Leak, Fire, Exposure, or Accident, Call Chemtrec:**

## 2. HAZARDS IDENTIFICATIONS

**EMERGENCY OVERVIEW:** WARNING. May be fatal if swallowed. Harmful if absorbed through the skin. Cause moderate eye and skin irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Avoid contact with skin, eyes or clothing.

### PHYSICAL PROPERTIES:

Appearance: Light amber liquid  
Odor: Pungent

**SYMPTOMS OF OVEREXPOSURE:** Headaches, nausea, vomiting, cramps, weakness, blurred vision, pinpoint pupils, tightness in chest, labored breathing, nervousness, sweating, watering of eyes, drooling, muscle spasms and coma

### POTENTIAL HEALTH EFFECTS:

**EYE:** May cause moderate eye irritation and/or corneal injury. Vapors may irritate the eyes.

**SKIN:** A test in guinea pigs indicated that this product may have weak skin sensitization potential. However, experience in the manufacture and use of this product has not provided evidence for skin sensitizing properties. The product did not sensitize human subjects when tasted at an end-use dilution. A single prolonged exposure, is not likely to result in the material being absorbed through the skin in harmful amounts.

**INGESTION:** Single dose oral toxicity is moderate. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause lung damage or death due to chemical pneumonia.

**INHALATION:** Excessive exposure may produce organophosphate-type cholinesterase inhibition. Excessive vapor concentrations are attainable and could be hazardous on single exposure. Excessive exposure to solvent may cause respiratory irritation and central nervous system depression. Signs and symptoms of central nervous system depression are in order of increasing exposure, headache, dizziness, drowsiness, and incoordination.

**PHYSICAL AND CHEMICAL HAZARDS:** Combustible liquid. Do not use or store near heat or open flame. Do not cut or weld container.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

ACTIVE INGREDIENT	CAS NO.	%
Chlorpyrifos	2921-88-2	45
Other Ingredients, including		55
Aromatic hydrocarbons Containing:	64742-95-6	
Naphthalene	91-20-3	< 9.9
1,2,4-trimethylbenzene	95-63-6	< 1.7

This document is prepared pursuant to OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not "Hazardous" per this OSHA Standard may be listed. The identity of proprietary ingredients may be made available as provided in this standard.

**4. FIRST AID MEASURES**

<b>FIRST AID (ORGANOPOSPHATE INSECTICIDE)</b>	
<b>IF INHALED:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>IF ON SKIN OR CLOTHING:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF IN EYES:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>IF SWALLOWED:</b>	<ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Do not give any liquid to a person.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency medical treatment information call Chemtrec at 1-800-424-9300.</p> <p><b>NOTE TO PHYSICIAN:</b> Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell Cholinesterase tests may indicate significance 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 antidote immediately after establishing an open airway and respiration. Note: Contains Petroleum Distillate -vomiting may cause aspiration pneumonia.</p>	

**5. FIRE FIGHTING MEASURES**

**FLASH POINT:** 141°F

**AUTOIGNITION TEMPERATURE:** Not available

**FLAMMABLE LIMITS:** Not applicable

**EXTINGUISHING MEDIA:** Water fog or fine spray, carbon dioxide, dry chemical or foam. Alcohol resistant foams (ATC type) are preferred if available. General-purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively.

**FIRE FIGHTING PROCEDURES:** Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Eliminate ignition sources. Consider feasibility of a controlled burn to minimize environmental damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination.

Burning liquids may be moved by flushing the water to protect personnel and minimize property damage. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Fight fire from protected location or safe distance. Consider use of unmanned hose holder or monitor nozzles. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Immediately withdraw all personnel from area in case of rising sound from venting safety device or discoloration of the container. Move container from fire area if this is possible without hazard. Contain fire water runoff if possible. Fire water run-off, if not contained may cause environmental damage.

**PROTECTIVE EQUIPMENT FOR FIREFIGHTERS:** Wear positive pressure, self-contained breathing apparatus (SCPA) and protective fire fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). If protective equipment isn't available or not used, fight fire from a protected location or safe distance.

**6. ACCIDENTAL RELEASE MEASURES**

**ACTION TO TAKE FOR SPILLS/LEAKS:** Absorb spills with an absorbent material such as HAZORB, ZORBALL, or dirt. Thoroughly wash body areas, which come in contact with this product. Contain spill to keep out of sewers. Report large spills to CHEMTREC: 1 (800) 424-9300. Vapor explosion hazard, keep out of sewers. Eliminate all

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sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Pump with explosion-proof equipment. If available, use foam to smother or suppress.

## 7. HANDLING AND STORAGE

Do not contaminate water, food, or feed by storage and disposal.

**PRECAUTIONS TO BE TAKEN IN HANDLING:** Keep out of reach of children. Do not swallow. Do not get in eyes, on skin, or on clothing. Avoid breathing spray mist and vapors. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion proof equipment may be necessary, depending upon the type of operation. No smoking, open flames or sources of ignition in handling and storage area. Minimize sources of ignition, such as static buildup, heat, spark, or flame.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Store in original container in secured dry storage area with the lid tightly closed. Prevent cross-contamination with other pesticides and fertilizers. Do not contaminate water, food or feed by storage or disposal. Do not store above 100° F for extended periods of time. Storage below 20° F may result in the formation of crystals. If product crystallizes, store at 50-70° F and agitate to re-dissolve crystals.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**GENERAL PROTECTIVE MEASURES:** Wash thoroughly with soap and water after handling. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

**SKIN/HAND PROTECTION:** Use protective clothing impervious to this material. Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation. Remove contaminated clothing immediately, wash skin area with soap and water, and launder clothing before reuse. Contaminated leather items, such as shoes, belts and watchbands, should be removed and destroyed.

**EYE/FACE PROTECTION:** Use chemical goggles. Refer to the product label for additional personal protective clothing and equipment.

**RESPIRATOR REQUIREMENTS:** Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required use a NIOSH approved air-purifying or positive-pressure supplied air respirator depending on the potential airborne concentration. For emergency and other conditions where the exposure guideline may be greatly exceeded, use a NIOSH approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self contained air supply.

### USER SAFETY RECOMMENDATIONS:

Users should:

- 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 clean clothing.
- Remove clothing immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**ENGINEERING CONTROLS:** Provide general and/or local exhaust ventilation to control airborne levels below the exposure guideline.

### EXPOSURE LIMITS:

Chemical Name	CAS NO.	ACGIH/TLV	OSHA/PEL
Chlorpyrifos	2921-88-1	0.1 mg/m <sup>3</sup> (TWA)	NE
Nephthalene	91-20-3	52 mg/m <sup>3</sup> 10ppm (TWA)	50 mg/m <sup>3</sup> 10ppm (TWA)
1,2,4-trimethylbenzene	95-63-6	123mg/m <sup>3</sup> 25ppm (TWA)	125 mg/m <sup>3</sup> 25ppm (TWA)

NE : Not Established

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Light amber liquid  
**ODOR:** Pungent  
**FLASH POINT:** 141°F  
**pH:** 4.42  
**SPECIFIC DENSITY:** 1.066 g/cc

## 10. STABILITY AND REACTIVITY

**STABILITY:** This product is stable under normal use and storage. Unstable at elevated temperatures.  
**CONDITIONS TO AVOID:** Avoid heating above 122°F (50°C). Chlorpyrifos undergoes exothermic decomposition at approximately 266°F (130°C) which can lead to higher temperatures and violent decomposition if generated heat is not removed. Generation of gas during decomposition can cause pressure in closed systems. Contains petroleum derivative solvent which will burn.

**MATERIALS TO AVOID:** Avoid contact with oxidizing materials and bases.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Hazardous decomposition products may include and are not limited to hydrogen chloride, ethyl sulfide, diethyl sulfide and nitrogen oxides.

**HAZARDOUS POLYMERIZATION:** Not known to occur.

## 11. TOXICOLOGICAL INFORMATION

### ACUTE TOXICITY/IRRITATION STUDIES:

Acute Oral LD50 (Rat):	776 mg/kg (males); 300 mg/kg (females)
Acute Dermal LD50 (Rat):	>5,000 mg/kg
Acute Inhalation LC50 (Rat):	2.7 mg/L (4-hr)
Eye Irritation (Rabbit):	Moderately irritating.
Dermal Irritation (Rabbit):	Moderately irritating.
Dermal Sensitization (Guinea Pig):	Not a skin sensitizer

**SYSTEMIC (OTHER TARGET ORGAN EFFECTS):** Excessive exposure may produce organophosphate-type cholinesterase inhibition. Signs and symptoms of excessive exposure to chlorpyrifos may be headache, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, pinpoint pupils, blurred vision, salivation, tearing, tightness in chest, excessive urination, convulsions. Chlorpyrifos produced mild adrenal effects when fed to rats, but only at doses that greatly exceeded any exposures that would be received during normal use of this product. Solvent has been reported to cause liver, kidney, and blood effects at high exposure levels.

**CANCER INFORMATION:** Chlorpyrifos did not cause cancer in laboratory animals. This product contains naphthalene. The International Agency for Research on Cancer evaluated naphthalene and concluded that there was sufficient evidence for carcinogenicity in experimental animals, but inadequate evidence for Cancer in exposed humans. Accordingly, IARC classified naphthalene as a possible human carcinogen (Group 2B). The U.S. National Toxicology Program (NTP) has evaluated naphthalene and found that it may be reasonably anticipated to be a human carcinogen.

**TERATOLOGY (BIRTH DEFECTS):** Chlorpyrifos did not cause birth defects in laboratory animals. Solvent was toxic to the fetus in laboratory animal tests, but only at doses that were toxic to the mothers. Very high concentrations of solvent (producing severe toxicity to adult animals induced an increase in cleft palate in mice, which is a common developmental abnormality in mice and is associated with stress to the maternal animals. No malformations were induced at exposures less than those causing severe toxicity to the adult animals.

**REPRODUCTIVE EFFECTS:** Chlorpyrifos did not interfere with fertility in reproduction studies in laboratory animals.

**MUTAGENICITY (EFFECTS ON GENETIC MATERIAL):** Results of in-vitro ("test tube") and animal mutagenicity tests on the aromatic solvent have been negative. Based on a majority of negative data and some equivocal or marginally positive results, chlorpyrifos is considered to have minimal mutagenic potential.

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL HAZARDS:** This pesticide is toxic to fish, aquatic invertebrates, small mammals and birds. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Cover or incorporate spills. Do not contaminate water when disposing of equipment wash water or rinsate. This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

### **ENVIRONMENTAL FATE:**

**MOVEMENT AND PARTITIONING** (Based on information for chlorpyrifos and components of aromatic hydrocarbons):

Bioconcentration potential is moderate (BCF is between 100 and 3000 or Log Pow between 3 and 5).

### **DEGRADATION & PERSISTENCE (Based on information for chlorpyrifos):**

The photolysis half-life in water is 3-4 weeks. In the atmospheric environment, material is estimated to have a tropospheric half-life of 1.4 hours. Degradation is expected in the soil environment within days to weeks. Under aerobic soil conditions the half-life is generally 30-60 days based on information for aromatic hydrocarbons. Biodegradation under aerobic static laboratory conditions is High (BOD<sub>20</sub> or BOD<sub>28</sub>/ThOD is > 40%).

### **ECOTOXICOLOGY :**

#### **Based on information for chlorpyrifos:**

Material is very highly toxic to aquatic organisms on an acute basis (LC<sub>50</sub>/EC<sub>50</sub> < 0.1 mg/L in most sensitive species. Material is highly toxic to birds on a dietary basis (LC<sub>50</sub> between 50 and 500 ppm) Material is moderately toxic to birds on an acute basis (LD<sub>50</sub> between 51 and 500 mg/kg).

#### **Based on information for aromatic hydrocarbons:**

Material is moderately toxic to aquatic organisms on an acute basis (LC<sub>50</sub>/EC<sub>50</sub> between 1 and 10 mg/l in most sensitive species). Material is practically non-toxic to birds on a dietary

## 13. DISPOSAL CONSIDERATIONS

**DISPOSAL CONSIDERATIONS:** Do not contaminate food, feed, or water by storage or disposal. Wastes are toxic. Improper disposal of excess waste 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.

**PESTICIDE DISPOSAL:** This material is toxic to fish. Do not contaminate waterways by cleaning of equipment or by disposal of wastes. Untreated effluent should not be discharged where it will drain into lakes, streams, or ponds.

**CONTAINER DISPOSAL:** Do not reuse empty containers. Place in trash or offer for recycling if available. If partly filled, call your local solid waste agency or 1-800-CLEANUP for disposal instructions. Never place unused product down any indoor or outdoor drain.

## 14. TRANSPORT INFORMATION

UN3018, Organophosphorus pesticide, liquid, toxic, (chlorpyrifos), 6.1, PG III, RQ.  
(Add "Marine Pollutant" for bulk or vessel shipments.)  
Chlorpyrifos Reportable Quantity (RQ) = 1 pound (0.454 kg).

## 15. REGULATORY INFORMATION

### **SARA TITLE III CLASSIFICATION:**

Section 302:	Not applicable.
Section 311/312:	Acute health hazard (immediate) Chronic health hazard (delayed) Fire hazard
Section 313:	Naphthalene (< 9.9%) CAS No. 91-20-3 1,2,4-Trimethylnenzene (< 1.7%) CAS No. 95-63-6

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**CA PROPOSITION 65:** This product contains a material (naphthalene) known to the State of California to cause cancer.

**CERCLA RQ:**

<u>Chemical Name</u>	<u>CAS NO.</u>	<u>RQ (Pound)</u>	<u>% in Product</u>
Chlorpyrifos	2921-88-2	1	45%

**RCRA CLASSIFICATION:** 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.

**TSCA STATUS:** All ingredients are listed on the TSCA inventory or are not required to be listed on the TSCA inventory.

**STATE RIGHT-TO-KNOW:** The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

<u>Chemical Name</u>	<u>CAS Number</u>	<u>List</u>
1,2,4-Trimethylbenzene	95-63-6	NJ2, NJ3, PA1, PA3
Naphthalene	91-20-3	NJ2, NJ3, PA1, PA3
Chlorpyrifos	2921-88-2	NJ3, PA1, PA3

NJ1=New Jersey Special Health Hazard Substance (present at greater than or equal to 0.1%).  
 NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%).  
 NJ3 = New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).  
 PA1 = Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).  
 PA3 = Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

**OSHA HAZARD COMMUNICATION STANDARD:** This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**16. OTHER INFORMATION**

<b>NFPA HAZARD RATINGS</b>	<b>NFPA</b>		
<b>HEALTH:</b>	2	0	MINIMAL
<b>FLAMMABILITY:</b>	2	1	SLIGHT
<b>REACTIVITY:</b>	1	2	MODERATE
		3	HIGH
		4	SEVERE

**MSDS DATE:** 5-15-2012.

The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state, or provincial, and local laws.