

MATERIAL SAFETY DATA SHEET

**PYRATE 480 EC**

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**1. IDENTIFICATION**

Product name: **PYRATE 480 EC (PCP Reg. No. 23704)**  
 Chemical name of active ingredient(s): Chlorpyrifos: O,O-diethyl-O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate  
 Manufacturer: Makhteshim Agan of North America, Inc.  
 3120 Highwoods Boulevard  
 Raleigh, NC 27604  
 Phone: 1-919-256-9300  
 For fire, spill, and/or leak emergencies, contact Infotrac: Phone: 1-800-535-5053  
 For medical emergencies and health and safety inquiries, contact Prosar: Phone: 1-877-250-9291

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

CHEMICAL NAME	CAS NUMBER	%	ACGIH/ TLV	OSHA/ PEL	OTHER	NTP/IARC/OSHA (Carcinogen)
Chlorpyrifos	2921-88-2	44.86	0.1 mg/m <sup>3</sup> (TWA)	NA	NA	NA
Heavy aromatic petroleum hydrocarbons	64742-94-5	44.75	525 mg/m <sup>3</sup> (TWA)	NA	NA	NA
Contains Naphthalene (% of total)	91-20-3	< 0.4	52 mg/m <sup>3</sup> (TWA)	50 mg/m <sup>3</sup> (TWA)	NA	NTP – 2* IARC –2B**

\* Substances that may reasonably be anticipated to be carcinogens.

\*\* Substance is possibly carcinogenic to humans.

**3. HAZARDS IDENTIFICATIONS**

**PHYSICAL PROPERTIES:**

Appearance: Clear amber liquid

Odor: Characteristic

**EMERGENCY OVERVIEW:** DANGER Eye Irritant. May be fatal if swallowed. May cause skin irritation. Do not get in eyes, on skin or clothing. Avoid breathing vapour or spray mist.

**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.

**POTENTIAL PHYSICAL HAZARDS:** Combustible. Do not use or store near heat or open flame.

#### 4. FIRST AID MEASURES

##### FIRST AID

**IF IN EYES:** Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control centre or doctor for treatment advice.

**IF SWALLOWED:** Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre 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 15–20 minutes. Call a poison control centre 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 centre or doctor for further treatment advice.

Take the container label or product name and Pest Control Product Registration Number with you when seeking medical attention.

**TOXICOLOGICAL INFORMATION:** Chlorpyrifos is an organophosphate that is a cholinesterase inhibitor. Typical symptoms of overexposure to cholinesterase inhibitors include headache, nausea, dizziness, sweating, salivation, runny nose and eyes. This may progress to muscle twitching, weakness, tremors, incoordination, vomiting, abdominal cramps and diarrhea in more serious poisonings. A life-threatening poisoning is signified by loss of consciousness, incontinence, convulsions and respiratory depression with a secondary cardiovascular component. 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 pralidoxime chloride, may be therapeutic if used early; however, use only in conjunction with atropine. In cases of severe acute poisoning, use antidotes immediately after establishing an open airway and respiration. With oral exposure, the decision of whether to induce vomiting or not should be made by an attending physician.

**NOTE:** Product contains a petroleum distillate solvent. Vomiting may cause aspiration pneumonia. If lavage is performed, suggest endotracheal and/or oesophageal control. Danger from aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn, after decontamination.

#### 5. FIRE FIGHTING MEASURES

**FLASH POINT:** 158°F (70°C)

**FLAMMABLE LIMITS:** NA

**EXTINGUISHING MEDIA:** Foam, CO<sub>2</sub>, dry chemical

**FIRE & EXPLOSION HAZARDS:** Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Toxic, irritating gases may be formed under fire conditions. Rapid decomposition above 320-392°F (160-200°C) can occur. Violent rupture due to over-pressurization may occur at temperatures generated during a fire.

**FIRE-FIGHTING EQUIPMENT:** Use positive-pressure self-contained breathing apparatus and full protective clothing.

#### 6. ACCIDENTAL RELEASE MEASURES

**ACTION TO TAKE FOR SPILLS/LEAKS:** Clean up spills immediately. Keep unnecessary and unprotected personnel from entering.

**Small Spill:** Absorb spill with inert material such as dry sand, vermiculite or fuller's earth, then place in a chemical waste container. Rinse area with dilute soda ash and place rinsate into chemical waste container.

**Large Spill:** Same as for small spills; may neutralize with dilute alkaline solutions of soda and ash and place into chemical waste container. Do not allow material to run off into soil, drainage systems, or bodies of water. Notify and consult with proper regulatory authorities.

## 7. HANDLING AND STORAGE

**PRECAUTIONS TO BE TAKEN IN HANDLING:** Do not get in eyes, on skin or on clothing. Avoid breathing vapour or spray mist. Handle only with adequate ventilation. Wear protective clothing, impervious gloves and chemical worker's goggles when handling. Wash thoroughly with soap and water after handling and before eating or smoking. Immediately remove contaminated clothing and wash separately from other laundry before reuse. Destroy contaminated leather articles, including shoes. Do not apply this product in such a manner as to directly or through drift expose workers or other persons.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Do not contaminate water, food or feed by storage or disposal of wastes. Avoid storage at high temperatures. Protect from moisture. Avoid contamination with water, acids or alkalines. Do not store near heat or open flame. Keep container closed.

**STORAGE TEMPERATURE (MIN/MAX):** Normal ambient temperatures.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING AND USE OF THIS PRODUCT.**

**FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.**

**EYE PROTECTION:** Use chemical goggles. If vapor exposure causes eye discomfort, use a NIOSH approved full-face respirator.

**SKIN PROTECTION:** Wear coveralls over long-sleeved shirt and long pants, chemical-resistant footwear plus socks, chemical-resistant apron when mixing or loading or exposed to the concentrate, and chemical-resistant headgear for overhead exposure.

**HAND PROTECTION:** Chemical-resistant gloves, such as barrier laminate or butyl rubber  $\geq 14$  mils.

**RESPIRATOR REQUIREMENTS:** Atmospheric levels should be maintained below the exposure guidelines. When respiratory protection is required, use a NIOSH approved respirator with any R, P, or HE filter.

**ADDITIONAL PROTECTIVE MEASURES:** 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.

**EXPOSURE GUIDELINES:** Refer to Section 2.

**ENGINEERING CONTROLS:** Use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**APPEARANCE:** Clear – amber liquid

**ODOR:** Characteristic

**FLASH POINT:** 158°F (70°C)

**pH:** 6.2 – 6.9

**SPECIFIC GRAVITY:** 1.067g/ml (27°C)

## 10. STABILITY AND REACTIVITY

**CONDITIONS TO AVOID:** Avoid heating above 60°C (100°F). Chlorpyrifos undergoes exothermic decomposition at approximately 130°C (266°F), which can lead to higher temperatures and violent decomposition if generated heat is not removed. Contains petroleum derivative solvent-will burn.

**SPECIFIC MATERIALS TO AVOID:** Strong alkalis, amines and oxidizers.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Under fire conditions, hydrogen chloride, ethyl sulfide, diethyl sulfide and nitrogen oxides can be formed.

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

**11. TOXICOLOGICAL INFORMATION****ACUTE TOXICITY/IRRITATION STUDIES:**

Acute Oral LD50 (Rat):	409 mg/kg
Acute Dermal LD50 (Rat):	>2,000 mg/kg
Acute Inhalation LC50 (Rat):	2.62 mg/L (4-hr)
Eye Irritation (Rabbit):	Severely irritating.
Dermal Irritation (Rabbit):	Severely irritating.
Dermal Sensitization (Guinea Pig):	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.

**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 product contains an active ingredient and aromatic petroleum distillates which are toxic to aquatic organisms. Toxic to birds. Toxic to wild mammals. Toxic to bees exposed to direct treatment, drift, or residues on blooming plants. Do not use on flowering crops or weeds. Toxic to certain beneficial insects. Minimize spray drift to reduce harmful effects on beneficial insects in habitats next to the application site such as hedgerows and woodland.

**ENVIRONMENTAL FATE:**

**MOVEMENT & 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.

Tropospheric half-life is estimated to be 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 components of aromatic hydrocarbons.

Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD >40%).

**ECOTOXICOLOGY: (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 5000ppm).

Material is moderately toxic to birds on an acute basis (LD<sub>50</sub> is between 51 and 5000 mg/kg).

**Heavy aromatic petroleum hydrocarbons:**

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Material is moderately toxic to aquatic organisms on an acute basis (LC<sub>50</sub>/EC<sub>50</sub> is between 1 and 10 mg/L in most sensitive species).

Material is practically non-toxic to birds on a dietary basis (LD<sub>50</sub> is >5000ppm).

Material is practically non-toxic to birds on an acute basis (LD<sub>50</sub> is >2000mg/kg).

**13. DISPOSAL CONSIDERATIONS**

**PESTICIDE DISPOSAL:** For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency.

**CONTAINER DISPOSAL:** Do not reuse this container for any purpose. This is a recyclable container, and is to be disposed of at a container collection site. Contact your local distributor/dealer or municipality for the location of the nearest collection site.

**14. TRANSPORT INFORMATION**

**DOT CLASSIFICATION:**

UN3018, Organophosphorus pesticide, liquid, toxic, (chlorpyrifos), 6.1, PG III, RQ.  
(Add "Marine Pollutant" for bulk or vessel shipments.)

**INTERNATIONAL TRANSPORTATION**

**IMO (vessel):** UN3018, Organophosphorus pesticide, liquid, toxic (chlorpyrifos), 6.1, PG III, RQ, Marine pollutant

**IATA (air):** UN3018, Organophosphorus pesticide, liquid, toxic (chlorpyrifos), 6.1, PG III, RQ, Marine pollutant

**15. REGULATORY INFORMATION**

**CANADIAN REGULATIONS:**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the CPR.

**INGREDIENT DISCLOSURE LIST:** Naphthalene CAS#: 91-20-3

**U.S. FEDERAL REGULATIONS:**

**SARA TITLE III CLASSIFICATION:**

Section 302: Not applicable.  
Section 311/312: Acute health hazard (immediate)  
Chronic health hazard (delayed)  
Fire hazard  
Section 313: Naphthalene CAS#: 91-20-3

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

**CERCLA RQ:** Chlorpyrifos RQ=1 lbs.

**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:** The ingredients of this product are listed on the TSCA inventory or exempt.

**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

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**MSDS DATE:** 8-29-12.

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