

**SAFETY PRECAUTIONS**

1. Handle with care. Avoid contact/splashing.
2. Wear protective clothing-wear rubber gloves and face shield when handling the concentrate.
3. KEEP OUT OF THE REACH OF CHILDREN.
4. KEEP AWAY FROM FOOD AND FOODSTUFFS.
5. KEEP UNDER LOCK AND KEY.
6. Do not eat drink or smoke whilst handling this product.
7. Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the container three times with a volume of water equal to a minimum of 10% of that of the container. Add the rinsings to the contents of the spray tank before destroying the container.
8. While spraying, avoid contact with the spray as much as you can since product may cause eye and skin irritation. Avoid spray drift onto other crops, grazing rivers or dams.
9. Clean applicator thoroughly after use and dispose of wash water where it will not contaminate crops, grazing, rivers or dams. Toxic to fish and harmful to other aquatic life.
10. Destroy empty container and do not use for any other purpose.
11. Change and wash your work clothes. Wash yourself.
12. **Withholding periods-Minimum time between last application and harvest or feeding:**

Cabbage, Brussel sprouts, Potatoes.....	7 days
Pastures.....	14 days
Wheat and Maize.....	32 days
Wheat and Maize (for grazing).....	35 days

**SYMPTOMS OF HUMAN POISONING**

Symptoms of exposure to the product include: nausea, headache, tiredness, giddiness, blurred vision and pupillary constriction. Depending on severity of poisoning, these symptoms become worse with the onset of vomiting, abdominal pain, diarrhea, sweating and salivation. Confusion, ataxia, slurred speech, loss of reflexes are some of the central nervous system effects that may lead to misdiagnosis of acute alcoholism.

**FIRST AID**

- Inhalation:** Remove source of contamination or move victim to fresh air. Keep affected person warm and at rest. Supply oxygen if necessary. Treat symptomatically and supportively. **Seek medical advice immediately.**
- Skin contact:** Remove contaminated clothing, shoes and leather goods. Gently wipe of excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary. Person who become sensitised may require specialised medical management with anti-inflammatory agents.
- Eye contact:** Immediately flush eyes with gently flowing cold water or saline solution for 20 minutes, holding the eyelid(s) open. **Seek medical attention immediately.**
- Ingestion:** Have victim rinse mouth thoroughly with water. Do not induce vomiting, due to the aromatic solvent. **Seek medical advice immediately.**

**ADVICE TO PHYSICIAN**

Atropine must be administered as early as possible and could save lives, if given in time and in an adequate dosage. Patients with organophosphate poisoning require amounts of atropine far in excess of doses usually employed in medical practice. The therapeutic objective is to achieve atropinization, as evidenced by dilation of the pupils, drying secretion, pulse rate of over 120/min, and flushing skin. To prevent gastrointestinal absorption in unconscious who have swallowed this product, perform stomach lavage using bicarbonate solution and activated charcoal.

**WARRANTY**

Excellent results should be achieved from the use of this product, provided the recommendations contained on this label are followed in full. However, as the application of this product and the conditions under which it is applied are beyond the control of the distributor, no warranties are given with regards to the use of this product. The distributor accepts no liability in delict for any injury to persons or damage to or loss of property, or profits, resulting from the handling, use or storage of this product.

Manufactured by:

NOVA AGRO (HK) LTD  
6TH FLOOR, WYNDHAM PLACE,  
44 WYNDHAM STREET,  
CENTRAL HONG KONG

# CHLORPYRIFOS 480EC

## Insecticide

Reg. No.:19-D-31-64

1Litre

**Composition**

Chlorpyrifos.....480g/L  
Inert ingredients.....to 1 Litre

**Mass/volume****Chemical group: Organophosphate**

**An emulsifiable concentrate contact insecticide for the control of pests on various crops as listed.**

**TO CAUSE A HAZARD IN THE USE, STORAGE OR DISPOSAL OF THIS SUBSTANCE IS AN OFFENCE**

**KEEP OUT OF REACH OF CHILDREN**



1. Triple rinse clean container after use
2. Puncture holes in bottom
3. Return to Maguires Recycling Facilitator / Return to nearest recycling facility

**DIRECTIONS FOR USE: Use only as directed**

DOSAGE RATES: (Dosage rates indicated per 100L water are for high volume spraying).

CROP/PEST	DOSAGE/100L WATER or AS INDICATED	REMARKS
<b>DRY BEANS, GRAIN SORGHUM</b> Black maize beetle	10ml/100m row in 3L water	Spray into the plant furrow just behind the planter shoe before closing the furrow.
<b>PASTURES</b> Army worm	250ml/ha	Apply in 200-500L water/ha.
<b>POTATOES</b> Black maize beetle and cutworm	<b>Pre-plant</b> 15ml/100m row length in 3L water	<b>Programme applications:</b> Apply in 10cm band just before closing the furrow.
	<b>Post-Plant</b> 500ml/ha	Apply 6 weeks later in not less than 500L water/ha and increase the volume of water with the increase in crop density. Repeat at intervals of 2-3 week. Use drop arms and ensure a good ground coverage. Rain or ridging after application is essential for good control.
Cutworm	1L/ha	Apply just prior to tuber initiation in not less than 500L water/ha and increase the volume of water with the increase in crop density. Repeat at 2-3 week intervals. Use drop arms and ensure good ground coverage. Rain or ridging is essential for good control.
<b>TOBACCO</b> Cutworm and wireworms TRB No. 16-19-D-51	200ml/ha	Apply 30ml per plants as a stem treatment and ensure thorough wetting of the stem and soil surrounding the base of the plant. Do not apply over the heart of the plant as this can cause leaf damage. Repeat if necessary.
<b>Wheat</b> Russian wheat aphid ( <i>Diuraphis noxia</i> )	750-1000ml/ha	Use higher rate for the first application and where particularly high infections occur. Start spraying when the first signs of infection are observed. Repeat spray 8-10 days later if necessary. Apply as an overall spray in 200-300L water/ha depending on size of the plants. <b>Note:</b> These applications will also suppress black maize beetle.
Green and brown aphids	750ml/ha	Spray if the aphid population is on the increase, and very few ladybird predators and parasites are present. Ground or aerial application.

**SAFETY PRECAUTIONS**

Empty container disposal  
invert the empty container over the spray tank or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a minimum of 10% of the container. Add the rinsings to the contents of the spray tank. Destroy the empty container by perforation and flattening. Return to supplier for recycling. DO NOT use for any other purpose. Dispose of the wash water at a site for the disposal of pesticides.

## Decontamination of sprayer

Clean applicator thoroughly after use and ensure that all traces of **CHLORPYRIFOS 480EC** are removed. Make use of the following method;

- (a) Drain and rinse tank, spray boom and hoses with clean water for at least 10 minutes
- (b) Fill tank with clean water and add it to 1 litre household bleach (5%) or 1.5 Litres of household bleach (3.5%) per 200 Litres of water. Rinse hoses and spray boom and leave in tank for 15 minutes whilst agitating. Drain through nozzle outlets.
- (c) Repeat step (b) and thereafter, rinse thoroughly with clean water and dispose of the wash water at a site designated for the disposal of pesticides.

**Date of Manufacture: SEP. 2015****Batch Number: 20150923**

Registration held by:

MAGCHEM (PVT) LIMITED  
2274 TILBURY ROAD,  
WORKINGTON, HARARE,  
ZIMBABWE



# MATERIAL SAFETY DATA SHEET

**PRODUCT** : CHLORPYRIFOS 480EC  
**EFFECTIVE DATE** : March 2020  
**REVISION NO** : 4  
**PAGE** : 1 of 6

**SUPPLIER** NOVA AGRO (HK) LTD  
(Reg. No. 1023146)  
6th Floor Wyndham Place  
44 Wyndham Street  
CENTRAL HONG KONG.

## EMERGENCY TELEPHONE NUMBERS:

**SPILLAGES** :  
**Telephone No.** (+27) 83 676 1998  
**POISONINGS** :  
**National Poison Centre** : (+27) 21-938 6084 (office hours).  
(South Africa) (+27) 21-931 6129 (after hours).  
**UFS Pharmacology/Toxicology information centre:**  
(+27) 82 491 0160

## 1. IDENTIFICATION OF THE SUBSTANCE

**Product Name** CHLORPYRIFOS 480EC  
**Common Name** Chlorpyrifos  
**Chemical Name** O,O-diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate (IUPAC)  
**CAS No.** 2921-88-2  
**Chemical Family** Organophosphate  
**Chemical Formula** C<sub>9</sub>H<sub>11</sub>Cl<sub>3</sub>NO<sub>3</sub>PS (Mol. wt.: 350.62)  
**Use** Non-systemic insecticide with contact, stomach and respiratory action. Cholinesterase inhibitor.  
**NIOSH/RTECS** TF630000  
**UN number** 3071

## 2. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous components** Chlorpyrifos  
**EC** X<sub>n</sub>, X<sub>i</sub>, T, N  
**RISK-PHASE(S)** R20, R20/22, R36/37/38, R41, R43, R50, R53, R57

## 3. HAZARD IDENTIFICATION

**Toxicity class:**  
WHO II; EPA II (data for technical material).  
A moderately toxic insecticide.

### Likely routes of exposure:

Skin and eye contact, ingestion and inhalation.

### Ingestion:

Highly toxic by ingestion.

### Inhalation:

Moderately toxic by inhalation.

### Skin contact:

Minimally toxic. May cause mild skin irritation. Chlorpyrifos 40% EC does not produce delayed contact dermatitis.

### Eye contact:

May cause moderate eye irritation.

## 4. FIRST AID MEASURES AND PRECAUTIONS

Symptoms of exposure to the product include: nausea, headache, tiredness, giddiness, blurred vision and pupillary constriction. Depending on severity of poisoning these symptoms become worse with the onset of vomiting, abdominal pain, diarrhea, sweating and salivation. Confusion, ataxia, slurred speech, loss of reflexes are some of the central nervous system effects that may lead to misdiagnosis of acute alcoholism.

### Overexposure effects:

After **inhalation of vapours or aerosols**, effects appear within minutes: ocular and respiratory effects generally appear first. These include marked meiosis, ocular pain, conjunctival congestion, diminished vision, ciliary spasm and brow ache. With **acute systemic absorption**, meiosis may not be evident due to systemic absorption, meiosis may not be evident due to sympathetic discharge in response to the hypertension. In addition to rhinorrhea and hyperemia of the upper respiratory tract, respiratory effects consist of "tightness" in the chest and wheezing respiration caused by the combination of bronchoconstriction and increased bronchial secretion. Gastroin-testinal symptoms occur earliest after ingestion and include anorexia, nausea and vomiting, abdominal cramps, and diarrhea.

With **percutaneous absorption** of liquid, localized sweating and muscular fasciculation in the immediate vicinity are generally the earliest manifestations.

**Severe intoxication** is manifested by extreme salivation, involuntary defecation and urination, sweating, lacrimation, penile erection, bradycardia and hypotension.



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The airway should be kept clear to maintain respiration, particularly when the patient is unconscious or has vomited. The mouth and pharynx should be cleared and dentures removed. The jaw should be supported and the patient placed in a face down position with the head down and turned to one side, with the tongue drawn forward. First aid should include, if necessary, mouth-to-nose respiration, cardiac massage and avoidance of injury in patients with trauma.

### **Inhalation:**

Remove source of contamination or move victim to fresh air. Keep affected person warm and at rest. Supply oxygen if necessary. Treat symptomatically and supportively. **Seek medical advice immediately.**

### **Skin contact:**

Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary. Persons who become sensitised may require specialised medical management with anti-inflammatory agents.

### **Eye contact:**

Immediately flush eyes with gently flowing cold water or saline solution for 20 minutes, holding the eyelid(s) open. **Seek medical attention immediately.**

### **Ingestion:**

Have victim rinse mouth thoroughly with water. Do not induce vomiting, due to the aromatic solvent. **Seek medical advice immediately.**

### **Advice to physician:**

Atropine must be administered as early as possible and could save lives, if given in time and in an adequate dosage. Patients with organophosphate poisoning require amounts of atropine far in excess of doses usually employed in medical practice. The therapeutic objective is to achieve atropinisation, as evidenced by dilation of the pupils, drying secretion, pulse rate of over 120/min, and flushing skin. To prevent gastrointestinal absorption in unconscious who have swallowed this product, perform stomach lavage using bicarbonate solution and activated charcoal.

In less severe cases begin with 2mg atropine intravenously for adults or 0.05 mg atropine/kg body weight intravenously for children under 12 years of age and repeat administration of the drug at 15 – 30 min intervals.

In **severe cases** a total atropine dose of 20 – 80mg in the first hour may be necessary, with repeated drug administrations at 3

– 10 min intervals. When signs of atropinisation appear, the dose and frequency of administration should be reduced to a schedule that will maintain full atropinisation for at least 24h. Overdosage with atropine is rarely serious, but underdosage may be fatal in poisoning with organophosphorous compounds.

In any severe progressive case of poisoning a cholinesterase reactivator e.g. pralidoxime (2PAM), if available, should be administered, preferably within 8h after intoxication. An average dose is 1 g for an adult (up to 50mg/kg for children), usually given half as a single intramuscular or intravenous injection and the other half as an intravenous infusion with glucose and or saline. In severe cases this treatment may be repeated in 1-2h, then at 10 – 12h intervals if needed, but not beyond 24h, or 48h at the most. Pralidoxime should be administered very slowly. If respiration is depressed during or after pralidoxime injection, pulmonary ventilation should be assisted mechanically.

Toxogonin is a more recent cholinesterase reactivator. It can be administered instead of 2PAM at a dose of 250mg intramuscularly for adults (4-8mg/kg for children) and, if necessary, repeated after 1–2h.

Diazepam should be included in the therapy of severe cases and whenever convulsions appear. Doses of 5–10mg for adults (2–5mg for children) can be administered intravenously or subcutaneously or per rectum, and repeated as required.

**N.B.** Because of their respiratory-depressant effects, morphine and similar drugs are contraindicated for patients poisoned with organophosphorous compounds. Avoid aminoglycosides and succinylcholine, which have a blocking effect on the neuromuscular junction.

Phenothiazines, reserpine and theophylline are contraindicated in organophosphorous poisoning.

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## 5. FIRE FIGHTING MEASURES

### **Fire and explosion hazard:**

Product is highly flammable and explosive due to the formulant (solvent) content.

### **Extinguishing agents:**

Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product. Contain water used for firefighting for later disposal.



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Avoid the accumulation of polluted run-off from the site.

### **Firefighting:**

Remove spectators from surrounding area. Remove container from fire area if possible. Fight fire from maximum distance. For massive fire, use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers but must be contained for later disposal. Avoid inhaling hazardous vapours. Keep upwind.

### **Personal protective equipment:**

Fire may produce irritating or poisonous vapours (toxic fumes of hydrogen cyanide, chlorine, and oxides of nitrogen and carbon), mists or other products of combustion. Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

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## 6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

### **Personal precautions:**

Do not inhale fumes. Ventilate area of spill or leak, especially confined areas. Avoid contact with skin, eyes or clothes. For personal protection see Section 8.

### **Environmental precautions:**

Do not allow to enter drains or water courses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.

### **Occupational spill:**

For small spills, soak up sand or suitable non-combustible absorbent material, place into containers for subsequent disposal. Thoroughly wash body areas, which come into contact with the product. Avoid runoff to sewer as it may cause fire/explosion. Do not allow the product to come in contact with water systems. For large spills contact the manufacturer. Contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

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## 7. HANDLING AND STORAGE REQUIREMENTS

### **Handling:**

Remove sources of naked flame or sparks. Harmful by inhalation or if swallowed. Avoid contact with eyes and skin and inhalation of fumes. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the insecticide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination

### **Storage:**

Store in its original container in isolated, dry, cool and well-ventilated area. Avoid cross contamination with other pesticides and fertilizers. Keep under lock and key out of reach of unauthorized persons, children and animals. Store away from incompatible substances. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

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## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Remove all sources of ignition or naked flame. It is essential to provide adequate ventilation. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations.

### **PERSONAL PROTECTIVE EQUIPMENT:**

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal equipment including approved respiratory protection.

### **Respirator:**

An approved full-face respirator suitable for protection from dusts and mists of pesticides is required. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

### **Clothing:**

Employee must wear appropriate protective (impervious) clothing and equipment to prevent skin contact with the substance.

### **Gloves:**

Employee must wear appropriate chemical resistant protective gloves to prevent contact with this substance.

**Eye protection:**

Employee must wear splash-proof safety goggles and face-shield to prevent contact with this substance.

*Emergency eye wash:* Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Appearance:** Clear, light yellow liquid free from visible suspended matter and sediment.

**Odour:** Hydrocarbon odour.

**Flammability:** Extremely flammable (due to solvent).

**Explosive properties:** Explosive (due to solvent) in enclosed space (between 1% and 7% in air).

**Flash point:** 30°C for Chlorpyrifos 480EC (Tag Closed Cup method).

**Oxidising properties:** As neither the active substance nor the formulants are oxidising, the preparation is not expected to be oxidising.

**pH:** pH 5.14 (1% w/v dilution of Chlorpyrifos 40%EC in water).

**Viscosity:** Non Newtonian flow behaviour. 3.01 - 5.84mPa s

**Surface tension:** 29.5mN/m

**Relative density:** 1.072g/λ at 20°C for Chlorpyrifos 40%EC.

**Persistent foaming:** 37ml foam after 1 minute; 28ml foam after 12 minutes

**Storage stability:** Stable for up to 2 years under normal warehouse and field conditions. The product was found to be stable after 14 days at 54°C (± 1°C) and 0°C (± 1°C) in accelerated storage test.

**Dilution stability:** Stable.

**Solubility in water:** Immediately forms an emulsion in water.

**Solubility in organic solvents:** (All solubility figures for technical material at 25°C)

heptane:	1213 ± 40g/l
acetone:	1331 ± 33g/l
xylene:	1341 ± 21g/l
1,2-dichloroethane:	1388 ± 31g/l
ethyl acetate:	1323 ± 41g/l
1-octanol:	301 ± 8g/l
methanol:	949 ± 60g/l

**Partition-coefficient in n-octanol / water:**  $K_{ow}$  ( $\log P_{ow}$ ) = 4.5 (data for technical material).

**Melting point:** 38.9 ± °C (data for technical material, depending on purity).

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**10. STABILITY AND REACTIVITY****Stability:**

The product is stable at room temperature.

No significant active ingredient degradation occurs after more than 14 days at 54°C (± 1°C). The product is considered stable after 7 days at 0°C (± 1°C).

**Incompatibility:**

Chlorpyrifos is incompatible with alkaline materials such as Bordeaux mixture or Lime Sulphur. Chlorpyrifos may be incompatible with pesticides containing carboxylic acid amide groups or other strongly basic groups such as Thiram and Captab.

Chlorpyrifos is compatible with most other common pesticides such as Azinphos, Carbaryl, Dicofol, Endosulfan, Pirimicarb, Propargite and wetting agents or spreader-stickers. A compatibility test is required before using with other products.

Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

**Thermal decomposition:**

Product undergoes decomposition at temperature above 160°C. Avoid heating above ambient temperature. Hydrogen chloride and organic sulfides are released when the product decomposes on heating.

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**11. TOXICOLOGICAL INFORMATION**

**Acute oral LD<sub>50</sub>:** 50 –500mg/kg body weight in rats.

**Acute dermal LD<sub>50</sub>:** >2000mg/kg in rabbits.

**Acute inhalation LC<sub>50</sub> (4h):** 5.29mg/l of air in rats.

Inhalation of the solvents' vapours at high doses have also resulted in an increased incidence of malformations and decreased fetal weight in laboratory animals

**Acute skin irritation:** This product is classified as a mild irritant.

**Acute eye irritation:** This product is classified as irritant for the eyes.

**Dermal sensitisation:** This product is a non-sensitising substance to guinea pigs.



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**Carcinogenicity:** Studies did not detect carcinogenic activity. No human information available. The solvent was not found to be carcinogenic  
**Teratogenicity:** Studies with chlorpyrifos did not detect any teratogenic effects. No human information available.  
**Mutagenicity:** Studies indicate that the product display a slight mutagenic activity.

### 12. ECOLOGICAL INFORMATION

**Degradability:** (*Technical material*)

Chlorpyrifos is an organophosphate insecticide that is widely applied to soil to control insect pests. The pathway of chlorpyrifos degradation in soil involves both chemical and microbial processes. The major products of degradation have been identified as the hydrolysis product 3,5,6-trichloro-2-pyridinol (TCP), the secondary metabolite 3,5,6-trichloro-2-methoxy pyridine (TCMP) and eventually CO<sub>2</sub> resulting from mineralisation of the aromatic ring. Laboratory-determined chlorpyrifos soil degradation half-lives vary tremendously, and half-life estimates in different soils have ranged from **less than 10 days to greater than 120 days**.

Environmental factors can greatly influence the degradation rate of chlorpyrifos in soil; the most important being moisture, pH, organic content, and pesticide formulation.

**Chlorpyrifos in formulation can be classified as non-persistent**

**Mobility:** Chlorpyrifos is non-mobile in soil.

**Accumulation:** Contamination of ground water is unlikely to occur by chlorpyrifos, accumulation in the air or contamination by wet or dry deposition are not to be expected.

**ECOTOXICOLOGY:**

**Birds:** Toxic to birds. Acute oral LD<sub>50</sub>: 19.1mg/kg (Japanese quail)

**Fish:** Highly toxic to fish. LC<sub>50</sub> (96 hr): 7.0µg/l (Rainbow trout)

**Daphnia:** Toxic to *Daphnia magna*. The 48-hour EC<sub>50</sub> is 0.155µg/l.

**Bees:** Harmful to bees. LD<sub>50</sub> (oral): 0.198µg/bee  
LD<sub>50</sub> (topical): 0.155µg/bee

**Earthworms:** No risk to earthworms. LC<sub>50</sub>, 1000mg/kg

### 13. DISPOSAL CONSIDERATION

**Pesticide disposal:**

Contaminated absorbents, surplus product, etc., should be burned in a high-temperature incinerator (>1000°C) with effluent gas scrubbing. Where no incinerator is available surplus product should be or diluted and buried in designated landfill. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Comply with local legislation applying to waste disposal.

**Package product wastes:**

Emptied containers retain vapour and product residues. Observe all labeled safeguards until container is destroyed. Combustible containers should be disposed of in pesticide incinerators. Non-combustible containers must be triple rinsed with water and then be punctured and transported to a scrap metal facility for recycling or disposal in approved landfill site. Comply with any local legislation applying to disposal.

### 14. TRANSPORT INFORMATION

**UN NUMBER:** 3017  
**AIR/IATA :** 6.1 (Subsidiary risk: 3)  
**IMG/IMO:** 6.1 (Subsidiary risk: 3)  
**ICAO/IATA:** 6.1 (Subsidiary risk: 3)  
**PACKING GROUP:.** III  
**ROAD/RAIL:** Organophosphate pesticide, liquid, toxic, flammable, n.o.s. (chlorpyrifos).  
**AIR/IATA:** Organophosphate pesticide, liquid, toxic, flammable, n.o.s. (chlorpyrifos).  
**SEA:** Organophosphate pesticide, liquid, toxic, flammable, n.o.s. (chlorpyrifos).  
Considered marine pollutant

### 15. REGULATORY INFORMATION



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### Symbol:

X<sub>n</sub>, Xi, T, N

**Indication of danger:** Harmful, Irritant, Dangerous for the environment, Toxic.

### Risk phrases:

**R24** Toxic in contact with skin  
**R20/22** Harmful by inhalation and if swallowed  
**R36/37/38** Irritating to eyes, respiratory system and skin  
**R41** Risk of serious damage to eyes.  
**R43** May cause sensitising by skin contact.  
**R50** Very toxic to aquatic organisms  
**R53** May cause long-term adverse effects in the aquatic environment

**R57** Toxic to Bees

### Safety phrases:

**S1** Keep locked up  
**S2** Keep out of reach of children  
**S23** Do not breathe vapour/spray  
**S24/25** Avoid contact with skin and eyes.  
**S28** After contact with skin, wash immediately with plenty of water and non-abrasive soap.  
**S36/37/39** Wear protective clothing, gloves and eye/face protection  
**S45** In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)  
**S60** This material and its container must be disposed of as hazardous waste.  
**S61** Avoid release to the environment. Refer to special instructions / Safety data sheets.

subsequently produces formulations(s) containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

### REFERENCES

- *The Pesticide Manual*; 13th Edition; Editor Clive Tomlin; Crop Protection Publications, 2003.
- *Pestline*; Material Safety Data Sheets for Pesticides and Related Chemicals; Volume II; Occupational Health Services Inc., 1991.
- *IPCS*; Health and Safety Guide No. 22; World Health Organisation, Geneva, 1990.
- *Agriculture and Public Health*; Guide to the Treatment of Poisoning by Chemicals, 1993.
- *Pharmacological Basics of Therapeutics*; International Edition; Alfred Goodman Gilman, Joel G. Hardman, Lee E. Limbird, Perry B. Molinoff, Raymond W. Ruddon.
- *EuroChem Monitor*; European Community Legislation on the Marketing and Use of Dangerous Substances and Preparations, Volume 1 and 5
- *Dangerous Goods Regulations; IATA 1945–1995*; International Air Transport Association, 36th Edition, Effective 1 January 1995.
- *Guidelines for personal protection when using pesticides in hot climates*. GIFAP, G8/7 5M/989/ENG/QUA.
- *SouthAfrican Medicine Formulary*. Emergency Treatment of Poisoning. Merck Manual

## 16. OTHER INFORMATION

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear.

It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient