



Safety Data Sheet

CHLORIFOS - Reg. No: L 10017 (Act No 36 of 1947) Namibian Reg. No. N-AR 2147

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1) IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER.	
Product name:	CHLORIFOS
Other means of identification:	Chlorpyrifos 480 g/L EC
UN number:	3017
Recommended use:	Insecticide
Restrictions on use:	No information available
Distributed by:	MERIDIAN AGRITECH P O BOX 436 MODDERFONTEIN TEL 011 8228509 FAX 0866901386 MOBILE: 0834006056 www.agritech.co.za
Emergency Number:	POISON CENTRE (UNITAS HOSPITAL) 012 664 1100 WESTERN CAPE POISONS TELEPHONE SERVICE 0861 555 777 RAPID SPILL RESPONSE 0800 775 3305 GRIFFON POISON CENTRE: 082 446 8946
Chemical Name:	O,O-diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate
2) Classification of the substance / mixture:	
Classification of the product:	R10 R22 R36/38 R50 R57 Xn N Xi F Full text of symbols and R-phrases: see section 15.
Label elements:	  Danger
Health effects: eyes:	May cause moderate irritation.
Health effects: skin:	May cause mild irritation.
Health effects: ingestion	Toxic if swallowed.
Health effects: inhalation	Moderately toxic by inhalation.

Health effects: Other				No data available	
3) COMPOSITION / INFORMATION ON INGREDIENTS:					
Mixture:					
Chemical name	% composition	CAS No.	EC No.	Classification according to Regulation EC 1272/2008 (CLP)	Classification according to 67/548/EEC
Chlorpyrifos	48%	2921-88-2	220-864-4	Acute Tox. 3 H301: Toxic if swallowed Aquatic Acute1: H400: Very toxic to aquatic life Aquatic Chronic: H410: Very toxic to aquatic life with long-lasting effects	Xn , N, Xi, F R10, R22 R36/38, R50 R57 S1/2, S 7 S13, S20/21 S23, S24/25 S 28, S36/37/39 S45, S46, S57, S61
Full text of R- and S-phrases: see section 15.					
4) First Aid Measures:					
Eye contact:			Flush eyes with plenty of clean water or saline solution for at least 20 minutes while holding the eyelids open. Seek medical assistance.		
Skin contact:			Immediately flush body and clothes with large amounts of water. Remove contaminated clothing, footwear and leather goods. Wash affected areas with a non-abrasive soap and plenty of water for at least 15 minutes. Do not re-use clothing until it is thoroughly cleaned or laundered. Seek medical assistance if irritation occurs. Patients who become sensitised may require specialised medical management with anti-inflammatories.		
Ingestion:			Never give anything by mouth to an unconscious person. Do not induce vomiting unless instructed to by a poison control centre or medical doctor. Rinse the patient's mouth thoroughly with water if the patient is alert and able. For advice, contact the National Poisons Centre. Seek medical assistance immediately.		
Inhalation:			Remove patient to fresh air. Loosen clothing around neck. Lie down and keep warm and rested. If breathing is shallow or has stopped ensure airway is clear, apply resuscitation and seek medical assistance immediately.		
Most important symptoms and effects, acute and delayed:			After inhalation of vapours or aerosols, effects may 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; or due to sympathetic discharge in response to the hypertension. In addition to rhinorrhea and hyperaemia of the upper respiratory tract, respiratory effects may consist of "tightness" in the chest and wheezing respiration caused by the combination of bronchoconstriction and increased bronchial secretion. Gastrointestinal symptoms occur earliest after ingestion and may include anorexia, nausea and vomiting, abdominal cramps, and diarrhoea. With percutaneous absorption of liquid, localized sweating and muscular fasciculation in the immediate vicinity are often the earliest manifestations.		

Indication of immediate medical attention and special treatment needed: Advice to physician

Severe intoxication may result in extreme salivation, involuntary defecation and urination, sweating, lacrimation, penile erection, bradycardia and hypotension.

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

The airway must 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.

Atropine must be administered as early as possible in an adequate dosage. Patients with organophosphate poisoning need amounts of atropine far in excess of doses usually employed in medical practice. The objective is to achieve atropinisation, as evidenced by dilation of the pupils, drying secretion, pulse rate of over 120 per minute, and flushing skin. In order to prevent gastrointestinal absorption in unconscious patients that have swallowed this product, perform stomach lavage using bicarbonate solution and activated medical charcoal.

In less severe cases, start with 2 mg 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 to 30 minute intervals.

In **severe cases**, a total atropine dose of 20 to 80 mg in the first hour may be needed, with repeated drug administrations at 3 – 10 minute intervals. When signs of atropinisation appear, the dosage and frequency of administration should be reduced to a schedule that will maintain full atropinisation for at least 24 hours. Over-dosage with atropine is rarely serious, but under-dosage may be fatal in poisoning with organophosphorous compounds.

In any severe progressive case of poisoning a cholinesterase reactivator such as pralidoxime (2PAM), if available, should be administered, preferably within 8 hours after intoxication. An average dose is 1 g for an adult (up to 50 mg/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 to 2 hours, then at 10 to 12 hour intervals if needed, but not beyond 24, or 48 hours at the most. Pralidoxime must 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 may be administered instead of 2PAM at a dose of 250mg intra-muscularly for adults (4 to 8 mg/kg for children) and, if necessary, repeated after 1 to 2 hours. Diazepam should be included in the therapy of severe cases and whenever convulsions appear. Doses of 5 – 10 mg for adults (2 – 5 mg for children) can be administered intravenously or subcutaneously or per rectum, and repeated as needed.

NOTE

Because of their respiratory-depressant effects, morphine

	and similar drugs are contraindicated for patients with organophosphorous compound poisoning. Avoid aminoglycosides and succinylcholine, which have a blocking effect on the neuromuscular junction. Phenothiazines, reserpine and theophylline are contraindicated in organophosphorous poisoning.
5) Fire-Fighting Measures:	
Suitable extinguishing media:	Alcohol-resistant foam, carbon dioxide, dry chemical powder. Water spray may be used to cool unaffected stock, but do not allow water to come into contact with the product.
Unsuitable extinguishing media:	Water jet due to risk of contamination.
Special hazards arising from the substance or mixture:	Fire may produce irritating and / or poisonous vapours (toxic fumes of hydrogen cyanide, chlorine, and oxides of nitrogen and carbon), mists or other products of combustion.
Fire-fighting:	Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire. Fight the fire from the maximum distance and, for large fires, use unmanned hose holders or monitor nozzles. Contain fire control agents for later disposal. Avoid inhaling hazardous vapours and fumes from burning materials. Keep upwind. Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but it must be contained for later disposal. Use as little water as possible and do not allow water to come into contact with the product. Do not scatter the material. Avoid pollution of waterways. Avoid the accumulation of polluted run-off from the site.
Protective clothing:	Full protective clothing and self-contained breathing apparatus
6) Accidental Release Measures:	
Personal precautions:	Avoid contact with skin, eyes or clothes. Avoid inhalation of the spray or fumes. Ventilate the area of a spill or leak, especially in confined areas. For personal protection see Section 8.
Environmental precautions:	Do not contaminate waterways, drains and groundwater. Heavily contaminated soil layers should be removed and disposed of in an approved way. If contamination of waterways, drains, rivers or lakes is unavoidable, warn the local authorities (Police and Department of Water/Environmental affairs) immediately. If the product comes into contact with water, contain the contaminated water for later disposal. Prevent the material from spreading by damming it in with absorptive material. Do not flush the spilled material into drains. Keep all spectators away and upwind. Remove any sources of naked flames or sparks.
Cleaning procedure:	Do not touch any spilled material. Stop the leakage if it is safe to do so. Wear protective clothing. Clear area of unprotected personnel. Contain and absorb liquid spills with an inert material (such as earth or sand or other suitable non-combustible absorbent material). Remove by scoop or vacuum. Use an approved industrial vacuum cleaner for removal and place into clean, dry, marked and sealable waste containers. If the potential for fire exists, blanket the spill with foam as a precautionary measure. Label the drums appropriately and dispose in a safe and approved manner in accordance with local regulations. Open burning or dumping or dumping of this material is prohibited. Do not allow this product to enter drains or watercourses. If spill does enter waterways contact the local authority. Spilled product cannot be re-used and must be disposed of in accordance with local regulations. If containers cannot be recycled, they should be disposed of together with the waste chemical.

<p><u>PERSONAL PROTECTIVE EQUIPMENT:</u></p> <p>Clothing:</p> <p>Gloves:</p> <p>Eye protection:</p> <p>Respiratory protection:</p> <p>Emergency eye wash:</p>	<p>Consult supplier to confirm that the equipment is suitable.</p> <p>Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.</p> <p>Employee must wear appropriate chemical-resistant gloves to prevent contact with this substance</p> <p>The use of safety goggles with side shields is recommended when the respirator does not provide eye protection.</p> <p>Wear an approved respirator for protection from mists of pesticides if ventilation is inadequate. The limitations of the respirator use as specified by the approving agency and the manufacturer must be observed.</p> <p>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.</p>
9) Physical & Chemical Properties:	
<p>Form:</p> <p>Colour:</p> <p>Odour:</p> <p>Odour threshold:</p> <p>pH:</p> <p>Melting point / Freezing point</p> <p>Initial boiling point and boiling range</p> <p>Flash point:</p> <p>Evaporation rate:</p> <p>Flammability (solid, gas)</p> <p>Upper/ lower flammability or explosive limits:</p> <p>Vapour pressure:</p> <p>Vapour density:</p> <p>Relative density:</p> <p>Solubility(ies)</p> <p>Partition coefficient: n-octanol/water</p> <p>Auto-ignition temperature:</p> <p>Viscosity:</p>	<p>Liquid</p> <p>Clear brown – yellow liquid</p> <p>Characteristic</p> <p>No data available</p> <p>4.0 – 5.0</p> <p>No data available</p> <p>No data available</p> <p>Flammable. 30 ° C</p> <p>No data available</p> <p>No data available</p> <p>No data available</p> <p>No data available</p> <p>No data available</p> <p>No data available</p> <p>No data available</p> <p>Emulsifies in water</p> <p>No data available</p> <p>No data available</p> <p>No data available</p>
10) Stability & Reactivity:	
<p>Reactivity:</p> <p>Chemical stability:</p> <p>Hazardous decomposition product(s):</p>	<p>Not available.</p> <p>When stored appropriately this product should show no significant degradation for 2 years from the date of manufacture. Product undergoes decomposition at temperatures above 160 °C. Avoid heating above ambient temperature. Hydrogen chloride and organic sulphides may be released when the product decomposes on heating.</p> <p>None known</p>

Conditions to avoid: Incompatible materials:	No data available 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. A compatibility test is required before using with other products. Do not physically mix the concentrate directly with other pesticide concentrates; always dilute first.
11) Toxicological Information:	
Acute: Oral LD ₅₀ : 4300 mg/kg > LD ₅₀ > 2000 mg / kg, rat Dermal LD ₅₀ : LD ₅₀ > 2 000 mg/kg, rat. Inhalation LC ₅₀ (4h): LC ₅₀ (4h) > 5.37 mg/L, rat. Skin irritation : Mild irritant. Eye irritation : Moderate irritant, rabbit. Sensitisation : May cause mild sensitisation. Other : N/A	
12) Ecological Information:	
Information below based on active ingredient: Bees: Toxic to bees. LD ₅₀ (oral) 360 ng/bee; (contact) 70 ng/bee. Birds: Acute oral LD ₅₀ for mallard ducks 490, house sparrows (<i>Passer domesticus</i>) 122, chickens 32–102 mg/kg. Dietary LC ₅₀ (8 d) for mallard ducks 180, bobwhite quail 423 ppm. Fish : LC ₅₀ (96 h) for bluegill sunfish 0.002–0.010, rainbow trout 0.007–0.051, roach 0.25, fathead minnows 0.12–0.54 mg/l. Algae : NOEC for <i>Selenastrum capricornutum</i> >0.4 mg/l. Worms: LC ₅₀ (14 d) for <i>Eisenia foetida</i> 210 mg/kg soil. Other aquatic species: Toxic to <i>Daphnia magna</i> , LC ₅₀ (48 h) 1.7 µg/l. Persistence and Degradability: In soil, chlorpyrifos is degraded at a moderate rate; DT ₅₀ (lab.) 10–120 d (25 °C); field DT ₅₀ for soil-incorporated applications 33–56 d, for soil-surface applications 7–15 d. Primary route of degradation is transformation to 3,5,6-trichloropyridin-2-ol, which is subsequently degraded to organochlorine compounds and CO ₂ . <u>K_{oc}</u> 1250–12 600. Biodegradation: No data available. Bioaccumulative potential: No data available. PBT: No data available. vPvB: No data available. Other adverse effects: No further information available.	
13) Disposal Considerations:	
Waste Disposal: Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Product waste should be burned in a high temperature incinerator (> 1000 °C) with effluent gas scrubbing. Never pour untreated waste or surplus products into public sewers or where there is any danger of running-off or seepage into water systems. Comply with local legislation applying to waste disposal. Container Disposal: Refer to the product label for instructions. Emptied containers retain vapour and product residues, therefore observe all labelled safeguards until the container is destroyed. Combustible containers should be disposed of in pesticide incinerators. Non-combustible containers must first be triple-rinsed with water, then punctured and transported to a scrap metal facility for recycling or disposal. If the container is to be refilled, do not rinse with any material or introduce any pesticide other than this product. DO NO REUSE THE CONTAINER FOR ANY OTHER PURPOSE.	

Do not transport if this container is damaged or leaking.

14) Transportation Information:

UN NUMBER: 3017

Road Transport ADR/ RID:

Class: 6.1

Packaging group: III

Labelling no: 6.1

Shipping name: Organophosphorous pesticide, liquid, toxic, Flammable (Chlorpyrifos)

Maritime Transport IMDG / IMO:

Class: 6.1

Packaging group: III

Labelling no: 6.1

Shipping name: Organophosphorous pesticide, liquid, toxic, Flammable (Chlorpyrifos)

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC code): Consult IMO regulations before transporting ocean bulk.

Air Transport ICAO / IATA:

Class: 6.1

Packaging group: III

Labelling no: 9

Shipping name: Organophosphorous pesticide, liquid, toxic, Flammable (Chlorpyrifos)

MARINE POLLUTANT

15) Regulatory Information:

Symbols: Xn – Harmful

N - Dangerous for the environment

Xi – Irritant

F: Flammable

Risk – Phrase:

R10 - Flammable.

R22 - Harmful if swallowed

R36/38 - Irritating to eyes and skin.

R50 - Very toxic to aquatic organisms.

R57 - Toxic to bees.

Safety – Phrases:

S1/2 - Keep locked up and out of reach of children.

S 7 - Keep container tightly closed.

S13 - Keep away from food, drink and animal feeding stuffs.

S20/21 - When using, do not eat drink or smoke.

S23 - Do not breathe vapour / spray.

S24/25 - Avoid contact with the skin and eyes.

S 28 - Avoid contact with skin, wash immediately with plenty of water and non-abrasive soap.

S36/37/39 - Wear suitable 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).

S46 - If swallowed, seek medical advice immediately and show this label.

S57 - Use appropriate containment to avoid environmental contamination.

S61 - Avoid release to the environment. Refer to special instructions / safety data sheets.

Hazard Statements

- H301 - Toxic if swallowed.
- H400 - Very toxic to aquatic life.
- H410 - Very toxic to aquatic life with long-lasting effects.

16. Other Information

All information and instructions provided in this Safety Data Sheet (SDS) are based on the current state of scientific and technical knowledge at the date indicated on the present SDS 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 SDS 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 this product. If the recipient subsequently produces formulation(s) containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this SDS to their own SDS.

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