

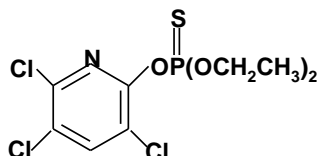
MATERIAL SAFETY DATA SHEET

Dofos 48% EC

(Chlorpyrifos 48%EC)

SECTION 1. IDENTIFICATION OF THE SUBSTANCE

Trade name: Dofos 48% EC
 Common Name: Chlorpyrifos
 Form: EC
 -CAS No : 2921-88-2
 -Chemical Name: O,O-diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate
 -Formula: : C₉H₁₁Cl₃NO₃PS
 -Structure:



SECTION 2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance	Conc.
Active ingredient	
Chlorpyrifos	48%
Inert ingredient	
Emulsifier	10%
Solvent	Up to 100%

SECTION 3. HAZARDS IDENTIFICATION

HEALTH EFFECTS

ACUTE:

Chlorpyrifos-Methyl is an organo-phosphate insecticide and will inhibit cholinesterase. Symptoms of overexposure to the active constituent may include headaches, dizziness, incoordination, muscle twitching, tremors, nausea, abdominal cramps, diarrhea, sweating, constrictive pupils, blurred vision, salivation, tightness of the chest, excessive urination and convulsions.

SWALLOWED:

The acute oral toxicity of the active constituent is high with reported LD measurements for the active 115 mg/Kg. Injury or death may occur from the ingestion of the concentrate. If the concentrate enters the lungs, lung damage may occur due to chemical pneumonia caused by the solvents.

EYES: Will cause temporary, moderate eye irritation.

SKIN:

The acute dermal toxicity is low but prolonged contact may result in absorption of harmful amounts. The product may cause some skin irritation after prolonged contact and will irritate broken skin. Repeated exposure may cause allergic disorders.

INHALED:

The acute inhalation toxicity is moderate and excessive exposure to Spray mist may be harmful. Prolonged exposure to the solvent vapor from the concentrate may cause eye and respiratory tract irritation, headaches, dizziness and narcotic effects.

CHRONIC:

Rats and mice which were administered the active ingredient in long term studies showed no increase in tumors compared to the control. A study in rats and rabbits indicates that the active constituent does not cause birth defects or interfere with reproduction. There is no known evidence of genetic change or accumulation of the active constituent in the body.

SECTION 4.FIRST AID MEASURES

A Poisons Information Centre or a Doctor should be consulted in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing.

SWALLOWED:

If swallowed, induce vomiting preferably using Ipecac Syrup APF. Give one atropine tablet every five minutes until dryness of the mouth occurs. Get to a doctor or hospital quickly.

EYES:

If in eyes, hold eyes open and flood with water for at least 15 minutes and see a Doctor.

SKIN:

Remove contaminated clothing and wash skin thoroughly with soap and water for at least fifteen minutes. If symptoms of poisoning occur, give atropine tablets as above and get to a Doctor or hospital quickly.

INHALED:

Remove from contaminated area to fresh air. If breathing is difficult give oxygen and if necessary artificial respiration. If poisoned by inhalation give atropine tablets as above. Get to a doctor or hospital quickly.

FIRST AID FACILITIES: Eye wash, shower, Ipecac syrup, atropine tablets, soap.

ADVICE TO DOCTOR:

Chlorpyrifos-Methyl is a cholinesterase inhibitor. Atropine by injection or Atrovent / ipratropium by airway puffs are the desirable antidotes. Oximes such as 2 PAM/ proutopam may be therapeutic if used early but only in conjunction with atropine.

SECTION 5.FIRE FIGHTING MEASURES

Flammability:	Not auto flammable
Extinguishing media:	Foam, Carbon dioxide, Dry chemical
Flash Point:	85°C
Materials to avoid:	Strong oxidizing agents.

Special Fire Fighting Procedures:

Fight fire from upwind position.

Use self contained breathing apparatus and equipment designed to prevent skin and eye contact.

Cool exposed containers with water spray.

This product is toxic to birds, fish and other wildlife.

Prevent spread of contaminated runoff.

Unusual Fire and Explosion Hazards:

Rapid decomposition may occur above 320-392° F. (160-200°C.) May give off hydrogen chloride, ethyl sulfide, diethyl sulfide and nitrogen oxides.

Foam is preferred method of fighting fires to help prevent spread of contaminated runoff.

SECTION 6.ACIDENTAL RELEASE MEASURES

Use appropriate protective equipment. Spills should be cleaned up immediately.

Large spill: dike and pump as much as possible to a salvage container. Absorb the remaining liquid and any small spills with clay granules, sand or other absorbent material and sweep to a waste container. Cover the spill area with water and absorb. Minimize runoff into waterways or drains.

SECTION 7.HANDLING AND STORAGE

Precautions for handling and storage:

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

Store in a dry place away from temperature extremes.

Avoid inhalation of vapors.

Avoid contact with skin.

Wear clean protective clothing.

Causes substantial but temporary eye injury.

Do not get in eyes.

Do not use or store near heat or open flame.

If product is diluted with water, DO NOT use in conduits, motor housings and electrical switch boxes.

Care should be taken to avoid depositing the product onto exposed surfaces or introducing the product into the air.

Avoid contamination of food or food processing surfaces.

Do not treat pets with this product.

See product label for other precautionary statements for safe use.

Other precautions: Periodically inspect stored materials.

SECTION 8.EXPOSURE CONTROL/PERSONAL PROTECTION

Refer to the product label for specific information.

Respiratory protection:

Handle concentrate in a well ventilated area.

Wear a pesticide respirator jointly approved by the Mining Enforcement and Safety Administration (formerly US Bureau of Mines) and the National Institute for Occupational Safety and Health (NIOSH), under the provisions of 30 CFR Part II when handling concentrate if TLV values might not be met.

Ventilation:

Local Exhaust: As required to meet TLV values.

Special: As required to meet TLV values.

Mechanical: As required to meet TLV values.

Other: As required to meet TLV values.

Protective Gloves: Chemical resistant.

Eye Protection: Face shield, goggles or safety glasses.

Other protective clothing or equipment:

Wear protective clothing such as long sleeved shirt and long pants when handling concentrate.

Work/Hygienic practices:

Handle concentrate in a ventilated area.

May be fatal if inhaled or absorbed through skin.

Causes substantial but temporary eye damage.

Do not get in eyes, on skin or on clothing.

Do not breathe fumes.

Rapidly absorbed through skin.

Wash hands, arms and face thoroughly with soap and water before eating or smoking. Remove contaminated clothing and wash before reuse.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Color	yellow
Persistent foam test	Accepted (CIPAC F p. 140 MT43)
Density	1.04 gm/cm ³ (CIPAC F p.11 MT 3)
pH value	3.5 (CIPAC F p.205 MT 75)
Corrosion properties	Non corrosion
Flash point	85°C

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal temperatures and storage conditions.

Condition to avoid: Extremely heat

Chlorpyrifos-Methyl undergoes exothermic decomposition at about 130°C. (266°F.)

which can lead to higher temperatures and violent decomposition if generated heat is not removed.

Materials to avoid: Strong oxidizers

Incompatibility: Alkalies.

Hazardous Decomposition or Byproducts:

Hydrogen chloride, ethyl sulfide, diethyl sulfide and nitrogen oxides.

Hazardous Polymerization: Will not occur.

Conditions to avoid for Hazardous Polymerization: None.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral

LD₅₀ for rats: >3000 mg/kg
Mice: 1100-2250 mg/kg
Guinea pigs: 2250 mg/kg
Rabbits: 2000 mg/kg.

Skin and eye

Acute percutaneous LD₅₀ for rabbits >2000 mg/kg
rats >3700 mg/kg.
Non-irritating to skin and eyes.

Inhalation

LC₅₀ (4 h) for rats >0.67 mg/l.

Skin contact:	Mild irritating to skin (rabbits)
Eye contact:	Mild irritating to eye (rabbits)
Other:	Non-mutagenic, non-teratogenic; no adverse effect on reproductive performance. Not neurotoxic.
Toxicity class:	WHO (a.i.) III; EPA III

Carcinogenicity:

Chlorpyrifos-Methyl did not cause cancer in long term animal studies.

Mutagenicity:

Based on a majority of negative data and some equivocal or marginally positive results, Chlorpyrifos-Methyl (the active ingredient in this product) is considered not to be mutagenic. Results of in vitro ("test tube") and animal Mutagenicity tests on the aromatic solvent have been negative.

Teratology (Birth Defects):

Chlorpyrifos-Methyl did not cause birth defects in laboratory animals.

Reproductive Effects:

Chlorpyrifos-Methyl did not interfere with fertility in reproduction studies in laboratory animals.

Some evidence of toxicity to the offspring occurred, but only at a dose high enough to produce significant toxicity to the parent animals.

SECTION 12. ECOLOGICAL INFORMATION

This product is highly toxic to birds, fish and honeybee, Moderately toxic to pets and livestock, and low toxic to earthworm. Chlorpyrifos-Methyl does not bioaccumulate in animal systems. Keep out of lakes, streams, ponds, tidal marshes, and estuaries. Do not contaminate water by cleaning of equipment or disposal of equipment wash water.

SECTION 13. DISPOSAL INSTRUCTION

Contaminated material must be disposed of in accordance with all State and/or Local regulations.

Small quantities and containers:

Triple or preferably pressure rinse containers before disposal.

Add rinsing to spray tank.

Do not dispose of undiluted chemicals on site.

If recycling, replace cap and return clean containers to recycler or designated collection point.

If not recycling break, crush, or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots.

Empty containers and product should not be burnt.

Rinsate/rinse water should be disposed of in accordance with appropriate.

Do not put down sewers, gutters or storm water drains.

FIRE & EXPLOSION HAZARD

Flash point: >45°C

Extinguishing Media:

Carbon dioxide, dry chemical, foam, water fog.

Water fog or fine spray is the preferred medium for large fires.

Special Fire Fighting procedures:

When fighting fires involving significant quantities of this product, wear safety boots, non-flammable overalls, gloves, hat, goggles and self contained breathing apparatus. All skin areas should be covered.

Ensure that no spillage enters drains or water courses.

Unusual Fire & Explosion Hazards:

Combustible liquid. There is a moderate risk of an explosion from this product if it is involved in a fire. Fire decomposition products from this product may form toxic and corrosive mixtures in confined spaces.

Stability:

This product is unlikely to spontaneously decompose.

Polymerization: This product is unlikely to spontaneously polymerize.

Decomposition Products: Carbon dioxide, and if combustion is incomplete, carbon monoxide and smoke.

Nitrogen, and under some circumstances, oxides of nitrogen. Oxides of sulfur. Oxides of phosphorus. Water. Materials to avoid: Strong oxidizing agents.

SECTION 14. TRANSPORT INFORMATION

Transport Classification: Road & Rail (ADG), Sea (IMDG)

UN NO.: 3018

Shipping Name: Pesticide, liquid, flammable, toxic, N.O.S. (contains chlorpyrifos-Methyl)

UN class: 6.1

Packing Group: III

Other Info: Chlorpyrifos-Methyl, Marine Pollutant

SECTION 15. REGULATORY INFORMATION

Acute: Yes

Chronic: Yes

Fire: Yes

Reactivity: No

Read and follow all label directions.

SECTION 16. OTHER INFORMATION

The data given here is based on current knowledge and experience. The purpose of this safety data sheet is to describe the products in terms of their safety requirements.

Proper use: The product as a Public Health insecticide Use