

MATERIAL SAFETY DATA SHEET

SPECTRUM

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name : SPECTRUM
Chemical name of active ingredient(s) : O,O-Diethyl O-3,5,6-trichloro-2-pyridyl phosphorothioate.
Chemical formula : Chlorpyrifos: $C_9H_{11}Cl_3NO_3PS$.
EU Cat. No. : Chlorpyrifos: 015-084-00-4.
Code no. : R-6850.G
Manufacturer : Makhteshim Chemical Works, Ltd.
P.O.B. 60, Beer Sheva 84100, Israel.
Fax no.: 972-8-6296848-(364)
Emergency telephone number : 972-3-6106666
Subscription no.: 36789 (MAKHTESHIM)

2. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/preparation : Preparation.

Information on hazardous ingredients *

Common name	CAS No.	%	EC Number	Symbol	R-Phrases
Chlorpyrifos	2921-88-2	250 g/l	220-864-4	T, N	R24/25-50/53

* *Occupational Exposure Limit(s), if available, are listed in section 8*

3. HAZARDS IDENTIFICATION

Most important hazards : **THIS COMPOUND INHIBITS CHOLINESTERASE.**
May cause sensitization by skin contact.
Environmental hazards : Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST-AID MEASURES

Effects and symptoms : Exposure may result in excessive sweating, weakness, salivation, nausea, diarrhoea, bradycardia, tachycardia, bronchorrhea, small pupils, central nervous depression, fasciculation and convulsions.

First-aid measures

Inhalation : Remove victim to fresh air. Keep victim warm and at rest.
If breathing is difficult: give oxygen.
If not breathing: apply artificial respiration.
Immediately get medical attention.
Ingestion : Induce vomiting only if victim is conscious. Never give anything by mouth to an unconscious person. Wash out mouth with water.
If breathing is difficult: give oxygen.
If not breathing: apply artificial respiration.
Immediately get medical attention.
Skin contact : Remove contaminated clothing. Wash off with plenty of water and soap.
Get medical attention.

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Eye contact	: Wash off with plenty of water for at least 15 minutes. Immediately consult an eye specialist.
Notes to a physician	: Antidote 1: Atropine sulfate. Antidote 2: Obidoxime chloride or Pralidoxime (PAM). Suggest serum and/or RBC cholinesterase determination. If ingested perform gastric lavage and administer activated charcoal.

5. FIRE-FIGHTING MEASURES

Extinguishing media

Suitable	: In case of a small fire: dry chemical, carbon dioxide. In case of a large fire : water spray or alcohol resistant foam.
Special fire-fighting procedures	: Fight fires from a protected location. Dike fire control water for later disposal. Keep containers cool by spraying with water.
Hazardous thermal (de)composition products	: CO, CO ₂ , HCl, SO _x , NO _x , PO _x , Chlorides, and Sulfures.
Protection of fire-fighters	: Wear suitable protective clothing. Self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	: Use appropriate protection (see section 8).
Environmental precautions	: Dispose of this material and its container at hazardous or special waste collection point. In accordance with national and regional regulations. If the product has contaminated surface water, inform the appropriate authorities. Contaminated soil layers have to be dug out.
Methods for cleaning up	: In the event of minor spillage: Absorb in sand or other inert material. Use appropriate containment to avoid environmental contamination. In the event of major spillage: Collect and contain as much free liquid as possible. Dike spills using absorbent or impervious materials such as sand or clay for later disposal.

7. HANDLING AND STORAGE

Handling	: Do not breathe fumes. Avoid contact with skin and eyes.
Storage	: Keep locked up. Keep container tightly closed. Keep only in the original container in a cool, well-ventilated place. Keep away from strong bases.

Packaging materials

Suitable	: Drums with polyethylene liner. Multi-layer high density polyethylene extrusion blow containers.
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering measures	: Ventilation required. Facilities storing or utilizing this material should be equipped with an eyewash facility and safety shower.
Hygiene measures	: Wash hands thoroughly after handling. Wash clothing separately before re-use.
Occupational Exposure Limits	
Common name	: Chlorpyrifos
TLV (USA)	: 0.2 mg/m ³ ; A4 skin (1999).

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Personal protective equipment

Respiratory system	: During spraying wear suitable respiratory equipment.
Skin and body	: Wear suitable protective clothing.
Hands	: Wear suitable gloves.
Eyes	: Safety goggles or face shield.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid.
Colour	: Off-white.
Odour	: Odourless.
Molecular weight	: Chlorpyrifos: 350.62.
Melting point	: Chlorpyrifos: 41.5-43.5 - (Pure).
Decomposition temperature	: Chlorpyrifos: Above 160°C - (Pure).
Vapour pressure	: Chlorpyrifos: 2.4X10 ⁻⁵ mm Hg at a temperature of 25°C - (Pure).
Specific gravity (H₂O=1)	: 1.08-1.10 at a temperature of 20°C.
Solubility in water	: Chlorpyrifos (Pure): 0.588 ppm at a temperature of 20°C.
Flash point	: Not applicable.
Explosion properties	: Not explosive.

10. STABILITY AND REACTIVITY

Stability	: Stable under normal conditions.
Conditions to avoid	: Protect from (sun)light and excessive heat. Avoid temperatures above: 75°C.
Materials to avoid	: Strong oxidizing agents, strong acids, strong bases.
Hazardous reactions	: Hazardous polymerization will not occur.
Hazardous decomposition products	: CO, CO ₂ , HCl, SO _x , NO _x , PO _x , Chlorides, and Sulfures.

11. TOXICOLOGICAL INFORMATION

Acute toxicity - Oral	: LD ₅₀ > 20000 mg/kg (rat). LD ₅₀ > 10000 mg/kg (mouse).
Acute toxicity - Dermal	: LD ₅₀ > 4000 mg/kg (rat).
Acute toxicity - Inhalation	: Not applicable. (Pyrinex Technical: LC ₅₀ > 4.07 mg/l, (rat, M), 4 hours).
Skin irritation	: Mildly irritating to skin, (rabbit).
Eye irritation	: Not irritating to eyes, (rabbit).
Sensitization	: Guinea pig maximization test: Extreme sensitizer.
<u>Common name</u>	: Chlorpyrifos
Carcinogenicity	: Not carcinogenic.
Mutagenicity	: Not mutagenic.
Reproduction toxicity	: Not teratogenic in animal experiments.

12. ECOLOGICAL INFORMATION

Mobility	: Chlorpyrifos: Not mobile.
Persistence/degradability	: Chlorpyrifos: Half-life time (t _{1/2}): 80-279 days (soil).

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Bioaccumulative potential : Chlorpyrifos does not bioaccumulate in aquatic organisms

Ecotoxicity : Birds: LD₅₀ > 2000 (mallard duck).
Fish: NOEC = 3.2 mg/l, 28 days (rainbow trout).
Bees: LC₅₀ (oral) = 118.5 µg/bee, 24 hours.

Other information : Chlorpyrifos Technical: Very toxic to bees.
This formulation was tested at the field-use concentration of 0.2%, and was found to be not acutely toxic to adult bees. It did not affect brood development.

13. DISPOSAL CONSIDERATIONS

Methods of disposal : Disposal according to the local legislation.

14. TRANSPORT INFORMATION

International transport regulations

UN number : 3082
Contains: 25% Chlorpyrifos.
Microencapsulation greatly reduces the acute mammalian toxicity of the active ingredient.

Land - Road/Railway

Proper shipping name : Environmentally hazardous substance, liquid, N.O.S., Chlorpyrifos.
ADR/RID Class : 9
ADR/RID Item number : 11^o(c)
Packing group : III
Hazard Identification Number : 90

Inland waterways

Proper shipping name : Environmentally hazardous substance, liquid, N.O.S., Chlorpyrifos.

Sea

Proper shipping name : Environmentally hazardous substance, liquid, N.O.S., Chlorpyrifos.
IMDG Class : 9 Marine pollutant
IMDG Page number : 3082
Packing group : III
Medical First Aid Guide (MFAG) : None.
Emergency Schedules (EmS) : None.

Air

Proper shipping name : Environmentally hazardous substance, liquid, N.O.S., Chlorpyrifos.
UN/ID Number : 3082

National transport regulations

No additional national transport regulations are known to the supplier

15. REGULATORY INFORMATION

Classification : This product is provisionally labelled by the supplier in accordance with the suppliers understanding of the EU regulations:

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Hazard symbol(s) : Xi, N



IRRITANT (Xi)



DANGEROUS FOR THE ENVIRONMENT (N)

Risk phrases : R43: May cause sensitization by skin contact.
R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases : S2: Keep out of the reach of children.
S13: Keep away from food, drink and animal feedingstuffs.
S20/21: When using do not eat, drink or smoke.
S24: Avoid contact with skin.
S37: Wear suitable gloves.
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.

Contains : 250 g/l Chlorpyrifos.

16. OTHER INFORMATION

Recommended use : Insecticide.

The information contained in the Safety Data sheet is correct to the best of our knowledge at the date of issue. It is intended as a guide for the safe use, handling, disposal, storage and transportation and is not intended as a warranty or as a specification. The information relates only to the product specified and may not be suitable for combinations with other materials or in processes other than those specifically described herein.

Text of R-phrases in section 2:

R24/25: Toxic in contact with skin and if swallowed.

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

HISTORY

Date of printing : 12/04/2003

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Date of issue : 12/04/2003

Version : 001.00.00

The version-number is made up of three parts; part 1 is a general information code, part 2 a country-specific code and part 3 a language-specific code