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Product : Makhro Cyper	

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : Makhro Cyper
INSECTICIDE

ADDRESS: P. O. Box 498 21 Viben Road
Brackenfell Brackenfell
7561 7560

PHONE No: 021-9821460
National Poison Centre: 021-9386084

2. COMPOSITION / INFORMATION ON INGREDIENTS:

Active ingredient	Cypermethrin
Chemical Name	(RS)- α -cyano-3-phenoxybenzyl (1RS, 3RS,RS,3SR)-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropanecarboxylate
CAS No.	52315-07-8
Chemical Family	Pyrethroid
Chemical Formula	$C_{22}H_{19}Cl_2NO_3$ (Mol. wt.: 416.3)
NIOSH/RTECS no	GZ1250000
UN no.	3351
Hazchem class	6.1 Subsidiary 3
Hazardous components	Cypermethrin 200 g/ in xylene
SYMBOLS	Xn; Xi
RISK – PHRASE (S)	R10, 20/21/22, R36, R43.

3. HAZARD IDENTIFICATION

Main hazard:	Toxic and flammable.
Toxicity class:	WHO 11, EPA 11 A moderately toxic insecticide.
Eye contact:	Minimally toxic. The product may cause moderate to severe irritation and damage.
Skin contact:	Minimally toxic. The product may cause moderate irritation. May be a weak sensitiser.
Ingestion:	Moderately toxic if ingested. See point 4 for symptoms.
Inhalation:	Moderately toxic by inhalation. See point 4 for symptoms.

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4. FIRST AID MEASURES

Pyrethroids can induce **burning, itching or tingling sensations, typically in the face**, and less frequently in other regions of the skin and readily disappear within several hours or 1 day after exposure. **Nasal discharge** and a scratchy throat from inhalation, ataxia, urinary incontinence, convulsions, nervous irritability and tremors may also appear. Sweating and washing with warm water can exacerbate these abnormal sensations. Transient red papules, congestion and edema of the skin are occasionally seen. The systemic symptoms in mild cases include dizziness, headache, nausea, anorexia and fatigue, or with signs of listlessness, vomiting and increased stomach secretion, usually resulting in sick leave for more than 1 day.

Inhalation: Remove the source of contamination or move victim to fresh air. The patient should be kept under observation and transported to a health centre if necessary.

Skin contact: Remove contaminated clothing, shoes and leather goods. Wash skin gently and thoroughly with cold water and non-abrasive soap.

Eye contact: Immediately flush the eyes with a stream of clean water for at least 20 minutes, holding the eyelid(s) open.

Ingestion: If only small amounts have been ingested, or if treatment has been delayed, oral administration of activated charcoal and cathartic probably represents optimal management.

Advice on treatment:

1. There is no specific antidote available.
2. Prevention of further absorption in case of pyrethroid overexposure:
 - Washing the contaminated skin and hair thoroughly.
 - Removal of vomiting materials.
 - Gastric aspiration and lavage with water, or 5% sodium bicarbonate solution, for cases of ingestive poisoning.
3. Alleviation of symptoms:
 - Symptomatic and supportive treatment.
 - Bed rest until disappearance of symptoms.
4. For cases of severe pyrethroid poisoning:
 - Admission to hospital.
 - Alleviation of life-threatening effects:
 - using anti-convulsive treatments (e.g. diazepam) for convulsions.
 - maintaining a clear airway, or using assisted ventilation if pulmonary edema occurs.

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FIRST AID MEASURES (cont):

5. For poisoning induced by pyrethroid and organosphosphate mixture:
- Sufficient dosage of atropine may be needed, based on the clinical symptoms, signs and blood cholinesterase measurements. There is no inhibition of blood cholinesterase in patients with acute pyrethroid poisoning. The prognosis of acute pyrethroid poisoning is always better, even in seriously affected patients.
 - Symptomatic and supportive treatments as above.

Note: Occupational acute pyrethroid poisoning has often occurred in spraymen working in the fields in summer. Therefore heatstroke, respiratory infection, and food poisoning should be cautiously differentiated. Care should be taken not to misdiagnose cases of acute pyrethroid poisoning by ingestion as acute organophosphorous poisoning, as the smell of pyrethroids is somewhat similar to the organophosphorous pesticides, and pulmonary edema can occur in severely poisoned patients of both kinds of poisoning. To differentiate these two kinds of pesticide poisoning, the exposure history is most important.

5. FIRE FIGHTING MEASURES

- Fire and explosion hazard:** Product is highly flammable due to formulant (xylene) 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 fire fighting for later disposal.
- Fire fighting:** Remove spectators from surrounding area. Remove container from fire area if possible. 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.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions:**
Avoid contact with skin and eyes. Do not breathe in spray or fumes. For personal protection see section 8.

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ACCIDENTAL RELEASE MEASURES (contd)

Environmental precautions:

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

Occupational spill:

Remove all sources of flames and sparks. For small liquid spills, soak up with lime, damp earth or sand, or other non-combustible absorbent material and place into containers for later disposal. For large liquid spills, contain the liquid for later disposal. In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. Keep spectators away.

7. HANDLING AND STORAGE

Handling:

Do not use near source of sparks or open flame. Harmful by skin or eye contact, inhalation or ingestion. Avoid contact with eyes and skin, and inhalation of spray and vapour. 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:

Do not store near sources of sparks, flames or heat. Keep under lock and key and out of reach of unauthorised persons, children and animals. Store in its original labelled container in isolated, dry cool and well-ventilated area. Not to be stored next to foodstuffs and water supplies. Local regulations should be complied with.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Occupational exposure limits:

ACGIH-TLV: 5 mg/m³

Engineering control measures:

It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations. If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

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EXPOSURE CONTROL/PERSONAL PROTECTION (contd)

PERSONAL PROTECTIVE EQUIPMENT:

- Respirator:** An approved full-face respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by approving agency and the manufacturer must be observed.
- Clothing:** Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with the substance.
- Gloves:** Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.
- Eye protection:** The use of safety goggles is recommended. 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.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance:** Clear light yellow to brownish liquid, free from visible suspended matter and sediment.
- Odour:** Highly aromatic hydrocarbon (xylene).
- Flammability:** Flammable (due to solvent)
- Explosive properties:** Not explosive.
- Flash point:** 24 °C
- Corrosive properties:** None.
- pH:** 6 - 8
- Relative density:** 0.934 g/m at 20⁰ C
- Solubility in water:** Forms an emulsion in water.
- Partition-coefficient in n-octanol/water:**
K_{ow} (logP) = 6.6 (data for technical material).

10. STABILITY AND REACTIVITY

Stability:

Stable for up to 2 years under normal warehouse and field conditions when stored in original container.

Incompatibility:

Compatible with many insecticides, fungicides and acaricides, but incompatible with alkaline substances. Do not physically mix concentrate directly with other herbicides or pesticide concentrates, always dilute first.

Thermal decomposition:

Toxic fumes of hydrogen cyanide, chlorine, and oxides of nitrogen and carbon are produced when the product decomposes on heating.

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11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀:	244,0 mg/kg in rats
Acute dermal LD₅₀:	> 4982.7 mg/kg in rats.
Acute inhalation LC₅₀:	(data for technical material). > 2.5 mg/l of air over 4 hours (rats)
Acute skin irritation:	The product may cause moderate irritation.
Acute eye irritation:	The product may cause moderate to severe irritation and damage.
Dermal sensitisation:	The product may be a weak sensitiser.
Carcinogenicity:	Studies did not detect any carcinogenic activity.
Teratogenicity:	Studies did not detect any teratogenic activity.
Mutagenicity:	Studies indicate that the product does not display mutagenic activity.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGY:

Birds:

Minimally toxic to birds (data for technical material).

Acute oral LD₅₀: > 10000 mg/kg (mallard ducks).
> 2000 mg/kg (chickens).

Fish:

Very toxic to fish.

LC₅₀ (96 hours): 82.16 µg/ (guppy).

Bees:

Highly toxic to bees in laboratory tests. But field applications at recommended dosages do not put hives at risk (data for technical material).

LD₅₀ (oral): 0.035 µg/bee

LD₅₀ (topical): 0.02 µg/bee.

Daphnia:

Very toxic to Daphnia magna.

The 48-hour LC₅₀ is 0.207 µ/l.

Earthworms:

Earthworms are resistant to the product (data for technical material). The solvent used in the formulation may pose a hazard to earthworms.

Soil micro-organisms:

Soil microorganisms are generally resistant to the product (data for technical material).

Degradability:

Biological degradation is rapid and residues do not accumulate in the environment. In soil, hydrolysis with cleavage of the ester bond occurs within 2-4 weeks. This is the primary route of degradation, giving rise to two main metabolites, namely cyclopropane and phenoxybenzyl moieties. Photodegradation water, rapid degradation occurs, with a half-life of approximately 5 days.

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ECOLOGICAL INFORMATION (contd)

Mobility:

The product has low mobility as it strongly adsorbs to soil.

Accumulation:

With recommended application rates, it is unlikely that cypermethrin or its degradation products will attain levels of environmental significance.

13. DISPOSAL CONSIDERATIONS

Pesticide disposal:

Contaminated absorbents, surplus products etc., should be burned in a high-temperature incinerator (> 1000 °C) with effluent gas scrubbing. Where no incinerator is available hydrolysis under alkaline conditions (pH 12 or above) is a suitable method to dispose of small quantities of the product. Before disposal of the resultant waste, the material must be analysed to ensure that the active ingredient has been degraded to a safe level. 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 labelled safeguards until container is destroyed. Combustible containers should be disposed of in pesticide incinerators. Non-combustible containers must be punctured and transported to a scrap metal facility for recycling or disposal.

14. TRANSPORT INFORMATION

UN NUMBER	3351
ADR/RID:	
Shipping name:	Pyrethroid pesticide, liquid, toxic, flammable. (Cypermethrin 200g/l)
Substance ID no.:	3351
Hazard ID no.:	63
Label:	6.1 + 3
Item no.:	-
IMDG/IMO	
Proper shipping name:	Pyrethroid pesticide, liquid, toxic, flammable (Cypermethrin 200g/l)
Subsidiary risk:	3
Class:	6.1 Marine pollutant
Packaging group:	III

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TRANSPORT INFORMATION (contd):

AIR/IATA

Proper shipping name: Pyrethroid pesticide, liquid, toxic, flammable.(Cypermethrin 200g/l)

Class: 6.1

Subsidiary risk: 3

Hazard label: Toxic & Flammable liquid

Packaging group: III

Passenger aircraft: 611 (max 2 L) Y611 (max 60 L)

Cargo aircraft: 618 (max 220 L)

Tremcard number: 61GTF2-III

15. REGULATORY INFORMATION

Symbol: Xn; Xi

Indication of danger: Harmful; Irritant

Risk phrases:

R10 Flammable

R20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R36 Irritating to eyes.

R 43 May cause sensitisation by skin contact.

Safety phrases:

S 2 Keep out of reach of children.

S 23 Do not breathe vapour/spray.

S 24/25 Avoid contact with skin and eyes.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

16. OTHER INFORMATION

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors or omissions or the consequence thereof.

REFERENCES

- Similar product MSDS.
- The Pesticide Manual; Eleventh Edition; Editor Clive Tomlin; Crop Protection Publications, 1997.
- Dangerous Goods Regulations; IATA International Air Transport Association, 41st Edition, Effective 1 January 2000.
- IMDG Code, Vol. 2, 2000 Edition.
- EXTOXNET, Pesticide Information Profiles, Revised June 1996. The primary files are maintained and archived at the Oregon State University.

END OF MSDS.