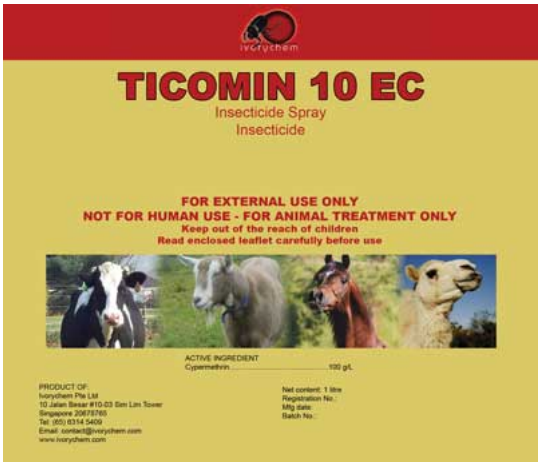
READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT.

USE ONLY IN ACCORDANCE WITH INSTRUCTIONS.

KEEP OUT OF REACH OF CHILDREN

TICOMIN 100 EC



INGREDIENTS

Cypermethrin hi-cis ……..... 10%
Other ingredients .....……90%

TICOMIN 100 EC is an effective insecticide for preventation and control or ectoparasitic infestations like ticks, lice, mites and flies in cattle, sheep, goats, camels and pet animals.

TICOMIN 100 EC should be used as a spray, mop or dip treatment, or as advised by the veterinarian.

Trade Names Of Other Firms**:** Trade names for products containing Cypermethrin hi-cis include Acritet, Caswell No. 010, ENT 54, Fumigrain and Ventox.

What is Cypermethrin hi-cis and how does it work?

Cypermethrin affects the insects' nervous system, causing muscle spasms, paralysis and death.

Key Benefits of TICOMIN 100 EC:

1. Broad spectrum insecticide
2. Highly effective against pests
3. Low potential to leach to groundwater

PRECAUTIONS

Keep the product out of reach of children, pets and food stuffs. Do not eat, drink or smoke during treatment. In case of toxication, call a veterinarian.

SYMPTOMS OF POISONING

Effects from overexposure result from inhalation or coming into contact with the eyes or skin. Symptoms of overexposure include decreased activity, tremors, convulsions, loss of bladder control, incoordination, and increased sensitivity to sound. Contact with Cypermethrin may produce skin sensation such as numbing, burning and tingling. These skin sensations are reversible and usually subside within 12 hours.

MEDICAL TREATMENT

Treatment is symptomatic.

FIRST AID

Swallowed

Provided the patient is conscious, wash out mouth with water. Do not induce vomiting. Vomiting should only be induced under the direction of a physician or a poison control center. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water. Immediately transport victim to an emergency facility.

Eye

Irrigate for 20 minutes with copious quantities of water with eyelids held open. If irritation persists, repeat flushing. Seek medical attention immediately.

Skin

Remove contaminated clothing. Flush skin with running water for a minimum of 20 minutes. If swelling, redness, blistering or irritation occurs seek medical attention immediately.

Inhalation

Remove victim to fresh air. If not breathing, give artificial respiration preferably mouth-to-

mouth. If breathing is labored, give oxygen. Obtain immediate medical attention.

Advice to doctor:

This product contains materials that may cause severe pneumonitis if aspirated. If ingestion has occurred less than 2 hours earlier, carry out careful gastric lavage; use endotracheal cuff if available, to prevent aspiration. Observe patient for respiratory difficulty from aspiration pneumonitis. Give artificial resuscitation and appropriate chemotherapy if respiration is depressed. Symptomatic treatment and supportive therapy as indicated.

DIRECTIONS OF USE

Crop	Application rate	
Camels Cattle	Whole body spray, dip, initial change and replenishment	1 ml
Cattle Sheep Goats	Backline spray 0.5 ltr/animal Dip initial charge and replenishment	5 ml 1 ml
Dogs	Whole body spray/wash	1 ml
Poultry	60 ltrs of spray mixture per 100 birds	1 ml
Animal housing	5 litres of emulsion per 100 sqm surface	20 ml

DISPOSAL METHODS

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.

STORAGE CONDITION

Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store in a locked room or place away from children, animals, flood, feedstuffs, seed and fertilizers. Triple or preferably pressure rinse containers before disposal. Add rinsing to spray tank.

For More Details including effects on environment email contact@ivorychem.com with Subject "TICOMIN 100 EC DETAILS"

More Details:

TOXICOLOGICAL EFFECTS

- **Acute toxicity:** Cypermethrin is a moderately toxic material by dermal absorption or ingestion [2,8]. Symptoms of high dermal exposure include numbness, tingling, itching, burning sensation, loss of bladder control, incoordination, seizures, and possible death (2,8). Pyrethroids like cypermethrin may adversely affect the central nervous system [2,8]. Symptoms of high-dose ingestion include nausea, prolonged vomiting, stomach pains, and diarrhea which progresses to convulsions, unconsciousness, and coma. Cypermethrin is a slight skin or eye irritant, and may cause allergic skin reactions [8]. The oral LD50 for cypermethrin in rats is 250 mg/kg (in corn oil) or 4123 mg/kg (in water) [2,8]. EPA reports an oral LD50 of 187 to 326 mg/kg in male rats and 150 to 500 mg/kg in female rats [8]. The oral LD50 varies from 367 to 2000 mg/kg in female rats, and from 82 to 779 mg/kg in mice, depending on the ratio of cis/trans- isomers present [2]. This wide variation in toxicity may reflect different mixtures of isomers in the materials tested. The dermal LD50 in rats is 1600 mg/kg and in rabbits is greater than 2000 mg/kg [2,8].
- **Chronic toxicity:** Not Available

- **Reproductive effects:** No adverse effects on reproduction were observed in a three-generation study with rats given doses of 37.5 mg/kg/day, the highest dose tested [8].
- **Teratogenic effects:** Cypermethrin is not teratogenic [2]. No birth defects were observed in the offspring of rats given doses as high as 70 mg/kg/day nor in the offspring of rabbits given doses as high as 30 mg/kg/day [8].
- **Mutagenic effects:** Cypermethrin is not mutagenic, but tests with very high doses on mice caused a temporary increase in the number of bone marrow cells with micronuclei. Other tests for mutagenic effects in human, bacterial, and hamster cell cultures and in live mice have been negative [2].
- **Carcinogenic effects:** EPA has classified cypermethrin as a possible human carcinogen because available information is inconclusive. It caused benign lung tumors in female mice at the highest dose tested (229 mg/kg/day); however, no tumors occurred in rats given high doses of up to 75 mg/kg/day [8].
- **Organ toxicity:** Pyrethroids like cypermethrin may cause adverse effects on the central nervous system. Rats fed high doses (37.5 mg/kg) of the cis-isomer of cypermethrin for five weeks exhibited severe motor incoordination, while 20 to 30% of rats fed 85 mg/kg died 4 to 17 days after treatment began [2]. Long-term feeding studies have shown increased liver and kidney weights and adverse changes in liver tissues in test animals [8]. Pathological changes in the cortex of the thymus, liver, adrenal glands, lungs, and skin were observed in rabbits repeatedly fed high doses of cypermethrin [23].
- **Fate in humans and animals:** In humans, urinary excretion of cypermethrin metabolites was complete 48 hours after the last of five doses of 1.5 mg/kg/day [2]. Studies in rats have shown that cypermethrin is rapidly metabolized by hydroxylation and cleavage, with over 99% being eliminated within hours. The remaining 1% becomes stored in body fat. This portion is eliminated slowly, with a half-life of 18 days for the cis-isomer and 3.4 days for the trans-isomer [2].

ECOLOGICAL EFFECTS

- **Effects on birds:** Cypermethrin is practically non-toxic to birds. Its acute oral LD50 in mallard ducks is greater than 4640 mg/kg [8]. The dietary LC50 in mallards and bobwhite quail is greater than 20,000 ppm [8]. No adverse reproductive effects occurred in mallards or bobwhite quail given 50 ppm, the highest dose tested [8].
- **Effects on aquatic organisms:** Cypermethrin is very highly toxic to fish and aquatic invertebrates. The LC50 (96-hour) for cypermethrin in rainbow trout is 0.0082 mg/L, and in bluegill sunfish is 0.0018 mg/L [20]. Its acute LC50 in Daphnia magna, a small freshwater crustacean, is 0.0002 mg/L [20]. Cypermethrin is metabolized and eliminated significantly more slowly by fish than by mammals or birds, which may explain this compound's higher toxicity in fish compared to other organisms [20]. The half-lives for elimination of several pyrethroids by trout are all greater than 48 hours, while elimination half-lives in birds and mammals range from 6 to 12 hours [20,23]. The bioconcentration factor for cypermethrin in rainbow trout was 1200 times the ambient water concentration, indicating that there is a moderate potential to accumulate in aquatic organisms [8]. Elimination of half of the accumulated amount of the compound took nearly eight days. After 14 days 70 to 80% of the material had been eliminated from the organisms [8].
- **Effects on other organisms:** Cypermethrin is highly toxic to bees [8,24].

ENVIRONMENTAL FATE

- **Breakdown in soil and groundwater:** Cypermethrin has a moderate persistence in soils. Under laboratory conditions, cypermethrin degrades more rapidly on sandy clay and sandy loam soils than on clay soils, and more rapidly in soils low in organic material [8]. In aerobic conditions, its soil half-life is 4 days to 8 weeks [8,12,25]. When applied to a sandy soil under laboratory conditions, its half-life was 2.5 weeks [26]. Cypermethrin is more persistent under anaerobic conditions [8]. It photodegrades rapidly with a half-life of 8 to 16 days. Cypermethrin is also subject to microbial degradation under aerobic conditions [8]. Cypermethrin is not soluble in water and has a strong tendency to adsorb to soil particles. It is therefore unlikely to cause groundwater contamination [12].
- **Breakdown in water:** In neutral or acid

aqueous solution, cypermethrin hydrolyzes slowly, with hydrolysis being more rapid at pH 9 (basic solution). Under normal environmental temperatures and pH, cypermethrin is stable to hydrolysis with a half-life of greater than 50 days and to photodegradation with a half-life of greater than 100 days [8]. In pond waters and in laboratory degradation studies, pyrethroid concentrations decrease rapidly due to sorption to sediment, suspended particles and plants. Microbial degradation and photodegradation also occur [22,27].

- **Breakdown in vegetation:** When applied to strawberry plants, 40% of the applied cypermethrin remained after one day, 12% remained after three days, and 0.5% remained after seven days, with a light rain occurring on day 3 [14]. When cypermethrin was applied to wheat, residues on the wheat were 4 ppm immediately after spraying and declined to 0.2 ppm 27 days later. No cypermethrin was detected in the grain. Similar residue loss patterns have been observed on treated lettuce and celery crops [28].

PHYSICAL PROPERTIES AND GUIDELINES

Physical Properties:

- **Appearance:** Pure isomers of cypermethrin form colorless crystals. When mixed isomers are present, cypermethrin is a viscous semi-solid or a viscous, yellow liquid [2,12]
- **Chemical Name:** (R,S)-alpha-cyano-3-phenoxybenzyl(1RS)-cis,trans-3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane-carboxylate [12]
- **CAS Number:** 52315-07-8
- **Molecular Weight:** 416.30
- **Water Solubility:** 0.01 mg/L @ 20 C; insoluble in water [12]
- **Solubility in Other Solvents:** methanol v.s.; acetone v.s.; xylene v.s. [12]
- **Melting Point:** 60-80 C (pure isomers) [12,2]
- **Vapor Pressure:** 5.1 x 10-7 nPa @ 70 C [12]
- **Partition Coefficient:** 6.6020 [25]
- **Adsorption Coefficient:** 100,000 [25]

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