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READ THE ENTIRE LABEL BEFORE USING THIS PRODUCT.

USE ONLY IN ACCORDANCE WITH INSTRUCTIONS.

KEEP OUT OF REACH OF CHILDREN

TRINEX 25 EC



INGREDIENTS

Cypermethrin 25%
Other ingredients75%

TRINEX 25 EC is a synthetic pyrethroid insecticide used to control many pests, contains as its active ingredient Cypermethrin 25% EC. TRINEX 25 EC is light stable. It is available as an emulsifiable concentrate or wettable powder.

TRINEX 25 EC is mainly used to control most insect pests on rice, tobacco, tea, vegetables, cotton, fruit trees, cereal crops, forestry and etc. It is highly effective against cotton pink bollworm, pink bollworms, common cabbage worm, diamond back moth, aphids, fulgorids, rice leaf

roller, thrips and etc.. It is also used for crack, crevice, and spot treatment to control insect pests in stores, warehouses, industrial buildings, houses, apartment buildings, greenhouses, laboratories, and on ships, railcars, buses, trucks, and aircraft.

It may also be used in non-food areas in schools, nursing homes, hospitals, restaurants, hotels, in food processing plants, and as a barrier treatment insect repellent for horses.

What is TRINEX 25 EC and how does it work?

Contact stomach poison; No systemic effects;
Residual on plant

Trade Names Of Other Firms: Trade names for products containing cypermethrin include Ammo, Arrivo, Barricade, Basathrin, CCN52, Cymbush, Cymperator, Cynoff, Cypercopal, Cyperguard 25EC, Cyperhard Tech, Cyperkill, Cypermar, Demon, Electron, Fligene CI, Folcord, Kafil Super, NRDC 149, Polytrin, PP 383, Ripcord, Siperin, Stockade, and Super.

Key Benefits of TRINEX 25 EC:

1. Trusted performance. Reliable.
2. TRINEX 25 EC is a stable product with a multiple application
3. Used worldwide by major partners.

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

Symptoms of poisoning include abnormal facial sensations, dizziness, headache, nausea, anorexia and fatigue, vomiting and increased stomach secretion. Cypermethrin is also a skin and eye irritant. Normally, symptoms should disappear after some days but severely exposed patients additionally may suffer from muscular twitching, comata and convulsive attacks. In such cases, symptoms may persist for some weeks.

MEDICAL TREATMENT

Treatment is symptomatic.

FIRST AID

Wash skin with copious amounts of water for 10-15 min. Irrigate eyes with copious water. Treatment is essentially symptomatic and supportive following decontamination procedures

to prevent further absorption.

dermal exposure is self-limiting and may be alleviated with topical vitamin E cream.

The skin irritation and paraesthesia following

DIRECTIONS OF USE

Rice

Pest	Application rate	Remarks
Defoliators Green leafhopper Plant hopper Rice bug	1 l Cypermethrin/ha	Apply in water as necessary for insect control using a minimum of 15 gallons of finished spray per acre with ground equipment and 5 gallons per acre by air. Lower rates of TRINEX 25 EC should be used under light to moderate insect pressure. Higher rates should be used to control heavy to extremely heavy insect populations. Do not make applications less than 7 days apart. A maximum of 0.6 lb active ingredient may be applied per acre per season. In areas where arid climatic conditions persist, such as California and Arizona, higher than minimum recommended rates may be required.

Cotton

Pest	Dosage		Remarks
	LB AI/A	FL OZ/A	
Preemergent Use: Cutworms	0.025 – 0.1	1.3 - 5	Use TRINEX 25 EC in the time period from 14 days prior to planting up to emergence of the crop. Apply as a broadcast spray by ground or air, banded or in-furrow spray using sufficient spray volume to achieve adequate coverage. Reduced volumes of water may be used with specialised equipment. Use a minimum of 1 gallon of water per acre by air. Use the higher rates of TRINEX 25 EC when incorporating into the soil.
Foliar use: cutworms, tobacco thrips, Soybean (banded) thrips	0.025 – 0.1	1.3 - 5	TRINEX 25 EC may be applied in water or refined vegetable oil. When water is used, apply a minimum of one gallon of finished spray per acre by air or five gallons of finished spray with ground equipment. When applying in water by air, one quart of emulsified oil may be substituted for one quart of water in the finished spray. When using oil, use a minimum of one quart per acre in the finished spray.
Foliar use: Boil weevil, cabbage looper, cotton bollworm, cotton fleahopper, cotton leaf perforator, European corn borer, Fall armyworm, Lygus bugs, Other plant bugs, pink bollworm, saltmarsh caterpillar, tarnished plant bug, tobacco budworm, white flies, yellow striped armyworm	0.04 – 0.1	2 - 5	
Foliar use: Beet armyworm	0.6 – 0.1	3 – 5	TRINEX 25 EC may be injected into overhead sprinkler irrigation water provided 1) an anti-backflow check valve is present between the injection port and the water source, 2) a check valve is present in the line to prevent irrigation water from entering the chemical supply tank and 3) the irrigation injection system

			<p>has interlocking on-off switches.</p> <p>For boll weevil control, apply TRINEX 20 EC at a 3-4 day interval until pest numbers are reduced to acceptable levels. A maximum of 0.6 lb active ingredient may be applied per acre per season.</p> <p>Do not graze or feed cotton for forage.</p>
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**Head/Stem Brassica Vegetables
(broccoli, brussels sprouts, cauliflower, cavalo broccol, cabbage)**

Pest	Dosage		Remarks
	LB/AI/A	FLOZ/A	
Cutworms, corn earworm, tobacco budworm, lygus bugs, salt marsh caterpillar, leafhoppers, flea beetles, imported cabbageworm, cucumber beetles, aphids, whiteflies	0.05 – 0.1	2.5 - 5	Apply in water as necessary for insect control using a minimum of 15 gallons of finished spray per acre with ground equipment and 5 gallons per acre by air.
Armyworms, loopers, stinkbugs, crickets, ground beetles, onion thrips, wereworm (adults)	0.075 – 0.1	3.75 - 5	Lower rates of TRINEX 25 EC should be used under light to moderate insect pressure. Higher rates should be used to control heavy to extremely heavy insect populations. Do not make applications less than 7 days apart. A maximum of 0.6 lb active ingredient may be applied per acre per season. In areas where arid climatic conditions persist, such as California and Arizona, higher than minimum recommended rates mat be required.

**Leafy Brassica Greens
(broccoli raab, chinese cabbage, chinese mustard cabbage, collards, kale, rape greens)**

Pest	Dosage		REMARKS
	LB/AI/A	FLOZ/A	
Cutworms, corn earworm, tobacco budworm, lygus bugs, saltmarsh caterpillar, leafhopper, flea beetles, impored cabbageworm, cucumber beetles, aphids, whiteflies	0.05 – 0.1	2.5 - 5	Apply in water as necessary for insect control using a minimum of 15 gallons of finished spray per acre with ground equipment and 5 gallons per acre by air.
Armyworms, loopers, stinkbugs, crickets, ground beetles, onion thrips, wireworm (adult)	0.075 – 0.1	3.75 – 5	Lower rates of TRINEX 25 EC should be used under light to moderate insect pressure. Higher rates should be used to control heavy to extremely heavy insect populations. Do not make applications less than 7 days apart. A maximum of 0.4 lb active ingredient per acre per season. In areas where arid climatic conditions persist, such as California and Arizonia, higher than minimum recommended rate may be required. Follow appropriate spray drift precautions listed for cotton,

			brassicas, lettuce and onions. *aids in control
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Lettuce head (5 day phi)

Pest	Dosage		Remarks
	LB/AI/A	FLOZ/A	
Corn earworm, cucumber beetles, cutworms, diamondback moth, flea beetles, imported cabbageworm, leafhoppers, lygus bugs, saltmarsh caterpillar, tobacco budworm	0.05 – 0.1	2.5 - 5	Apply in water as necessary for insect control using a minimum of 15 gallons of finished spray per acre with ground equipment and 5 gallons per acre by air.
Armyworms, crickets, loopers, onion thrips, stinkbugs	0.075 – 0.1	3.75 - 5	Lower rates of TRINEX 25 EC should be used under light to moderate insect pressure. Higher rates should be used to control heavy to extremely heavy insect populations. A maximum of 0.6 lb active ingredient may be applied per acre per season. In areas where arid climatic conditions persist, such as California and Arizona, higher than minimum recommended rates may be required. Follow appropriate spray drift precautions listed for cotton, brassicas, lettuce and onions.

Bulb vegetables

(garlic, green eschalots, Japanese bunching onions, leeks, onion, dry bulb and green onion, welch, shallots)

Pest	Dosage		Remarks
	LB/AI/A	FLOZ/A	
Onion thrips	0.08 – 0.1	4 - 5	Apply TRINEX 25 EC in a minimum of 20 gallons per acre with ground equipment or in a minimum of 3 gallons per acre by aircraft. Begin applications when pests appear. Do not make applications less than 7 days apart.
Aphids, armyworms, cutworms, leafminers, onion maggot (adult), stink bugs	0.04 – 0.1	2 - 5	To control onion thrips: use higher rates as population increases and avoid rescue situations. Use of a crop oil concentrate at 16 fl.oz/A is recommended. A maximum of 0.5lb active ingredient may be applied per acre per season. Do not graze livestock in treated areas or cuttreated crops for feed. Follow appropriate spray drift precautions listed for cotton, brassicas, lettuce and onions.

Pecans (21 day phi)

Pest	Dosage		Remarks
	LB/AI/A	FLOZ/A	
Black pecan aphid, hickory shuckworm, pecan nut casebearer, pecan weevil, yellow pecan aphid	0.06 – 0.10	3 - 5	Applications at the lower rate should be made when pest populations are low. Rates should be increased as the pest pressure increases. Apply by ground equipment to the

		<p>point of drip. Use 100 gallons of dilute spray per acre for smaller trees. For larger trees which require higher gallonage to achieve adequate coverage, apply in 200-300 gallons of water. In order to calculate the correct number of gallons of water needed to spray one acre of your trees to the point of drip, you may need to conduct a test. If you do not know how to conduct such a test with your equipment, you should request assistance from your equipment dealer.</p> <p>Up to 0.6lb active ingredient per acre season may be applied prior to shuck split.</p> <p>Do not graze livestock in treated orchards or cut treated cover crops for feed.</p>
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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.

More Details:

TOXICOLOGICAL EFFECTS

- Acute toxicity:** TRINEX 25 EC 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 TRINEX 25 EC 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. TRINEX 25 EC is a slight skin or eye irritant, and may cause allergic skin reactions [8]. The oral LD50 for TRINEX 25 EC 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,

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, food, 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 "TRINEX 25 EC DETAILS"

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:** TRINEX 25 EC 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:** TRINEX 25 EC 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 TRINEX 25 EC 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 TRINEX 25 EC may cause adverse effects on the central nervous system. Rats fed high doses (37.5 mg/kg) of the cis-isomer of TRINEX 25 EC 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 TRINEX 25 EC [23].
- **Fate in humans and animals:** In humans, urinary excretion of TRINEX 25 EC metabolites was complete 48 hours after the last of five doses of 1.5 mg/kg/day [2]. Studies in rats have shown that TRINEX 25 EC 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:** TRINEX 25 EC 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:** TRINEX 25 EC is very highly toxic to fish and aquatic invertebrates. The LC50 (96-hour) for TRINEX 25 EC 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]. TRINEX 25 EC 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 TRINEX 25 EC 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:** TRINEX 25 EC is highly toxic to bees [8,24].

ENVIRONMENTAL FATE

- **Breakdown in soil and groundwater:** TRINEX 25 EC has a moderate persistence in soils. Under laboratory conditions, TRINEX 25 EC 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]. TRINEX 25 EC is more persistent under anaerobic conditions [8]. It photodegrades rapidly with a half-life of 8 to 16 days. TRINEX 25 EC is also subject to microbial degradation under aerobic conditions [8]. TRINEX 25 EC 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, TRINEX 25 EC hydrolyzes slowly, with hydrolysis being more rapid at pH 9 (basic solution). Under normal environmental temperatures and pH, TRINEX 25 EC 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 TRINEX 25 EC 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 TRINEX 25 EC was applied to wheat, residues on the wheat were 4 ppm immediately after spraying and declined to 0.2 ppm 27 days later. No TRINEX 25 EC was detected in the grain. Similar residue loss patterns have been observed on treated lettuce and celery crops [28].

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Company Registration No 200405572W

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:** 5.1×10^{-7} nPa @ 70 C [12]
- **Partition Coefficient:** 6.6020 [25]
- **Adsorption Coefficient:** 100,000 [25]



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