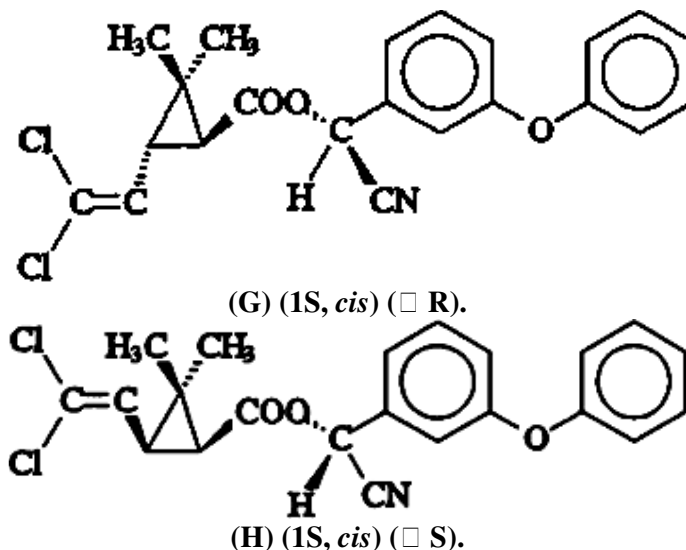


# Material Safety Data Sheet for Alphacypermethrin 10% EC

1. Name of the pesticide (Brand Name/ Trade Name) : Alpha-cypermethrin 10% EC COLLECTOR
2. Name and address of the Manufacturer/ formulator : M/s Jai Shree Rasayan Udyog Ltd.  
V.P.O. Nathupur Distt :- Sonapat (Haryana)  
**Head Office :-** M-4, Aradhana Bhawan,  
Commercial Complex, Azadpur, Delhi (INDIA)
3. Common Name/ Descriptive Name : Alphacypermethrin (BSI, draft E-ISO)
4. Chemical Name (IUPAC nomenclature) : (RS)-alpha-cyano-3 phenoxybenzyl(1R, 3R)-3-(2,2-dichlorovinyl)- 2,2 dimethylcyclopropane Carboxylate

5. Structural formula



6. Empirical formula and molecular weight : C<sub>22</sub>H<sub>19</sub>Cl<sub>2</sub>NO<sub>3</sub> Mol.weight 416.3

7. Active ingredient (certified Percentage of active material) : Alphacypermethrin 10% W/w

8. Formulated Product:

- 1) Identity/ appearance (colour) : Light yellowish
- 2) Odour : Mild odour
- 3) Type of formulation : EC ( Emulsifiable concentration)
- 4) Content of active ingredient(s) : Alphacypermethrin Tech. 10.526% w/w min.  
(based on 95% w/w a.i.)

- 5) **Content and nature (identity if Possible of other components included In the formulation, e.g., technical grade, Adjuvant and inert ingredient).** : Emulsifier (Mixture of ethylene oxide condensate of alkyl phenol & sulphonatd alkyl benzene) : 10.000% w/w max.  
Solvent (Xylene) : 79.474% w/w max.
- 6) **Water content/ Moisture (above relevant)** : Cold Stability :- No turbidity or sepration at 10°c  
Heat Stability :- Stable for 2 weeks at 54°c there is no chemical change
- 7) **Specific gravity** : 0.914 at 25c°
- 8) **Viscosity** : Non - viscous liquid
- 9) **Low and High temp. Storage stability (in respect to Composition and physical properties related to use).** : Stable in normal storage condition between 25° to 40° centigrade
- 10) **Impurities** : 0.5% max,
- 11) **Flammability** : Flammable
- a. **Liquid: Flash point** : > 58 c°
- 12) **Acidity (as H<sub>2</sub>SO<sub>4</sub>)** : 0.15% w/w max
- 13) **Alkalinity** : N/A
- 14) **pH Value** : 6-7
- 15) **Other properties may in certain Cases need evaluation** : No
- 16) **Carrier Material** : Xylene (As solvent)
- 17) **Wet ability (for dispersible powders)** : N/A
- 18) **Persistent foam (for formulation applied in water)** : 25ml max. after 1 minute.
- 19) **Suspensibility (for dispersible powders and Suspension concentrates)** : N/A
- 20) **Particle size** : N/A
- 21) **Wet sieve test (for dispersible powders and suspension Concentration)** : N/A
- 22) **Dry sieve test**

(for granules, dust) : N/A

23) Emulsion stability  
(for emulsifiable concentrates). : No creaming layer or sedimentation seen while 2ml sample dissolved in 100ml water in emulsion cylinder at 31c° upto one hour.

24) Bulk density : 0.9140 at 25 c°

25) Corrosiveness  
(when necessary) : Non corrosive to epoxy-coalid M.S.Tin or Al Bottles.

26) Flow ability : Freely flowable

#### 9 . Toxicology data:

a) Acute Oral Toxicity : Acute oral Rat LD<sub>50</sub> :>400mg/kg

b) Acute Percentaneous toxicity . : Acute dermal Rabbit >2000mg/kg

c) Acute Inhalation : Rat LC<sub>50</sub> 2.7 mg/l

d) Acute other routes, e.g., In  
traperitoneal : N/A

(e) Skin irritation : Rabbit : Slightly irritant

(f) Eye irritation : Rabbit :Slightly irritant

(g) Short term Oral administration : At 0.1mg/kg for 3 months in rat  
–No toxic effects were found.

(h) Short term Sensitizing effects. : Weak sensitizer to guinea pig

(i) Toxic effects of metabolies,  
Break –down products impurities. : No toxic effects of Metabolites

(j) Metabolic : Alphacypermethrin did not induce either cytochrome P-450 or NAPH cytochrome C reductase activity in heptocytes of male Long- Evans rats following 50 mg/kg bw per day, orally for upto 12 days.

k) Long-term toxicity, including  
carcinogenicity : - 2 year feeding rats  
Dose 1& 3 mg/kg – NOAEL= 3mg/kg/day

(l) Neurotoxicity : Alphacypermethrin administered orally to rats and hamsters in high acuter and subacute doses produced reversible clinical sings of ataxia, behaviour changes and, histological and chemical changes consistent with Wallerian degeneration. Doses below the lethal range did not produce lesions in the sciatic and posterior tibial nerves. There was no evidence of delayed neurotoxicity in hens given 1.0 mg/kg bw doses of alphacypermethrin.

(m) Reproduction studies : In a three-generation studying rats, at concentrations upto 500 mg/kg of diet, no effects on reproduction was noticed.

**(n) Embryo toxicity, including teratogenicity**

: No evidence of teratogenic potential was observed in rats and rabbits given doses of upto to 70 mg/kg bw per day from day 6 to day 15 of gestation in rats or 30 mg/kg bw per day from day 6 to day 18 of gestation in rabbits.

**(o) Mutagenicity**

: Alphacypermethrin (with and without rat liver microsomal activation) was not observed to be genetically active in mitotic gene conversion assay with *S. cerevisiae*; in a mutation rate assay with *E. coli* and *S. Typhimurium* (TA-1538) at 500 mg/plate doses; in a revertant gene assay with *S. Typhimurium* (TA-1535, 1537, 1538-98 and 100) at 1 mg/plate doses; and, in a mouse host-mediated assay with *S. cerevisiae* at 25 and 50 mg/kg bw given orally. It was also observed to be inactive in a Chinese hamster chromosomal damage assay at 20 and 40 mg/kg bw, given orally.

**(p) Potentiation**

: The joint action of pyrethroids deltamethrin alphacypermethrin and cypermethrins in combination with organophosphates ethion, profenofos, chlorpyrifos, quinalphos, and triazophos was studied on putatively resistant field populations of *Helicoverpa armigera* by using a leaf-dip method. Ethion produced a good potentiation with deltamethrin, cypermethrin, alphacypermethrin, and zetacypermethrin, whereas profenofos, chlorpyrifos, quinalphos, and triazophos exhibited an antagonism with deltamethrin as well as cypermethrins. Implications of using mixtures for counteracting insecticide resistance are discussed.

**(q) Direction observations, e.g.,**

: Haematology, Blood bio-chemistry, particularly cholinesterase, (Clinical Cases) urinalysis, gastro intestinal, cardio respiratory and ophthalmology. These examinations/observations has been carried out at varying intervals.

**(r) Health records, both from industry and agriculture.**

: Alphacypermethrin has been handled at the manufacturing plant as well as the agriculture field, no serious symptoms of any occupational exposure to the workers was reported.

**(s) Treatment of poisoning**

: If skin is contaminated wash the effected area with plenty of water. If eyes one contaminated irrigate with normal saline or water.

**(t) First aid measure**

: Refer to Doctor

<b>Eyes</b>	: Flush thoroughly with eye wash solution or clean water for 15 minutes get medical Attention.
<b>Skin</b>	: Remove contaminated clothing, wash off with soap and water get medical attention
<b>Inhalation</b>	: Remove to fresh air. Loosen clothing at neck. Keep at rest. Get medical attention
<b>Ingestion</b>	: Do not induce vomiting. Get medical attention, Wash out mouth with water. If Spontaneous vomiting has occurred keep patient at rest. Ensuing airways are clear and phone for ambulance with oxygen facilities.
<b>(u)Supplementary treatment</b>	: Treat the victim symptomatically and supportively. Antihistamines may be given to control allergies. Control seizures with Injectable diazepam or barbiturates.
<b>(v) Waiting period</b>	: 1 to 3 days <b>(Last application to harvesting)</b>

## 10. Prediction of Environment effects.

- (a) Fate and mobility studies of toxicant:**
- Soil:** Moderate persistence in soils. Under laboratory conditions, Alphacypermethrin 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. It is more persistent under anaerobic conditions. It photodegrades rapidly with a half life of 8 to 16 days. This is also subject to microbial degradation under aerobic conditions.
- Water:** In Pond water and in laboratory degradation studies its concentrations decrease rapidly due to sediment, suspended particles and plants. Microbial degradation and photodegradation also occur.
- Plant:** When applied to strawberry plants, 40% of the applied alphacypermethrin 25 EC, remained after one day, 12% remained three days, 0.5% remained after 7 days, with all light rain occurring on day three. No phytotoxic when used as per field recommendation.
- Animal:** In rats, rapidly metabolized by hydroxylation and cleavage, with 99% being eliminated within hours. The remaining 1% becomes stored in body fat
- (b) Method of application of pesticide** : By P.P.equipment & knap sacksprayer.
- (c) Time of application** : As and when needed. When pest population cross the ETL ( economic threshold level )

- (d) **Rate of application** : 150 to 200ml diluted in 500 litres applied per hectare area.
- (e) **Scale of use (number of application etc.)** : 2 to 3 times
- (f) **Climatic and geographical locality** : North temperature area, shorter warm season, annual mean rain fall:1083 mm, height : within 100 meter of sea level.
- (g) **Volality of product** : Low volatility
- (h) **Water solubility** : 0.01mg/ l( 20°C)
- (i) **Octonol water partition coefficient** :  $2.0 \times 10^6$
- Absorption** : Alphacypermethrin is primarily abosrobed from the gastrointestinal tract. It may also be absorbed by inhalation of spray mist and only minimally through the intact skin.
- (j) **Desorption** : Degrades relatively quickly in solids, primarily by biological process involving cleavage of ester linkage, to give the two main egradation products, CPA & PBA. These products are themselves subsequently mineralized.
- (k) **Degradation** : degrades more rapidly in soils, low in organic materials under normal environmental temperatures & PH, Stable to hydrolysis with a half life of > 50days and to potodegradations with a half life of > 100 days.
- (l) **Persistence** : Moderate persistence in soils.
- (m) **Effect on birds** : The following value were determined in acute oral studies :-  
Practically Non- toxic to birds Species  
Acute oral LD50 mg/kg  
Mallard duck > 4640 mg/kg  
Chicken > 2000 mg/kg
- (n) **Effect of fish** : Highly toxic to fish
- (o) **Effect on fish food species** : No serious effect on fish food spices.
- (p) **Effect on honey bees** : Highly toxic to bees
- (q) **Degradation product in soil** : Primarily by biological process give the two main degradation product, CPA & PBA.
- (r) **Possibilities of accumulation, with stable lipophilic compounds** :
- (s) **Effects on local aquatic species** : Very highly toxic to fish and aquatic

invertebrates LC<sub>50</sub> for rainbow trout 0.0082mg/l

**(t) Effects on soil organisms**

: No mortality occurred in Earthworm exposed to the dose levels of 100 mg/kg soil for 14 days.

**(u) Disposal of used, condemned and surplus pesticides and pesticides containers**

: Empty containers shall be broken & buried away from habitation containers or packages should not be left outside to prevent their re-use of packages or surplus material & washing should be disposed off in a safe manner as to prevent environmental & water pollution.

**(v) Proposal for labeling and directions for use**

: WARNING – POISON (skull and cross-bones insignia). Alphacypermethrin is a pyrethroid pesticide; it may be poisonous if swallowed, It may be inhaled as a dust or mist and it may be irritating to the skin and eyes. Avoid skin contact. Wash thoroughly with soap and water after using the product. Keep the material out of reach of children and well away from food stuffs, animal feed and food containers. If poisoning occurs, call a physician. There are no specific antidotes. Treat symptomatically.

:PP Equipments Knap sack sprayer, Knapsack, motorized Knapsack sprayer cum duster, compression Knapsack battery sprayer, wheel barrow sprayer.

**Application:**

The scale, method and recommendatory rate of applications 80-280 ml of formulation in dilution with 200-500 ltr of water or as being recommended .

**Precaution of uses and caution :**

1. Keep away from foodstuffs, empty foodstuff containers & animal food.
2. Avoid contact with mouth , eyes and skin.
3. Avoid inhalation the spray mist. Spray in the direction of wind.
4. Do not smoke, drink, eat & chew anything while spraying.
5. Wear full protective clothing while mixing & spraying.

**First aid**

: Upon inhalation and ingestion. Remove the victim into fresh air, give artificial respiration. Keep warm & administer activated charcoal. Upon contact :- Remove contaminated clothes. Wash with soap and water. Antidote :- Symptomatic treatment , No Antidote.

**11. Packaging**

: Pet Bottles of 100ml, 250ml, 500 ml, and

1 Ltr. (Formulation)

## 12. TRANSPORT INFORMATION

UN No.	2902
IMCO Class	6.1
IMDG PG	6219
Packing Group	III
Proper Shipping Name	Pyrethroid pesticide, liquid, toxic, flammable
Environmental risk	Marine pollutant

## 13. REGULATORY INFORMATION

Hazard Symbol	The harmful symbol (Xn)
Risk phrases	R10, R20/22, R43 R51/53, R57
Safety Phrases	S1/2, S13, S20/21, S36/37/39, S29/56

## 14. DISPOSAL PROCEDURES

Used packages, surplus materials and washings of insecticides and containers shall be disposed of in a safe manner so as to prevent environmental or water pollution. The used packages shall not be left outside to prevent their re-use. Packages shall be broken and buried away from habitation.

\_\_\_\_\_  
**Signature of applicant**

\_\_\_\_\_  
**Signature of Manufacturer/Formulator**

**Date:** \_\_\_\_\_