Material Safety Data Sheet

Thiamethoxam 10%+Lambda-cyhalothrin 5% SC

1. PRODUCT IDENTIFICATION

Product Name: Thiamethoxam 10%+Lambda-cyhalothrin 5% SC

Common Name: Thiamethoxam +Lambda-cyhalothrin

Chemical Family: Neonicotinoid (Thiamethoxam);
Pyrethroid (Lambda-cyhalothrin).

Chemical Formula: $C_8H_{10}ClN_5O_3S$ (Thiamethoxam);
$C_{23}H_{19}ClF_3NO_3$ (Lambda-cyhalothrin).

Chemical Name: 3-(2-chloro -1,3-thiazol -5-ylmethyl) -5-methyl -1,3,5-oxadiazinan -4-ylidene (nitro)amine (IUPAC) (Thiamethoxam)
A reaction product comprising equal quantities of (*S*)-α-cyano-3-phenoxybenzyl (*Z*)-(1*R*,3*R*)-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate and (*R*)-α-cyano-3-phenoxybenzyl (*Z*)-(1*S*,3*S*)-3-(2-chloro-3,3,3-trifluoroprop-1-enyl)-2,2-dimethylcyclopropanecarboxylate *Roth*: (*S*)-α-cyano-3-phenoxybenzyl (*Z*)-(1*R*)-*cis*-3-(2-chloro-3,3,3-trifluoropropenyl)-2,2-dimethylcyclopropanecarboxylate and (*R*)-α-cyano-3-phenoxybenzyl (*Z*)-(1*S*)-*cis*-3-(2-chloro-3,3,3-trifluoropropenyl)-2,2-dimethylcyclopropanecarboxylate (1:1) (IUPAC) (Lambda-cyhalothrin).

CAS No.: 153719–23–4 (Thiamethoxam);
91465–08–6 (Lambda-cyhalothrin).

Product Use: Insecticide

2. COMPANY IDENTIFICATION:

Exporter:

CHICO CROP SCIENCE CO., LTD.
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Shenzhen, China.
Tel: 86-755-22969199 Fax: 86-755-25919993
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3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient Name	CAS Registry Number	Typical Wt. w/w
Thiamethoxam	153719–23–4	10.0%
Lambda-cyhalothrin	91465–08–6	5.0%
Inert	-	to balance

4. HAZARDS IDENTIFICATION

Emergency Overview

Off-white suspension liquid with not distinct odor.

WARNING!
KEEP OUT OF REACH OF CHILDREN

MAY BE HARMFUL IF SWALLOWED

MAY BE HARMFUL IN CONTACT WITH SKIN

Potential Health effects

Dermal contact, ingest and inhalation of the product are the primary routes to induce potential adverse health effects. Inhalation of aerosol during application of the product as part of its end use is another potential route of entry. Eye and skin irritation may occur from contact with the liquid or spray mixture.

5. FIRST AID MEASURES

If swallowed:	If ingestion is suspected, using one or two glasses of water and induce vomiting by touching back of throat with finger. Never give anything by mouth to an unconscious person. Should be send to the hospital treatment immediately.
If in eye:	Immediately rinse eyes with a large amount of running water. Hold eyelids apart to rinse the advice of a physician.
If on skin:	Wash with plenty of soap and water, including hair and under fingernails. Do not apply any medicating agents except on the advice of a physician. Remove contaminated clothing and decontaminate prior to use.
If Inhaled:	Move victim from contaminated area to fresh air. Apply artificial respiration if necessary.
Notes to Physician:	There is no specific antidote, Treat symptomatically.

6. FIRE FIGHTING MEASURES

Fire and explosive Properties

Auto-Ignition Temperature	Not applicable
Flash Point	Not available

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Extinguishing Media

Water fog, Carbon Dioxide, Dry Chemical, Foam and halogenated agents.

Fire Fighting Instructions

The product is not flammable. But if firing, fire fighters and others who may be exposed to products of combustion should wear full firefighting turn out gear and self-contained breathing apparatus. Firefighting equipment should be thoroughly decontaminated after use. Person who may have been exposed to contaminated smoke should be immediately examined by a physician and checked for symptoms of poisoning. The symptoms should not be mistaken for heat exhaustion or smoke inhalation.

7. ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Stop the leak, if possible. Ventilated the space involved. Absorb, sweep up, place in container for disposal. Shut off or remove all ignition sources. Prevent waterway contamination. Construct a dike to prevent spreading. Protect works with water spray. Collect run-off water and transfer to drums or tanks for later disposal.

8. HANDLING AND STORAGE

Handling

Harmful if swallowed, inhaled, or absorbed through the skin. Causes eye irritation. Do not breathe gas or allow to get in eyes, on skin, or on clothing. Wash hands, arm and face thoroughly with soap and warm water after use and before eating or smoking. Wash all contaminated clothing with soap and hot water before reuse. Do not contaminate feed or food items. Keep out of reach of children.

Storage

Store in a cool dry and air ventilating warehouse and protected from light. Avoid contacting with food, feed stuff and seed.

9. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye/Face Protection

Goggles and full-face shield should be used when needed to prevent liquid from face and getting into the eyes.

Skin Protection

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Avoid skin contact. Use chemical-resistant gloves, and wear long sleeves and trousers to prevent dermal exposure.

Respiratory Protection

Under normal handling conditions no respiratory protection is needed. However, if needed to prevent respiratory irritation, either a respirator approved for dusts and mists, or one approved for pesticides.

10. PHYSICAL AND CHEMICAL PROPTERTIES

Color:	Off-white
Physical state:	Liquid
Odor:	Not distinct odor
pH:	5.0-8.0
Melting point	139.1 °C (Tech.) (Thiamethoxam); 47.5–48.5 °C (Tech.) (Lambda-cyhalothrin)
Boiling point:	Not available (Thiamethoxam); Does not boil at atmospheric pressure (Lambda-cyhalothrin)
Vapor pressure:	6.6×10^{-6} mPa (25 °C) (Thiamethoxam); 2×10^{-4} mPa (20 °C, est.) (Lambda-cyhalothrin)
Solubility in water:	In water 4.1 g/l (25 °C) (Thiamethoxam); In water 0.005 mg/l (pH 6.5, 20 °C) (Lambda-cyhalothrin)
Solubility in organic solvents:	In acetone 48, ethyl acetate 7.0, dichloromethane 110, toluene 0.680, methanol 13, *n*-octanol 0.620, hexane <0.001 (all in g/l). (Thiamethoxam) In acetone, methanol, toluene, hexane, ethyl acetate >500 g/l. (Lambda-cyhalothrin)
Partition coefficient:	Kow logP= -0.13 (25 °C) (Thiamethoxam); Kow logP= 7 (20 °C) (Lambda-cyhalothrin)

11. STABILITY AND REACTIVITY

Stability

Stable at pH 5; DT_{50} 640 d (pH 7), 8.4 d (pH 9) (unstated temperature). (Thiamethoxam);
Stable to light. Stable on storage for more than 6 months at 15–25 °C. (Lambda-cyhalothrin)

Hazardous Polymerization

Does not occur.

Incompatibility

The product is not compatible with alkaline material.

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Hazardous Decomposition Products

Not available

12. TOXICOLOGICAL INFORMATION

Acute Oral: Acute oral LD_{50} for rats 1563 mg/kg. (Thiamethoxam);
Acute oral LD_{50} for male rats 79, female rats 56 mg/kg. (Lambda-cyhalothrin)

Acute Dermal: Acute percutaneous LD_{50} for rats >2000 mg/kg. (Thiamethoxam);
Acute percutaneous LD_{50} for rats 632–696 mg/kg. (Lambda-cyhalothrin)

Irritation: Non-irritating to eyes and to skin (rabbits). (Thiamethoxam);
Mild eye irritant; non-irritant to skin (rabbits) (Lambda-cyhalothrin)

Sensitization: Not a skin sensitizer (guinea pigs). (Thiamethoxam).
Not a skin sensitizer (guinea pigs). (Lambda-cyhalothrin)

Long-term Studies: Studies showed no evidence of carcinogenicity and mutagenicity to rats and rabbits.

13. ECOLOGICAL INFORMATION

Ecotoxicological Information

Thiamethoxam

Effects on Birds: Acute oral LD_{50} for bobwhite quail 1552, mallard ducks 576 mg/kg. Dietary LC_{50} for bobwhite quail and mallard ducks >5200 mg/kg.

Effects on Fish: LC_{50} (96 h) for rainbow trout >100, bluegill sunfish >114, sheepshead minnows >111 mg/l.

Effects on Bees: LD_{50} for honeybees (oral) 0.005 μg/bee; (contact) 0.024 μg/bee.

Effects on Daphnia: EC_{50} (48 h) >100 mg/l.

Effects on Algae: EC_{50} (96 h) for green algae >100 mg/l.

Effects on Worms: LC_{50} (14 d) for *Eisenia foetida* >1000 mg/kg soil.

Lambda-cyhalothrin

Effects on Birds: Acute oral LD_{50} for mallard ducks >3950 mg/kg. Dietary LC_{50} for quail >5300 mg/kg. No accumulation of residues in eggs or tissues.

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Effects on Fish: LC_{50} (96 h) for bluegill sunfish 0.21, rainbow trout 0.36 µg/l.

Effects on Bees: LD_{50} (oral) 909 ng/bee; (contact) 38 ng/bee.

Effects on Daphnia: Intrinsic toxicity to aquatic organisms is greatly reduced by rapid loss from the water by adsorption and degradation: EC_{50} (72 h) in water 0.26 µg/l, in water/sediment 31 µg/l.

Effects on Algae: E_rC_{50} (96 h) for *Selenastrum capricornutum* >1000 µg/l.

Effects on Worms: LC_{50} for *Eisenia foetida* >1000 mg/kg soil.

Chemical Fate Information

Animals: Quickly and completely absorbed, rapidly distributed in the body and rapidly eliminated. The toxicokinetics and metabolism are not influenced by the route of administration, the dose level, pre-treatment, the site of label or the sex of animals. The major metabolic pathways are essentially the same in rats as in mice, goats and hens. (Thiamethoxam)

In rats, following oral administration, rapidly eliminated in urine and faeces. The ester group is hydrolysed, both moieties forming polar conjugates. (Lambda-cyhalothrin)

Plant: Degradation/metabolism has been studied in 6 different crops with soil, foliar and seed treatment application. The qualitative metabolic pattern was similar for all types of applications and for all studied crops. (Thiamethoxam)

For details of metabolism of lambda-cyhalothrin in cotton and soya bean leaves, see D. A. French & J. P. Leahey, *Proc. Br. Crop Prot. Conf. - Pests Dis.*, 1990, **3**, 1029–1034. (Lambda-cyhalothrin)

Soli/Environment: Soil DT_{50} 7–109 d (field, 37 soils, median 32.3 d). K_{oc} 32.5–237 ml/g o.c. (25 soils, mean 68.4 ml/g o.c.). Photolysis accelerates degradation in soil. Stable in water under acid conditions, hydrolysed under alkaline conditions. DT_{50} in surface water 7.9–39.5 d (lab., darkness, 7 water-sediment systems, mean 21.5 d). Aqueous photolysis occurs rapidly. No bioaccumulation. No significant volatilisation; efficiently degraded in air by photochemical oxidative degradation. (Thiamethoxam)

Rapidly degraded in soil; DT_{50} under lab.conditions 23–82 d, in the field 6–40 d. Strongly adsorbed to soil and sediment organic matter, K_{oc} 330 000. Negligible potential for leaching of lambda-cyhalothrin and its degradation products through soil. Rapid dissipation from water in aquatic systems. DT_{50} for dissipation from surface waters in lab. water-sediment systems 5–11 h; in a microcosm, DT_{50} <3 h. Rapid and extensive degradation of parent compound in aquatic systems; DT_{50} for degradation in lab. water-sediment systems 7–15 d; in a microcosm, DT_{50} <3 h, DT_{90} <3 d. (Lambda-cyhalothrin)

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14. DISPOSAL CONSIDERATIONS

Waste Disposal

Pesticide wastes are acutely hazardous. Do not reuse product containers. Dispose product containers, waste containers, residues according local health and environmental regulations.

15. TRANSPORT INFORMATION

Thiamethoxam:

UN Number: UN 3077

Dangerous Goods Class: 9

Packing Group: III

Lambda-cyhalothrin:

UN Number: UN 2810

Dangerous Goods Class: 6.1

Packing Group: III

16. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

17. OTHER INFORMATION

The information contained herein relates only to the specific material identified. We believe that such information is accurate and reliable as of the date of this material safety data sheet, but no representation, guarantee or warranty, express or implied, is made as to the reliability or completeness of the information. Urge persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

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