



Safety Data Sheet

TANDEM® Insecticide

Date: 8/31/2015

Replaces: 7/10/2012

1. PRODUCT IDENTIFICATION

Product identifier on label: **TANDEM® Insecticide**

Product No.: A18484C

Use: Insecticide

Manufacturer: Syngenta Crop Protection, LLC
Post Office Box 18300
Greensboro NC 27419

Manufacturer Phone: 1-800-334-9481

Emergency Phone: 1-800-888-8372

2. HAZARDS IDENTIFICATION

Classifications: Oral: Category 4

Signal Word (OSHA): Warning

Hazard Statements: Harmful if swallowed

Hazard Symbols:



Precautionary Statements: Wash hands and face thoroughly after handling.

Do not eat, drink or smoke when using this product.

If swallowed: Call a poison center, doctor or Syngenta if you feel unwell. Rinse mouth.

Dispose of contents and container in accordance with local regulations.

Other Hazard Statements: May cause temporary itching, tingling, burning or numbness of exposed skin, called paresthesia.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | Common Name | CAS Number | Concentration |
|---|--------------------|--------------|---------------|
| 1,2-Propanediol | Propylene Glycol | 57-55-6 | Trade Secret |
| Other ingredients | Other ingredients | Trade Secret | >84.9% |
| [1a(S*),3a(Z)]-cyano(3-phenoxyphenyl)methyl-3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate | Lambda-Cyhalothrin | 91465-08-6 | 3.5% |

TANDEM® Insecticide

Date: 8/31/2015

Replaces: 7/10/2012

3-(2-chloro-1,3-thiazol-5-ylmethyl)-5-methyl-1,3,5-oxadiazinan-4-ylidene(nitro)amine

Thiamethoxam

153719-23-4

11.6%

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

Have the product container, label or Safety Data Sheet with you when calling Syngenta (800-888-8372), a poison control center or doctor, or going for treatment.

- Ingestion: If swallowed: Call Syngenta (800-888-8372), a poison control center or doctor immediately for treatment advice. Do not give any liquid to the person. Do not induce vomiting unless told to do so after calling 800-888-8372 or by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
- Eye Contact: If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Skin Contact: If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call Syngenta (800-888-8372), a poison control center or doctor for treatment advice.
- Inhalation: If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call Syngenta (800-888-8372), a poison control center or doctor for further treatment advice.

Most important symptoms/effects:

Not Available

Indication of immediate medical attention and special treatment needed:

There is no specific antidote if this product is ingested.

Skin contact paresthesia effects (itching, tingling, burning or numbness) are transient, lasting up to 24 hours. Treat symptomatically.

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

Use dry chemical, foam or CO₂ extinguishing media. If water is used to fight fire, dike and collect runoff.

Specific Hazards:

During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

Special protective equipment and precautions for firefighters:

Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:

Follow exposure controls/personal protection outlined in Section 8.

Methods and materials for containment and cleaning up:

Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Section 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with hard water detergent (e.g. commercial products such as Tide, Joy, Spic and Span). Pick up wash liquid with additional absorbent and place into compatible disposal container. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposition.

TANDEM® Insecticide

Date: 8/31/2015
 Replaces: 7/10/2012

7. HANDLING AND STORAGE

Precautions for safe handling:

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Conditions for safe storage, including any incompatibilities:

Not Applicable

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Occupational Exposure Limits:

| Chemical Name | OSHA PEL | ACGIH TLV | Other | Source |
|--------------------|-----------------|-----------------|-----------------------------------|----------------|
| Propylene Glycol | Not Established | Not Established | 10 mg/m ³ TWA | AIHA |
| Other ingredients | Not Established | Not Established | Not Established | Not Applicable |
| Lambda-Cyhalothrin | Not Established | Not Established | 0.04 mg/m ³ TWA (skin) | Syngenta |
| Thiamethoxam | Not Established | Not Established | 3 mg/m ³ TWA | Manufacturer |

Appropriate engineering controls:

Use effective engineering controls to comply with occupational exposure limits (if applicable).

Individual protection measures:

Ingestion:

Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact:

Where eye contact is likely, use splash-proof chemical goggles.

Skin Contact:

Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear. Stringent housekeeping measures are necessary to prevent translocation of the material from contaminated work surfaces to uncontaminated surfaces (railings, doors, etc.). Unprotected contact with such translocated material can result in paresthesia effects (see Section 11 of MSDS). Do not touch unprotected skin areas (face) with contaminated gloves or clothing.

Inhalation:

A respirator is not normally required when handling this substance. Use effective engineering controls to comply with occupational exposure limits.

In case of emergency spills, use a NIOSH certified respirator with any N, R, P or HE filter.

TANDEM® Insecticide

Date: 8/31/2015

Replaces: 7/10/2012

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Brown liquid

Odor: Strong aromatic

Odor Threshold: Not Available

pH: 4.5 - 6.5 (as packaged @ 68 - 77°F (20 - 25°C))

Melting point/freezing point: Not Available

Initial boiling point and boiling range: Not Applicable

Flash Point (Test Method): Not Available

Flammable Limits (% in Air): Not Available

Flammability: Not Available

Vapor Pressure: Lambda-Cyhalothrin 1.5 x 10(-9) mmHg @ 68°F (20°C)

Thiamethoxam 2 x 10(-11) mmHg @ 68°F (20°C)

Vapor Density: Not Available

Relative Density: 1.0775 g/ml

Solubility (ies): Lambda-Cyhalothrin 0.004 mg/l

Thiamethoxam 4.1 g/l @ 77°F (25°C)

Partition coefficient: n-octanol/water: Not Available

Autoignition Temperature: Not Available

Decomposition Temperature: Not Available

Viscosity: Not Available

Other: None

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.

Chemical stability: Stable under normal use and storage conditions.

Possibility of hazardous reactions: Will not occur.

Conditions to Avoid: None known.

Incompatible materials: None known.

Hazardous Decomposition Products: None known.

11. TOXICOLOGICAL INFORMATION

Health effects information

Likely routes of exposure: Dermal, Inhalation

Symptoms of exposure: Not Applicable

Delayed, immediate and chronic effects of exposure: Not Applicable

Numerical measures of toxicity (acute toxicity/irritation studies (finished product))

Ingestion: Oral (LD50 Female Rat): 1750 mg/kg body weight (based on a

TANDEM® Insecticide

Date: 8/31/2015
 Replaces: 7/10/2012

| | | |
|---------------------|--|--|
| | | substantially similar formulation) |
| Dermal: | Dermal (LD50 Rat) : | > 5000 mg/kg body weight (based on a substantially similar formulation) |
| Inhalation: | Inhalation (LC50 Rat) : | > 2.52 mg/l air - 4 hours (based on a substantially similar formulation) |
| Eye Contact: | Minimally Irritating (Rabbit) (based on a substantially similar formulation) | |
| Skin Contact: | Slightly Irritating (Rabbit) (based on a substantially similar formulation) | |
| Skin Sensitization: | Not a Sensitizer (Guinea Pig) (based on a substantially similar formulation) | |

Reproductive/Developmental Effects

Lambda-Cyhalothrin : Not a developmental or reproductive toxicant.

Thiamethoxam: Developmental: Not teratogenic in rats or rabbits.

Reproductive: No effects on reproduction. Minor increase in a common testis effect in rats at high doses, which did not affect reproduction.

Chronic/Subchronic Toxicity Studies

Lambda-Cyhalothrin : Reversible paresthesia (abnormal skin sensation).

Reversible clinical signs of neurotoxicity in mammals.

Thiamethoxam: Subchronic: Liver effects occurred in rodents only at high dose levels. Not neurotoxic after high acute and subchronic exposure in rats.

Carcinogenicity

Lambda-Cyhalothrin : No treatment-related tumors in rats or mice.

Thiamethoxam: Classified as "not likely to be carcinogenic in humans" based on lifetime studies in mice and rats.

| Chemical Name | NTP/IARC/OSHA Carcinogen |
|--|--------------------------|
| 1,2-Propanediol | No |
| Other ingredients | No |
| [1a(S*),3a(Z)]-cyano(3-phenoxyphenyl)methyl- | No |
| 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate | |
| 3-(2-chloro-1,3-thiazol-5-ylmethyl)-5-methyl-1,3,5-oxadiazinan-4-ylidene(nitro)amine | No |

Other Toxicity Information

In humans, contact with exposed skin may result in temporary itching, tingling, burning or numbness, called paresthesia. The effect may result from splash, aerosol, or hot vapor contact, or transfer to the face from contaminated gloves and hands. The symptoms normally disappear within 24 hours. Face and genital areas are especially susceptible to this effect. Paresthesia involving the face is also known as "subjective facial sensation" or SFS.

Toxicity of Other Components

Other ingredients

Not Established

Propylene Glycol

Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Also, eye irritation may occur with lacrimation but no residual discomfort or injury. Prolonged contact to skin may cause mild to moderate irritation and possible allergic reactions. Chronic dietary exposure caused kidney and liver injury in experimental animals.

TANDEM® Insecticide

Date: 8/31/2015
Replaces: 7/10/2012

Target Organs

Active Ingredients

Lambda-Cyhalothrin : Liver, nervous system

Thiamethoxam: Liver

Inert Ingredients

Other ingredients: Not Established

Propylene Glycol: CNS, kidney, liver

12. ECOLOGICAL INFORMATION

Eco-Acute Toxicity

Lambda-Cyhalothrin :

Fish (Rainbow Trout) 96-hour LC50 0.19 ppb

Bird (Mallard Duck) LD50 Oral > 3950 mg/kg

Invertebrate (Water Flea) 48-hour EC50 0.04 ppb

Thiamethoxam:

Bird (Mallard Duck) LD50 Oral 576 mg/kg

Invertebrate (Daphnia Magna) 48-hour EC50 > 106 ppm

Fish (Rainbow Trout) 96-hour LC50 > 100 ppm

Green Algae 4-day EC50 > 97 ppm

Environmental Fate

Lambda-Cyhalothrin :

The information presented here is for the active ingredient, lambda-cyhalothrin.
Not persistent in soil or water. Immobile in soil. Sinks in water (after 24 h).

Thiamethoxam:

The information presented here is for the active ingredient, CGA293343.

Not persistent in soil. Stable in water. Moderate mobility in soil. Floats in water (after 24 h).

13. DISPOSAL CONSIDERATIONS

Disposal:

Do not reuse product containers. Dispose of product containers, waste containers, and residues according to local, state, and federal health and environmental regulations.

Characteristic Waste: Not Applicable

Listed Waste: Not Applicable

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA

Proper Shipping Name: Pyrethroid Pesticide, Liquid, Toxic (Lambda-Cyhalothrin)

Hazard Class: Class 6.1

Identification Number: UN 3352

Packing Group: PG III

Comments

Water Transport - International

TANDEM® Insecticide

Date: 8/31/2015
 Replaces: 7/10/2012

Proper Shipping Name: Pyrethroid Pesticide, Liquid, Toxic (Lambda-Cyhalothrin), Marine Pollutant
 Hazard Class: Class 6.1
 Identification Number: UN 3352
 Packing Group: PG III

Air Transport

Proper Shipping Name: Pyrethroid Pesticide, Liquid, Toxic (Lambda-Cyhalothrin)
 Hazard Class: Class 6.1
 Identification Number: UN 3352
 Packing Group: PG III

15. REGULATORY INFORMATION

Pesticide Registration:

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

Caution: Harmful if swallowed, absorbed through skin, or inhaled. Avoid breathing vapors. Avoid contact with skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

EPA Registration Number(s):

100-1437

EPCRA SARA Title III Classification:

Section 311/312 Hazard Classes: Acute Health Hazard
 Chronic Health Hazard

Section 313 Toxic Chemicals: None

California Proposition 65:

This product does not contain chemical(s) known to the State of California to cause cancer and birth defects or other reproductive harm.

CERCLA/SARA 304 Reportable Quantity (RQ):

Not Applicable

RCRA Hazardous Waste Classification (40 CFR 261):

Not Applicable

TSCA Status:

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings

| | | | |
|---------------|---|---------------|---|
| Health: | 2 | Health: | 2 |
| Flammability: | 1 | Flammability: | 1 |
| Instability: | 0 | Reactivity: | 0 |

HMIS Hazard Ratings

| | |
|---|----------|
| 0 | Minimal |
| 1 | Slight |
| 2 | Moderate |
| 3 | Serious |
| 4 | Extreme |
| * | Chronic |

Syngenta Hazard Category: D,S

For non-emergency questions about this product call:

TANDEM® Insecticide

Date: 8/31/2015

Replaces: 7/10/2012

1-800-334-9481

Original Issued Date: 7/10/2012

Revision Date: 8/31/2015

Replaces: 7/10/2012

Section(s) Revised: 1-16

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein.