

## VOLIAM FLEXI®

Date: 3/3/2015  
Replaces: 7/22/2011

### 1. PRODUCT IDENTIFICATION

Product identifier on label: **VOLIAM FLEXI®**  
Product No.: A15645A  
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: Carcinogenicity: Category 1A  
Specific Target Organ Toxicity: Repeated Category 1  
Signal Word (OSHA): Danger  
Hazard Statements: May cause cancer  
Causes damage to organs through prolonged or repeated exposure

Hazard Symbols:



Precautionary Statements: Obtain special instructions before use.  
Do not handle until all safety precautions have been read and understood.  
Do not breathe dust.  
Wash hands and face thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Wear protective gloves, protective clothing, eye protection.  
If exposed or concerned: Get medical advice/attention.  
Get medical advice if you feel unwell.  
Store locked up.  
Dispose of contents and container in accordance with local regulations.

Other Hazard Statements: May form combustible dust concentrations in air.

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name  | Common Name                                 | CAS Number   | Concentration |
|--|---|--------------|---------------|
| Crystalline Silica, Quartz and Cristobalite  | Crystalline Silica, Quartz and Cristobalite | 14808-60-7   | <1.0%         |
| Diatomaceous Earth   | Diatomaceous Earth                          | 61790-53-2   | Trade Secret  |
| Starch   | Starch                                      | 9005-25-8    | Trade Secret  |
| Other ingredients  | Other ingredients                           | Trade Secret | <60.0%        |
| 3-(2-chloro-1,3-thiazol-5-ylmethyl)-5-methyl-1,3,5-oxadiazinan-4-ylidene(nitro)amine                             | Thiamethoxam                                | 153719-23-4  | 20.0%         |
| 3-Bromo-N-[4-chloro-2-methyl-6-[(methylamino)carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5-carboxamide | Chlorantraniliprole                         | 500008-45-7  | 20.0%         |

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 Applicable

Indication of immediate medical attention and special treatment needed:

There is no specific antidote if this product is ingested.

Treat symptomatically.

### 5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

Use dry chemical, foam or CO<sub>2</sub> extinguishing media. If water is used to fight fire, dike and collect runoff.

Specific Hazards:

This material can be thermally unstable at elevated temperatures. The material is thermally stable at normal ambient temperatures. It is good practice to store the material away from sources of heat such as steam pipes, radiators or heaters.

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

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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. Sweep up material and place in a 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.

### 7. HANDLING AND STORAGE

Precautions for safe handling:

This material is capable of forming flammable dust clouds in air, which, if ignited, can produce a dust cloud explosion. Flames, hot surfaces, mechanical sparks and electrostatic discharges can serve as ignition sources for this material. Electrical equipment should be compatible with the flammability characteristics of this material. The flammability characteristics will be made worse if the material contains traces of flammable solvents or is handled in the presence of flammable solvents.

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:

Store locked up.

### 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         |
|---|--|---|--|----------------|
| Crystalline Silica, Quartz and Cristobalite | 10 mg/m <sup>3</sup> /(%SiO <sub>2</sub> +2) (respirable dust)   | 0.025 mg/m <sup>3</sup> (respirable silica) | 0.05 mg/m <sup>3</sup> (respirable dust)                         | NIOSH          |
| Diatomaceous Earth                          | 80 mg/m <sup>3</sup> /%SiO <sub>2</sub> (20 mppcf) TWA           | Not Established                             | 6 mg/m <sup>3</sup> TWA  | NIOSH          |
| Starch                                      | 15 mg/m <sup>3</sup> (total) TWA; 5 mg/m <sup>3</sup> (resp) TWA | 10 mg/m <sup>3</sup> TWA                    | 10 mg/m <sup>3</sup> (total) TWA; 5 mg/m <sup>3</sup> (resp) TWA | NIOSH          |
| Other ingredients                           | Not Applicable   | Not Applicable                              | Not Applicable   | Not Applicable |
| Thiamethoxam                                | Not Established  | Not Established                             | 3 mg/m <sup>3</sup> TWA  | Syngenta       |

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|                     |                 |                 |  |              |
|---------------------|-----------------|-----------------|--|--------------|
| Chlorantraniliprole | Not Established | Not Established | 10 mg/m <sup>3</sup> TWA (Total); 5 mg/m <sup>3</sup> TWA (Resp) | 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 dust-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, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear.

**Inhalation:**

A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use NIOSH certified respirator with any N, R, P or HE filter. Use a self-contained breathing apparatus in cases of emergency spills, when exposure levels are unknown, or under any circumstances where air-purifying respirators may not provide adequate protection.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Beige to brown granules

Odor: Weak; uncharacteristic

Odor Threshold: Not Available

pH: 8.8 - 9.3 (1% in deionized H<sub>2</sub>O; 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: Chlorantraniliprole 1.6 x 10<sup>-9</sup> mm Hg @77° F (25° C)

Thiamethoxam 2 x 10<sup>-11</sup> mmHg @ 68°F (20°C)

Vapor Density: Not Available

Relative Density: 0.47 - 0.57 g/cm<sup>3</sup>

Solubility (ies): Chlorantraniliprole 1.023 mg/l @ 68°F (20°C)

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

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### 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: At elevated temperatures product will undergo rapid, gas-evolving thermal decomposition.

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: Possible carcinogenicity

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

|                     |                               |                           |
|---------------------|-------------------------------|---------------------------|
| Ingestion:          | Oral (LD50 Female Rat) :      | > 5000 mg/kg body weight  |
| Dermal:             | Dermal (LD50 Rat) :           | > 5000 mg/kg body weight  |
| Inhalation:         | Inhalation (LC50 Rat) :       | > 4.16 mg/l air - 4 hours |
| Eye Contact:        | Non-Irritating (Rabbit)       |                           |
| Skin Contact:       | Mildly Irritating (Rabbit)    |                           |
| Skin Sensitization: | Not a Sensitizer (Guinea Pig) |                           |

#### Reproductive/Developmental Effects

Chlorantraniliprole: Did not show developmental or reproductive effects in animal experiments.

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

Chlorantraniliprole: There were no adverse effects in subchronic feeding studies in rats and dogs. There was a decreased body weight gain at high doses in a 28-day feeding study in mice.

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

#### Carcinogenicity

Chlorantraniliprole: Chlorantraniliprole was not carcinogenic in either a 2-year study in rats or an 18-month study in 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 |
| Crystalline Silica, Quartz and Cristobalite | IARC 1; ACGIH A2         |

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|  |        |
|--|--------|
| Diatomaceous Earth   | IARC 3 |
| Starch   | No     |
| Other ingredients  | No     |
| 3-(2-chloro-1,3-thiazol-5-ylmethyl)-5-methyl-1,3,5-oxadiazinan-4-ylidene(nitro)amine                             | No     |
| 3-Bromo-N-[4-chloro-2-methyl-6-[(methylamino)carbonyl]phenyl]-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5-carboxamide | No     |

### Other Toxicity Information

None

### Toxicity of Other Components

#### Crystalline Silica, Quartz and Cristobalite

Chronic inhalation exposure to crystalline silica is known to cause silicosis and pulmonary fibrosis in humans. Experimental animals exposed to crystalline silica developed respiratory tract cancers.

#### Diatomaceous Earth

The carrier in this product is naturally occurring diatomaceous earth. Natural diatomaceous earth contains a small percentage of naturally occurring crystalline silica, which is considered a probable human carcinogen. Chronic inhalation exposure to crystalline silica is known to cause silicosis and pulmonary fibrosis in humans. Experimental animals exposed to crystalline silica developed respiratory tract cancers.

#### Other ingredients

Not Applicable

#### Starch

May cause eye and skin irritation. May cause respiratory tract irritation.

### Target Organs

#### Active Ingredients

|                      |                |
|----------------------|----------------|
| Chlorantraniliprole: | Not Applicable |
| Thiamethoxam:        | Liver          |

#### Inert Ingredients

|  |                              |
|--|------------------------------|
| Crystalline Silica, Quartz and Cristobalite: | Respiratory tract            |
| Diatomaceous Earth:                          | Respiratory tract            |
| Other ingredients:                           | Not Applicable               |
| Starch:                                      | Eye, skin, respiratory tract |

## 12. ECOLOGICAL INFORMATION

### Eco-Acute Toxicity

#### Thiamethoxam:

- Fish (Rainbow Trout) 96-hour LC50 > 100 ppm
- Bird (Mallard Duck) LD50 Oral 576 mg/kg
- Invertebrate (Daphnia Magna) 48-hour EC50 > 106 ppm
- Green Algae 4-day EC50 > 97 ppm

#### Chlorantraniliprole:

- Fish (Rainbow Trout) 96-hour LC50 12.6 mg/l
- Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 0.0204 mg/l
- Green Algae 72-hour ErC50 > 13 mg/l

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### Environmental Fate

#### Chlorantraniliprole:

The following information is for the active ingredient, chlorantraniliprole.  
According to the results of tests of biodegradability this product is not readily biodegradable.

#### Thiamethoxam:

The information presented here is for the active ingredient, thiamethoxam.  
Not persistent in soil. Stable in water. Moderate mobility in soil. Floats in water (after 24 h).

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## 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

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## 14. TRANSPORT INFORMATION

### DOT Classification

Ground Transport - NAFTA  
Not regulated

### Comments

Water Transport - International  
Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Chlorantraniliprole), Marine Pollutant  
Hazard Class or Division: Class 9  
Identification Number: UN 3077  
Packing Group: PG III

### Air Transport

Proper Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Chlorantraniliprole)  
Hazard Class or Division: Class 9  
Identification Number: UN 3077  
Packing Group: PG III

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## 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: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling, and before drinking, eating, chewing gum, using tobacco, or using the toilet.

### EPA Registration Number(s):

100-1319

### EPCRA SARA Title III Classification:

Section 311/312 Hazard Classes: Acute Health Hazard

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Section 313 Toxic Chemicals: None

California Proposition 65:

This product contains a chemical known to the State of California to cause cancer.

CERCLA/SARA 304 Reportable Quantity (RQ):

None

RCRA Hazardous Waste Classification (40 CFR 261):

Not Applicable

TSCA Status:

Exempt from TSCA, subject to FIFRA

### 16. OTHER INFORMATION

NFPA Hazard Ratings

Health: 1  
 Flammability: 1  
 Instability: 0

HMIS Hazard Ratings

Health: 1  
 Flammability: 1  
 Reactivity: 0

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

Syngenta Hazard Category: B

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 9/6/2007

Revision Date: 3/3/2015

Replaces: 7/22/2011

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.