

Syngenta Crop Protection Canada, Inc.
140 Research Lane, Research Park
Guelph, ON N1G 4Z3

**In Case of Emergency, Call
1-800-327-8633 (FAST MED)**

Date of MSDS Preparation (Y/M/D): 2010-12-31

Supersedes date (Y/M/D): 2007-12-31

MSDS prepared by:

Department of Regulatory & Biology Development
Syngenta Crop Protection Canada, Inc.

For further information contact:
1-87-SYNGENTA (1-877-964-3682)

SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: ACTARA® 25WG Insecticide

Product No.: A9584C

Registration Number: 28408 (Pest Control Products Act)

Chemical Class: Neonicotinoid Insecticide

Active Ingredient (%): Thiamethoxam (25.0 %)

CAS No.: 153719-23-4

Chemical Name: 3-[(2-chloro-5-thiazolyl)methyl]tetrahydro-5-methyl-N-nitro-4H-1,3,5-oxadiazin-4-imine

Product Use: ACTARA 25WG is an insecticide product for control of certain pests in registered crops. For further details please refer to product label.

SECTION – 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Diatomaceous Earth (CAS No. 61790-53-2)	80 mg/m ³ /%SiO ₂ (20 mppcf) TWA	Not Established	6 mg/m ³ TWA**	IARC 3	Yes
Crystalline Silica, Quartz (CAS No. 14808-60-7)	10 mg/m ³ / (%SiO ₂ +2) (respirable dust)	0.025 mg/m ³ (respirable silica)	0.05 mg/m ³ (respirable dust)**	IARC 1; ACGIH A2	Yes
Starch	15 mg/m ³ (total) TWA; 5 mg/m ³ (respirable) TWA	10 mg/m ³ TWA	10 mg/m ³ (total) TWA; 5 mg/m ³ (respirable) TWA**	No	Not Established
Thiamethoxam (25.0%)	Not Established	Not Established	3 mg/m ³ TWA***	No	Not Established

** Recommended by NIOSH

*** Syngenta Occupational Exposure Limit (OEL)

† Material listed in Ingredient Disclosure List under Hazardous Products Act.

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.
Syngenta Hazard Category: B

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

Irritating to eyes and skin.

Hazardous Decomposition Products

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

Physical Properties

Appearance: Beige to brown granules.

Odour: Musty.

Unusual Fire, Explosion and Reactivity Hazards

This product is a combustible powder and like all combustible powders can ignite, burn and form explosive mixtures with air if not handled correctly. Mixtures of powder in air with flammable solvent vapours should be avoided. This product has a minimum ignition energy between 30 and 100 millijoules. Mechanical sparks, open flames and certain hot surfaces can serve as ignition sources for this material. Eliminate the presence of mechanical sparks and other ignition sources where dust clouds of this material could form. This product can energetically decompose at approximately 140 °C (284 °F). Do not store or process at temperatures above 70°C (158 °F). Do not store near sources of heat including steam lines.

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

Potential Health Effects

Relevant routes of exposure: Skin, eyes, mouth, lungs.

SECTION – 4: FIRST AID MEASURES

IF POISONING IS SUSPECTED, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Material Safety Data Sheet with you when calling Syngenta, a poison control center or doctor, or going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given. Call the Syngenta Emergency Line [**1-800-327-8633 (1-800-FASTMED)**], for further information.

EYE CONTACT: Flush eyes with clean water, holding eyelids apart for a minimum of 15 - 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta, a poison control center or doctor for treatment advice. Obtain medical attention immediately if irritation persists.

SKIN CONTACT: Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with plenty of water for 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.

INHALATION: Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.

INGESTION: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control center. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

NOTES TO PHYSICIAN:

There is no specific antidote. Treat symptomatically.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED: None known.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: Not applicable.

Upper and lower flammable (explosive) limits in air: Not available.

Auto-ignition temperature: Not available.

Flammability: Combustible powder.

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

Conditions under which flammability could occur: This product is a combustible powder and like all combustible powders can ignite, burn and form explosive mixtures with air if not handled correctly. Mixtures of powder in air with flammable solvent vapours should be avoided. This product has a minimum ignition energy between 30 and 100 millijoules. Mechanical sparks, open flames and certain hot surfaces can serve as ignition sources for this material. Eliminate the presence of mechanical sparks and other ignition sources where dust clouds of this material could form. This product can energetically decompose at approximately 140 °C (284°F). Do not store or process at temperatures above 70°C (158°F). Do not store near sources of heat including steam lines. Keep fire exposed containers cool by spraying with water.

Extinguishing media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist, (avoid use of water jet). 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. Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

Sensitivity to explosion by mechanical impact: Low.

Sensitivity to explosion by static discharge: Low.

SECTION – 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices. A small spill can be handled routinely. Wear suitable protective equipment and clothing as described in Section 8 and/or the product label.

Procedures for dealing with release or spill: 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 Sections 7 and 8. Cover entire spill with absorbing material and place into compatible disposal container. Scrub area with detergent and water. Pick up wash liquid with additional absorbent and place into compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory authority.

SECTION – 7: HANDLING AND STORAGE

Handling practices: This product is a combustible powder and like all combustible powders can ignite, burn and form explosive mixtures with air if not handled correctly. Mixtures of powder in air with flammable solvent vapours should be avoided. This product has minimum ignition energy between 30 and 100 millijoules. Mechanical sparks, open flames and certain hot surfaces can serve as ignition sources for this material. Eliminate the presence of mechanical sparks and other ignition sources where dust clouds of this material could form. This product can energetically decompose at approximately 140°C (284°F). Do not store or process at temperatures above 70°C (158°F). Do not store near sources of heat including steam lines. Keep fire exposed containers cool by spraying with water.

KEEP OUT OF REACH OF CHILDREN. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours or spray mist. Wear appropriate protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Keep product, wash or rinse water, and contaminated materials out of water, and away from access by animals, birds or unauthorized people.

Appropriate storage practices/requirements: Store in original container only in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40°C. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

National Fire Code classification: Combustible powder.

SECTION – 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Applicable control measures, including engineering controls: This product is intended for use outdoors where engineering controls are not necessary. If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain

airborne levels below the TLV. Warehouses, production area, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

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

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

Personal protective equipment for each exposure route:

General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly after handling and before eating, drinking, applying cosmetics or handling tobacco.

INGESTION: Do not eat, drink, handle tobacco, or apply cosmetics in areas where there is a potential for exposure to this material. Always wash thoroughly after handling.

EYES: Where eye contact is likely, use chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

SKIN: Where contact is likely, wear chemical-resistant gloves (such as nitrile or butyl), coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.

INHALATION: A respirator is not normally required when handling this substance. A combination gas/vapour/particulate respirator should be used until effective engineering controls are installed to comply with occupational exposure limits, or until exposure limits are established. Use a NIOSH certified respirator with a combination acid gas/organic vapour cartridge or canister and any N, P or R pre-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.

SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Beige to brown granules.

Formulation Type: Wettable granule.

Odour: Musty.

pH: 9.4 (1% aqueous solution).

Vapour pressure and reference temperature: 2×10^{-11} mmHg @ 20°C (Thiamethoxam Technical).

Vapour density: Not available.

Boiling point: Not available.

Melting point: Not available.

Freezing point: Not available.

Specific gravity or density: 0.47 g/cm³ @ 20°C.

Evaporation Rate: Not available.

Water/oil partition coefficient: Not available.

Odour threshold: Not available.

Viscosity: Not available.

Solubility in Water: 4.1 g/L @ 25°C (Thiamethoxam Technical).

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable under normal use and storage conditions.

Conditions to avoid: None known.

Incompatibility with other materials: None known.

Hazardous decomposition products: Can decompose at high temperatures and form toxic gases.

Hazardous polymerization: Will not occur.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Low Acute Toxicity</u>	
	Oral (LD50 Rat):	> 5,000 mg/kg body weight

Dermal:	<u>Low Acute Toxicity</u>	
	Dermal (LD50 Rabbit):	> 2,000 mg/kg body weight
Inhalation:	<u>Low Acute Toxicity</u>	
	Inhalation (LC50 Rat):	> 2.79 mg/L air - 4 hours
Eye Contact:	<u>Mildly Irritating (Rabbit)</u>	
Skin Contact:	<u>Mildly Irritating (Rabbit)</u>	
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	

Reproductive/Developmental Effects

Thiamethoxam Technical: Not teratogenic or a reproductive toxicant. Minor testis effects at high doses with no effect on reproduction.

Chronic/Subchronic Toxicity Studies

Thiamethoxam Technical: Liver and kidney effects at high doses in animal models. Not neurotoxic in animal models.

Carcinogenicity

Thiamethoxam Technical: Liver tumors, at high doses in mice, that are not relevant to humans.

Other Toxicity Information:

None.

Toxicity of Other Components

The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the "other components" in the formulation.

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. The amount of crystalline silica in this product is minimal and the potential for overexposure in manufacturing operations is low.

Starch:

May cause eye and skin irritation. May cause respiratory tract irritation. Low hazard for usual industrial handling. Prolonged contact can cause chemical pneumonitis.

Other materials that show synergistic toxic effects together with the product: None known.

Target Organs

Active Ingredients

Thiamethoxam Technical: Liver, kidney.

Inert Ingredients

Crystalline Silica, Quartz and Cristobalite: Respiratory tract

Diatomaceous Earth: Respiratory tract.

Starch: Respiratory tract.

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects

The active ingredient, thiamethoxam, is slightly to practically non-toxic to fish, birds and aquatic invertebrates (water flea).

Eco-Acute Toxicity

Thiamethoxam Technical:

Green Algae 5-Day EC ₅₀	> 100 ppm
Invertebrate (Water Flea) 48-hour EC ₅₀	> 106 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	> 100 ppm
Bird (Bobwhite Quail) 8-day Dietary LC ₅₀	> 5,200 mg/kg

Environmental Fate

The active ingredient, thiamethoxam, has a moderate bioaccumulation potential, low mobility, and moderate persistence in soil and water.

SECTION – 13: DISPOSAL CONSIDERATIONS

Waste disposal information: Do not reuse empty containers unless they are specifically designed to be re-filled. Empty container retains product residue. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents must accompany the shipment.

SECTION – 14 : TRANSPORT INFORMATION

Shipping information such as shipping classification:

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION - ROAD/RAIL
Not Regulated

SECTION – 15: REGULATORY INFORMATION

WHMIS classification for product: Exempt

A statement that the MSDS has been prepared to meet WHMIS requirements, except for use of the 16 headings.

This MSDS has been prepared in accordance with WHMIS requirements, but the data are presented under 16 headings.

Other regulations; restrictions and prohibitions

Pest Control Products (PCP) Act Registration No.: 28408

SECTION – 16: OTHER INFORMATION

The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Syngenta will not be liable for any damages, losses, injuries or consequential damages which may result from the use of or reliance on any information contained herein. This Material Safety Data Sheet is valid for three years. This product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant MSDS. Hazardous properties of all ingredients have been considered in the preparation of this MSDS. Read the entire MSDS for the complete hazard evaluation of this product.

Prepared by: Syngenta Crop Protection Canada, Inc.
1-87-SYNGENTA (1-877-964-3682)

Syngenta Crop Protection Canada, Inc. believes that the information and recommendations contained herein (including data and statements) are accurate as of the date thereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates to the specific product designated and may not be valid where such product is used in combination with any other materials or in any process. Further, since the conditions and methods of use of the product and of the information referred to herein are

beyond the control of Syngenta Crop Protection Canada, Inc., Syngenta Crop Protection Canada, Inc. expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.

ACTARA® is a trademark of a Syngenta Group Company.