

SECTION 1: PRODUCT IDENTIFICATION
Product Identifier: CRUISER® VIBRANCE® QUATTRO

Formulation No.: A20307A

Registration Number: 31453 (Pest Control Products Act)

Product Use: Seed treatment fungicide and insecticide.

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

**In Case of Emergency, Call
 1-800-327-8633 (FAST MED)**
MSDS prepared by: Department of Regulatory & Biological Assessment, Syngenta Canada Inc.

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

SECTION 2: HAZARDS IDENTIFICATION
Physical State: Liquid.

Appearance: Red liquid.

Odour: Aromatic.

Symptoms of Acute Exposure: Causes mild eye and skin irritation.

Potential Health Effects: Not applicable.

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.

Unusual Fire, Explosion & Reactivity Hazards: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS No.	Average % by weight
Sedaxane	874967-67-6	1.437
Difenoconazole	119446-68-3	3.45
Fludioxonil	131341-86-1	0.719
Thiamethoxam	153719-23-4	5.75
Metalaxyl-M & S isomer	70630-17-0 69516-34-3	0.86
Propylene Glycol	57-55-6	11.5
Other Ingredients		76.28

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

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 centre 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 eyes. Call Syngenta, a poison control centre 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 running water for a minimum of 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. Do not give **any** liquid to the person. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control centre. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathin in of vomitus, rinse mouth and administer water.

Most Important Symptoms/Effects, Acute and Delayed:

Causes mild eye and skin irritation.

Indication of Immediate Medical Attention and Special Treatment:

There is no specific antidote if this product is ingested.

Treat symptomatically.

Contains petroleum distillate, vomiting may cause aspiration pneumonia

SECTION 5: FIRE FIGHTING MEASURES

Flash Point and Method: >102 °C (Pensky-Martens closed-cup).

Upper and Lower Flammable (explosive) Limits in Air: Not applicable.

Auto-ignition Temperature: 450 °C

Flammability: Not available.

National Fire Code Classification: Not applicable.

Hazardous Combustion Products: During a fire, irritating and possible toxic gases may be generated by thermal decomposition or combustion.

Conditions Under which Flammability Could Occur: Not applicable.

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 non-essential 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: Not Applicable

Sensitivity to Explosion by Static Discharge: Not Applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill clean-up 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. Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Pick up wash liquid with additional adsorbent 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 body.

SECTION 7: HANDLING AND STORAGE

Handling Practices: 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 full 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. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Appropriate Storage Practices/Requirements: Store above 0 °C 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. Protect from freezing. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Applicable Control Measures, Including Engineering Controls: If necessary, ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV (threshold limit value). Warehouses, production areas, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Sedaxane	Not established	Not established	2 mg/m ³ TWA***	No	Not established
Difenoconazole	Not established	Not established	8 mg/m ³ TWA***	No	Not established
Fludioxonil	Not established	Not established	10 mg/m ³ TWA***	No	Not established
Thiamethoxam	Not established	Not established	3 mg/m ³ TWA***	No	Not established
Metalaxyl-M & S Isomer	Not established	Not established	10 mg/m ³ TWA***	No	Not established
Propylene Glycol	Not established	Not established	10 mg/m ³ TWA****	No	Yes

** Recommended by NIOSH.

*** Syngenta Occupational Exposure Limit (OEL).

**** Recommended by AIHA (American Industrial Hygiene Association).

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

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

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 AND/OR ON-FARM APPLICATIONS.

MATERIAL SAFETY DATA SHEET
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 safety shower.

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

Inhalation: Use process enclosures, exhaust ventilation controls, good work practices and respiratory protection to minimize exposure to liquid mists or dust from dried product. Follow product label respirator requirements when using this formulated product to treat seed or when bagging treated seed, handling treated seed (including planting), cleaning-up equipment and conducting other miscellaneous activities. In case of emergency spills, use a NIOSH approved respirator with an organic vapour cartridge and any R, P95 or HE filter.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Red liquid.

Formulation Type: Flowable suspension

Odour: Aromatic.

Odour Threshold: Not available.

pH: 6.7 (1% solution in deionized H₂O @ 25 °C)

Viscosity: 410 mPas @ 20°C.

Relative Density: Not available.

Specific Gravity or Density: 1.073 g/cm³

Solubility in Water:	Sedaxane	14 mg/L @ 25 °C
	Difenoconazole:	15 mg/L @ 25 °C
	Fludioxonil:	1.8 mg/L @ 25 °C
	Thiamethoxam:	4.1 g/L @ 25 °C
	Metalaxyl-M & S Isomer:	26 g/L @ 25 °C

Water/Oil Partition Coefficient (log Kow):	Sedaxane:	3.3
	Difenoconazole:	4.4
	Fludioxonil:	4.1
	Thiamethoxam:	-0.1
	Metalaxyl-M & S Isomer:	1.7

Vapour Pressure and Reference Temperature:	Sedaxane:	4.9 x 10 ⁻¹⁰ mmHg @ 20 °C
	Difenoconazole:	3.50 x 10 ⁻¹² mmHg @ 20 °C
	Fludioxonil:	2.9 x 10 ⁻⁹ mmHg @ 25 °C
	Thiamethoxam:	2 x 10 ⁻¹¹ mmHg @ 20 °C
	Metalaxyl-M & S Isomer:	2.5 x 10 ⁻⁵ mmHg @ 25 °C

Vapour Density: Not available

Boiling Point: Not available.

Boiling Range: Not available.

Melting Point: Not applicable.

Freezing Point: Not available.

Evaporation Rate: Not available.

Flash Point and Method: >102 °C (Pensky-Martens closed-cup).

Flammability: Not available.

Upper and Lower Flammable (Explosive) Limits in Air: Not applicable.

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability: Stable under normal use and storage conditions.

Conditions to Avoid: Not available.

Incompatibility with Other Materials: Not applicable.

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

Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion: LowAcute Toxicity
Oral (LD50 Rat) >5,000 mg/kg body weight

Dermal: LowAcute Toxicity
Dermal (LD50 Rat) > 5,000 mg/kg body weight

Inhalation: LowAcute Toxicity
Inhalation (LC50 Rat) > 2.59 mg/L air – 4 hours

Eye Contact: Minimally Irritating (Rabbit)

Skin Contact: Slightly Irritating (Rabbit)

Skin Sensitization: Not a Sensitizer (Mouse)

Chronic/Sub-chronic Toxicity Studies:

Sedaxane: No adverse effect has been observed in chronic toxicity tests.

Difenoconazole: No adverse effect has been observed in chronic toxicity tests.

Fludioxonil: No adverse effect has been observed in chronic toxicity tests.

Thiamethoxam: Did not show neurotoxicity in animal experiments.

Metalaxyl-M & S Isomer: Liver effects at high dose animal tests.

May cause substantial but temporary eye irritation. Skin and respiratory tract irritation may occur following prolonged exposure.

Carcinogenicity:

Sedaxane: At extremely high doses, numerically higher incidences of uterine, thyroid and liver tumours (male and/or female rats) and liver tumours (male mice) were within the range of normal background variation and thus considered unrelated to treatment. Some Regulatory Authorities have taken a more conservative position that these high-dose findings are treatment-related in rats and mice. The dose levels where these findings occur are not relevant to human exposure levels.

Difenoconazole: Did not show carcinogenic effects in animal experiments.

Fludioxonil: Did not show carcinogenic effects in animal experiments.

Thiamethoxam: Liver tumours at high doses noted in mice that are not relevant to humans.

Metalaxyl-M & S Isomer: Did not show carcinogenic effects in animal experiments.

Reproductive Toxicity:

Sedaxane: Did not show reproductive toxicity effects in animal experiments.
 Difenoconazole: Did not show reproductive toxicity effects in animal experiments.
 Fludioxonil: Did not show reproductive toxicity effects in animal experiments.
 Thiamethoxam: Did not show reproductive toxicity effects in animal experiments.
 Metalaxyl-M & S Isomer: Did not show reproductive toxicity effects in animal experiments.

Teratogenicity:

Sedaxane: Did not show teratogenic effects in animal experiments.
 Difenoconazole: Not teratogenic in animal studies.
 Fludioxonil: Not teratogenic in animal studies.
 Thiamethoxam: Not teratogenic in rats or rabbits.
 Metalaxyl-M & S Isomer: Did not show teratogenic effects in animal experiments.

Mutagenicity:

Sedaxane: Did not show mutagenic effects in animal experiments.
 Difenoconazole: Did not show mutagenic effects in animal experiments.
 Fludioxonil: Did not show mutagenic effects in animal experiments.
 Thiamethoxam: Did not show mutagenic effects in animal experiments.
 Metalaxyl-M & S Isomer: Did not show mutagenic effects in animal experiments.

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.

Propylene Glycol: Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea. Chronic dietary exposure caused kidney and liver injury in experimental animals.

SECTION 12: ECOLOGICAL INFORMATION
Eco-Acute Toxicity:

Sedaxane:

Invertebrates (Water Flea) EC ₅₀	6.1 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	1.1 ppm
Birds (8-day dietary – Bobwhite Quail) LC ₅₀	> 2,000 ppm

Difenoconazole:

Invertebrates (Water Flea) 48-hour EC ₅₀	0.77 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	1.6 ppm
Birds (21-day dietary – Mallard Duck) LD ₅₀	> 2,500 ppm

Fludioxonil:

Invertebrates (Water Flea) EC ₅₀	0.90 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	0.23 ppm
Birds (8-day dietary – Mallard Duck) LC ₅₀ /EC ₅₀	> 5,200 ppm

Thiamethoxam:

Invertebrates (Water Flea) EC ₅₀	> 106 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	> 100 ppm
Birds (8-day dietary – Bobwhite Quail) LC ₅₀	> 5,200 ppm

Metalaxyl-M & S Isomer:

Invertebrates (Water Flea) EC ₅₀	28 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀	130 ppm
Birds (5-day dietary – Bobwhite Quail) LD ₅₀	> 5,000 ppm

Environmental Fate:

Sedaxane:

Persistent in soil. Low mobility in soil.

Difenoconazole:

Moderately persistent to persistent in soil. Low mobility in soil.

Fludioxonil:

Moderately persistent in soil. Low mobility in soil.

Thiamethoxam:

Moderately persistent in soil. Moderately mobile in soil.

Metalaxyl-M & S Isomer:

Moderately persistent in soil. Moderate mobility in soil.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Information: Do not reuse containers unless they are specifically designed to be refillable. Empty container retains product residue. Triple rinse, or equivalent, empty container, return rinse water to dilution mixture, and dispose of dilution mixture as a hazardous waste if it cannot be disposed of by use according to the label instructions. 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 Classification:

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION – ROAD/RAIL:

Not regulated

Special Shipping Information:

Not applicable

SECTION 15: REGULATORY INFORMATION

Hazardous Products Act Information: CPR Compliance

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

Hazardous Products Act Information: WHMIS Classification

This product is exempt under WHMIS.

Pest Control Products (PCP) Act Registration No.: 31453

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.

Revision Date (Y-M-D): 2014-10-30

Supersedes Date (Y-M-D): NEW

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