CITY OF SANTA BARBARA
PARKS AND RECREATION DEPARTMENT

MEMORANDUM

DATE: July 12, 2022

TO: Jazmin LeBlanc, Caitlin Lam, IPM Committee

FROM: Scott Walwyn, Golf Course Superintendent

SUBJECT: Material Exemption Request for FY 2022-2023

The golf division is requesting that the IPM committee approve the attached list of materials for exemption for FY 2022-2023. The golf course staff will only use these products (fungicides, insecticides and herbicides) when accepted thresholds are exceeded. Staff will abide by the manufacturers label requirements and be in compliance with the California Department of Pesticide Regulation in all aspects of use. Below is a list of materials that the golf course is requesting for the possibility of application for FY 2022-2023 for primarily greens/collars and tees.

Previously Approved:

- Banner-Maxx/Generic Brands – (A.I. Propiconazole)
- Daconil/Generic Brands – (A.I. Chlorothalonil)
- Thiophanate methyl
- Heritage (G and TL)
- Insignia
- *Combination, pre-mixed fungicides Instrata and Briskway*
- Primo-Maxx/Generic Brands
- Prostar
- Proxy
- Torque/Generic brands- (A.I. Tebuconazole)
- Drive XLR8

Requesting permission to add: (New chemistry/Products):

- Revolver (caution) Foramsulfuron Poa Annua removal in Bermuda/Kikuyu
- Segway (caution) Cyazofamid Pythium rootrot
- Banol Caution) Propamocarb Hydrochloride Pythium rootrot
- Lexicon (caution) Fluxapyroxad/Pyraclostrobin various pre-emerg/contact diseases

- Ascernity (caution) Benzovindi flupyr/difenconazole Varioius pre-emerget

Please let me know if you have any questions, concerns or need additional information.

Thank you very much for your consideration.

Scott Walwyn
Santa Barbara Golf Club
Golf Course Superintendent
Email: Swalwyn@playsantabarbara.com
(m) 805/215 4459

City of Santa Barbara
MATERIAL EXEMPTION REQUEST FOR PESTICIDE APPLICATION

Name SCOTT WALWYN Department SANTA BARBARA GOLF CLUB Phone 805/215-4459 (CELL)

Pesticide Applicator (employee or company) SCOTT WALWYN Phone

Application Site GOLF COURSE Specific Location VARIOUS: GREENS/COLLARS + TEES

Date(s) of Application AUG 1 – JUNE 30 Date of Request

* Product Name SEE BELOW Active Ingredient VARIOUS – SEE LABELS ROUGH/FWYS

Number of Applications: ❑ One-time ❑ Other WHEN SURPASSING THRESHOLD

Type: ❑ Emergency ❑ Trial ❑ Programmatic ❑ Other WHEN CONDITIONS EXIST

Product type: ☒ Herbicide 1 ❑ Insecticide ☒ Fungicide 5 ❑ Other

Application: ❑ Ornamental ☒ Turf ☒ Golf ❑ Vector Control ❑ Park Tree ❑ Street Tree

❑ Right of Way ❑ Vertebrate pest ❑ Other

Is the pesticide on the *Approved Materials List*? ☒ No ❑ Yes If yes, provide the zone (color)

If the pesticide is not on the *Tiered Materials List*, provide the following screening information. See the IPM Strategy and the *Tiered Materials List* for instructions on screening the pesticide.

EPA Reg # SEE ATTACHED LABEL Signal CAUTION Estimated Tier

Restricted ❑ No ❑ Yes/Describe

P Waste PBT WA PBT Persistent Mobil

Cancer Repro Neuro Endocrine

Bird Fish Bees Wildlife

❑ Attach product label and MSDS to this form.

* LEXICON – FUNGICIDE
BANOL – FUNGICIDE
SEGWAY – FUNGICIDE
ASCERNITY – FUNGICIDE
REVOLVER – FUNGICIDE

SPEEDZONE SOUTHERN – HERBICIDE

Describe the pest problem.
VARIOUS FUNGUS ON GREENS/COLLARS + TEES + BROADLEAF WEEDS

Describe the management goals and objectives for this site.
PRE-EMERGENT + POST FOR HERBICIDE

What is the damage threshold for this pest at this site?
VISIBLE CONDITIONS / ENVIRONMENT

Describe the monitoring of the pest and potential predators that was conducted and the control methods previously used at the site.
VISUALLY INSPECTING GREENS DAILY

Describe how the product would be applied including frequency, concentration, and method of application.
BOOM SPRAYER – EVERY 21-28 DAYS / ACCORDING TO LABEL AND DISEASE PRESSURE

What non-target impacts are anticipated?
NONE

How does the use of this product help achieve the site management goals? Note if this is curative or preventative.
IMPOSSIBLE W/O THESE PRODUCTS FOR PREVENTION AND COST

How will the effectiveness of this product be monitored? Include expected results and indicators of success.
INSPECTION OF GREENS DAILY – DISEASE NO LONGER PRESENT.

City of Santa Barbara
MATERIAL EXEMPTION REQUEST FOR PESTICIDE APPLICATION

Describe site conditions, for example consider the following: restricted access, distance from a creek or body of water, degree of runoff, site is a pesticide-free zone, etc.

PLAN ALWAYS TO ~~APPLY~~ APPLY AT NIGHT OR VERY EARLY MORNINGS DUE TO VOLUME OF PLAY.

List alternatives considered, alternatives implemented and why they were eliminated.

Justification: describe why is applying this pesticide is the best solution and why a less-hazardous chemical, non-chemical option or taking no action is not feasible.

DISEASES OF PUTTING GREENS AND COLLARS MOWED AT .4IN OR LOWER

Was outside expertise utilized? ☒ **No** ☐ **Yes / Describe** (GREENS @ .1) NO ROOM FOR HESITATION OR ERROR. CLOSE MONITORING.

Describe future plans to prevent using the chemical again.

ONLY USE WHEN THRESHOLD HAS BEEN/WILL BE EXCEEDED.

Signatures

Department IPM Coordinator

City IPM Coordinator

Completed by the City of Santa Barbara Staff IPM Committee

Vote Tally ____ Disposition: ☐ Approved ☐ Denied/Reason _____

If approved, follow the attached best management practices.

Comments:

Completed by the IPM Advisory Committee

Vote Tally ____ Disposition: ☐ Approved ☐ Denied/Reason _____

If approved, follow the attached best management practices.

Comments:

SECTION 1: PRODUCT INFORMATION

Product Identifier: BANNER MAXX® FUNGICIDE
Formulation Number: A6780D
Registration Number: 27003 (Pest Control Products Act)
Product Use: Fungicide. Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

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

SDS prepared by: Department of Regulatory & Biological Assessment, Syngenta Canada Inc.
For further information, contact: 1-87-SYNGENTA (1-877-964-3682)

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

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with UN GHS Version 5.

Hazard Classification(s):
Acute Toxicity (Inhalation) – Category 4
Eye Irritation – Category 2A
Reproductive Toxicity – Category 1B

Hazard Symbol(s):

Signal Word: DANGER

Hazard Statement(s):
H319 – Causes serious eye irritation.
H332 – Harmful if inhaled.
H360 – May damage fertility or the unborn child.

Precautionary Statement(s):

Prevention:
P201 – Obtain special instructions before using.
P202 – Do not handle until all safety precautions have been read and understood.
P261 – Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 – Wash thoroughly after handling.
P271 – Use only outdoors or in a well-ventilated area.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.

Response:	P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing. P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 – IF exposed or concerned: Get medical advice/attention. P312 – Call a POISON CENTER/doctor if you feel unwell. P337+P313 – If eye irritation persists: Get medical advice/attention.
Storage:	P405 – Store locked up.
Disposal:	P501 – Dispose of contents/container to an approved waste disposal plant.
Other Hazards Which do not Result in GHS Classification:	To avoid risk to human health and the environment, comply with the instructions for use. Combustible liquid. Can release vapours that form explosive mixtures at temperatures at or above the flash point.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Common Name	CAS Number	Average % by weight
Tetrahydro-2-furylmethanol	Tetrahydrofurfuryl alcohol (THFA)	97-99-4	40 – 50
1-[[2-(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole	Propiconazole	60207-90-1	14.3

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 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. Have person sip a glass of water if able to do so. 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 breathing in of vomitus, rinse mouth and administer water.

Most Important Symptoms/Effects, Acute and Delayed:
Causes serious eye irritation.
Harmful if inhaled.
Vapours may cause drowsiness or dizziness.
May damage fertility or the unborn child.

Indication of Immediate Medical Attention and Special Treatment:
There is no specific antidote.
Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Suitable (and Unsuitable) Extinguishing Media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist. Cool closed containers exposed to fire with water spray. Do not use a solid water stream as it may scatter and spread the fire.
Specific Hazards Arising from the Product: Combustible liquid (Class IIIA – National Fire Code Classification). Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. Keep fire exposed containers cool by spraying with water. Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.
Special Protective Equipment and Precautions for Fire-Fighters: 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 run-off can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Control the spill at its source. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Use adequate ventilation and equipment and wear clothing as described in Section 8 and/or the product label.
Environmental Precautions: Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.
Methods and Materials for Containment and Cleaning Up: Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or seep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into a 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.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: Combustible liquid (Class IIIA). Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
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, dust 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.
Conditions for Safe Storage, Including Any Incompatibilities: Store in original container in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Refer to the product label for specific storage recommendations, including minimum storage temperature and freeze/thaw stability. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

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.

Control Parameters:

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Tetrahydrofurfuryl alcohol (THFA)	Not established	Not established	0.5 ppm AIHA WEEL****	No	Not established
Propiconazole	Not established	Not established	5 mg/m^3***	No	Not established

* Recommended by Manufacturer
** 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

Appropriate 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.

Individual Protection Measures:
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: A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use a 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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Yellow to orange liquid.
Formulation Type: Emulsifiable concentrate.
Physical State: Liquid.
Odour: Aromatic solvent.
Odour Threshold: Not available.
pH: 4 – 7 (1% emulsion in water).
Melting Point: Not applicable.
Freezing Point: - 34 °C.
Initial Boiling Point and Boiling Range: Not available.
Flash Point: 82.8 °C (Setaflash).
Evaporation Rate: Not available.
Flammability (solid/gas): Combustible liquid (Class IIIA).
Lower Explosive Limit: Not applicable.
Upper Explosive Limit: Not applicable.
Vapour Pressure: Propiconazole: 4.20×10^{-7} mmHg @ 20 °C.
Vapour Density: Not available.
Relative Density: 1.09 g/cm3 @ 20 °C.
Solubility(ies): Propiconazole: 100 mg/L @ 20 °C, pH 7 (water).
Partition Coefficient (n-octanol water): Propiconazole: 3.7
Auto-Ignition Temperature: 280 °C.
Decomposition Temperature: Not available.
Viscosity: 50 mPa·s @ 21 °C.

Other Information: Not applicable.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical Stability: Stable under normal use and storage conditions.
Possibility of Hazardous Reactions: Combustible liquid (Class IIIA). Can release vapours that form explosive mixtures at temperatures at or above the flash point. Heavy vapours can flow along surfaces to distant ignition sources and flash back.
Conditions to Avoid: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Incompatible Materials: Strong oxidizers.
Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Dermal, inhalation, oral.
Symptoms of Acute Exposure: Causes serious eye irritation. Harmful if inhaled. Vapours may cause drowsiness or dizziness.
Potential Health Effects: May damage fertility or the unborn child.

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	Low Acute Toxicity	
	Oral (LD50 Rat)	4,340 mg/kg body weight
Dermal:	Low Acute Toxicity	
	Dermal (LD50 Rat)	> 2,020 mg/kg body weight
Inhalation:	Low Acute Toxicity	
	Inhalation (LC50 Rat)	> 2.6 mg/L air – 4 hours
Eye Contact:	Moderately Irritating (Rabbit)	
Skin Contact:	Non-Irritating (Rabbit)	
Skin Sensitization:	Not a Sensitizer (Guinea Pig)	

Specific Target Organ Toxicity (STOT) Single Exposure:
Propiconazole: Not classified as a specific target organ toxicant, single exposure.

Specific Target Organ Toxicity (STOT) Repeated Exposure:
Propiconazole: No adverse effect has been observed in chronic toxicity tests.

Carcinogenicity:
Propiconazole: Did not show carcinogenic effects in animal experiments.

Reproductive Toxicity:
Propiconazole: Some adverse effects on development, based on animal experiments.

Mutagenicity:
Propiconazole: Did not show mutagenic effects in animal experiments.

Aspiration Hazard:
Propiconazole: Not classified as an aspiration hazard.

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.

Tetrahydrofurfuryl alcohol (THFA):	May be harmful if swallowed. Causes respiratory tract irritation. May cause digestive tract irritation. Causes severe eye irritation. Inhalation overexposure may cause dizziness, incoordination and unconsciousness. Chronic overexposure may affect the kidney.

SECTION 12: ECOLOGICAL INFORMATION

Eco-Acute Toxicity:
Propiconazole:

Invertebrates (Water Flea) 48-hour LC_{50}/EC_{50}	2.2 ppm
Fish (Rainbow Trout) 96-hour LC_{50}/EC_{50}	0.85 ppm
Birds (8-day dietary – Mallard Duck) LC_{50}	> 5,620 ppm

Persistence & Degradability:
Propiconazole: Moderately persistent in soil. Persistent in water; partitions to sediment.

Bioaccumulation Potential:
Propiconazole: BCF < 500; does not bioaccumulate.

Mobility in Soil:
Propiconazole: Moderate to low mobility in soil.

Other Adverse Effects: Not applicable.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Methods:
Waste from residues: Refer to the product label for specific disposal/recycling information.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Refer to the product label for specific disposal/recycling information.
Empty remaining contents
Triple rinse containers
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not reuse empty containers.

SECTION 14: TRANSPORT INFORMATION

TDG Classification – Road/Rail:

UN Number:	UN 3082
Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Propiconazole).
Transport Hazard Class:	Class 9
Packing Group:	PG III
Environmental Hazards:	Environmentally hazardous.
Remarks:	Class 9 Exemption from Part 3, Documentation, and Part 4, Dangerous Goods Safety Marks, if transported solely on land by road vehicle or railway vehicle. 1.45.1. SOR/2008-34

Water Transport – International (IMDG):

UN Number:	UN 3082
Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Propiconazole), Marine Pollutant.
Transport Hazard Class:	Class 9
Packing Group:	PG III
Environmental Hazards:	Marine pollutant.

Air Transport (IATA-DGR):

UN Number:	UN 3082
Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Propiconazole).
Transport Hazard Class:	Class 9
Packing Group:	PG III
Environmental Hazards:	Environmentally hazardous.

Special Precautions for User:
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code:
Not applicable.

SECTION 15: REGULATORY INFORMATION

There are Canada-specific environmental requirements for handling, use and disposal of this pest control product that are indicated on the product label.

Hazardous Products Act Information:
This product has been classified in accordance with the amended Hazardous Products Act and the Hazard Criteria of the Hazardous Products Regulations (HPR), and the SDS contains all the information required by the HPR.

Hazardous Products Act Information: WHMIS 2015 Classification
This product is exempt under WHMIS 2015.

Pest Control Products Act (PCPA) Registration No.: 27003

Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:

PCPA Label Hazard Communications:
Read the label and this attached booklet before using.
Caution: Poison.
Warning: Eye Irritant.

PCPA Hazard on Label:	**Poison**	**GHS Hazard Classification:**	**Acute Toxicity (Inhalation) – Category 4**
PCPA Precautionary Symbol:		GHS Hazard Symbol:	
PCPA Signal Word(s):	Caution	GHS Signal Word:	Warning
PCPA Hazard Statement:	Not applicable.	GHS Hazard Statement:	H332 – Harmful if inhaled.
PCPA Hazard on Label:	**Eye Irritant**	**GHS Hazard Classification:**	**Eye Irritation – Category 2A**
PCPA Precautionary Symbol:	Not applicable.	GHS Hazard Symbol:	
PCPA Signal Word(s):	Warning	GHS Signal Word:	Warning
PCPA Hazard Statement:	Not applicable.	GHS Hazard Statement:	H319 – Causes serious eye irritation.

Allergens Contained in the Pest Control Product:
Not applicable.

NPRI Components:
Not applicable.

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 product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant SDS. Hazardous properties of all ingredients have been considered in the preparation of this SDS. Read the entire SDS for the complete hazard evaluation of this product.

Full Text of Abbreviations:

AB – Province of Alberta
BC – Province of British Columbia
BCF – Bioconcentration factor
EC_{50} – Effective concentration, 50%
GHS – Globally Harmonized System of Classification and Labeling of Chemicals
LC_{50} – Lethal concentration, 50%
LD_{50} – Lethal dose, 50%
IARC – International Agency for Research on Cancer
IATA-DGR – International Air Transport Association Dangerous Goods Regulations
IMDG – International Maritime Code for Dangerous Goods
NTP –National Toxicology Program
ON – Province of Ontario
OSHA – Occupational Safety & Health Administration
PEL – Permissible Exposure Limit
TDG – Transportation of Dangerous Goods
TLV – Threshold Limit Value
QC – Province of Quebec
SDS – Safety Data Sheet
WHMIS – Workplace Hazardous Materials Information System

Changes since last revision: Layout updated to meet January 2018 PMRA Guidance for Preparing SDSs according to GHS for Pest Control Products in Canada.

Revision Date (Y-M-D): 2019-01-25
Supersedes Date (Y-M-D): 2017-12-31

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

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END OF SAFETY DATA SHEET.

Safety Data Sheet

DACONIL ACTION

Date: 9/10/2013
Replaces: 6/21/2012

1. PRODUCT IDENTIFICATION

Product identifier on label: **DACONIL ACTION**
Product No.: A16422A
Use: Fungicide/Plant Activator
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:
Skin Corrosion/Irritation: Category 2
Oral: Category 4
Dermal: Category 4
Inhalation: Category 3
Skin Sensitizer: Category 1B
Carcinogenicity: Category 2
Specific Target Organ Toxicity: Repeated Category 2
Specific Target Organ Toxicity: Drowsiness Category 3
Eye Damage/Irritation: Category 2A

Signal Word (OSHA): Danger

Hazard Statements:
Harmful if swallowed
Harmful in contact with skin
Causes skin irritation
May cause an allergic skin reaction
Causes serious eye irritation
Toxic if inhaled
May cause respiratory irritation
May cause drowsiness or dizziness
Suspected of causing cancer
May cause damage to organs (blood, liver, lung, kidney, spleen)

Hazard Symbols:

Precautionary Statements:

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe mist, vapors, spray.

Wash hands and face thoroughly after handling.

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

Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves, protective clothing, eye protection.

In case of inadequate ventilation wear respiratory protection. See Section 8 Exposure Control/Personal Protection.

If swallowed: Immediately call a poison center, doctor or Syngenta. Rinse mouth.

If on skin: Wash with plenty of soap and water.

If inhaled: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If exposed or concerned: Call a poison center, doctor or Syngenta.

Call a poison center, doctor or Syngenta if you feel unwell.

See Section 4 First Aid Measures.

If skin irritation or rash occurs: Get medical advice.

If eye irritation persists: Get medical advice.

Take off immediately all contaminated clothing and wash it before reuse.

Store locked up.

Dispose of contents and container in accordance with local regulations.

Other Hazard Statements: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Common Name	CAS Number	Concentration
1,2-Propanediol	Propylene Glycol	57-55-6	Trade Secret
Tetrachloroisophthalonitrile	Chlorothalonil	1897-45-6	53.94%
1,2,3-Benzothiadiazole-7-carbothioic acid S-methyl ester	Acibenzolar-S-Methyl	135158-54-2	0.11%

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 contol 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. Have the person sip a glass of water if able to swallow. 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:

Eye irritation

Skin irritation

Allergic skin reaction

Indication of immediate medical attention and special treatment needed:

There is no specific antidote if this product is ingested.

Treat symptomatically.

Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.

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:

Prevent use of contaminated buildings, area, and equipment until decontaminated. Water runoff can cause environmental damage.
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.

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:

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
Propylene Glycol	Not Established	Not Established	10 mg/m³ TWA	AIHA
Chlorothalonil	Not Established	Not Established	0.1 mg/m³ TWA	Syngenta
Acibenzolar-S-Methyl	Not Established	Not Established	10 mg/m³ TWA	Syngenta

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 chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Skin Contact:

Where contact is likely, wear chemical-resistant gloves (such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, polyvinyl chloride [PVC] or Viton), coveralls, socks and chemical-resistant footwear.

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 approved respirator with any N, R, P or HE filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Grey liquid

Odor: Weak paint

Odor Threshold: Not Available

pH: 7.4 (1% solution in deionized H2O @ 77°F [25°C])

Melting point/freezing point: Not Available

Initial boiling point and boiling range: Not Available

Specific Gravity/Density: 1.350 g/cm³ @ 68°F (20°C)

Flash Point (Test Method): > 212°F (Pensky-Martens CC)

Flammable Limits (% in Air): Not Available

Flammability: Not Applicable

Vapor Pressure:	Acibenzolar-S-Methyl	0.00000165mmHg @ 68°F (20°C)
	Chlorothalonil	0.00000057mmHg @ 77°F (25°C)
Vapor Density:	Acibenzolar-S-Methyl	Not Applicable
	Chlorothalonil	Not Applicable
Relative Density:	Acibenzolar-S-Methyl	Not Applicable
	Chlorothalonil	Not Applicable
Solubility (ies):	Acibenzolar-S-Methyl	7.7 mg/l @ 68°F (20°C)
	Chlorothalonil	0.81 mg/l @ 77°F (25°C)

Partition coefficient: n-octanol/water: Not Available

Autoignition Temperature: > 1202°F

Decomposition Temperature: Not Available

Viscosity: Not Available

Other:

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: Not Available

Incompatible materials: Not Available

Hazardous Decomposition Products: None known.

11. TOXICOLOGICAL INFORMATION

Health effects information

Likely routes of exposure: Dermal, Inhalation

Symptoms of exposure: Eye irritation, Skin irritation, Drowsiness or dizziness

Delayed, immediate and chronic effects of exposure: Developmental toxicity, Possible carcinogenicity

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

Ingestion:	Oral (LD50 Female Rat) :	3045 mg/kg body weight
Dermal:	Dermal (LD50 Rat) :	> 5000 mg/kg body weight
Inhalation:	Inhalation (LC50 Rat) :	> 0.51 mg/l air - 4 hours
Eye Contact:	Severely Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	A weak skin sensitizer (based on the technical material)	

Reproductive/Developmental Effects

Acibenzolar-S-Methyl: Developmental toxicity and fetal malformations observed at high maternal doses (rats). Additional testing showed that these effects are not relevant to humans.

Chlorothalonil: Did not show reproductive toxicity effects in animal experiments. Did not show teratogenic effects in animal experiments.

Chronic/Subchronic Toxicity Studies

Acibenzolar-S-Methyl: Slight hemolytic anemia at highest dose level (rats, mice and dogs). Liver and spleen effects observed in highest dose level (rats and dogs).

Chlorothalonil: In dogs, 1 year administration caused a significant decrease in body weight gain and increases in absolute liver and kidney weights.
Neurotoxicity: No evidence in regulatory studies.

Carcinogenicity

Acibenzolar-S-Methyl: Not carcinogenic at dietary levels up to 7500 ppm (rat) and 6000 ppm (mouse).

Chlorothalonil: Chlorothalonil causes kidney tumors in rats and mice via a nongentoxic mode of action secondary to target organ toxicity.
Did not show mutagenic effects in animal experiments.
IARC identifies chlorothalonil as a 2B carcinogen (possibly carcinogenic to humans).

Chemical Name	NTP/IARC/OSHA Carcinogen
1,2-Propanediol	No
Tetrachloroisophthalonitrile	IARC Group 2B
1,2,3-Benzothiadiazole-7-carbothioic acid S-methyl ester	No

Other Toxicity Information

None

Toxicity of Other Components

Propylene Glycol

Test results reported in Section 11 for the final product take into account any acute hazards related to the propylene glycol in the formulation.
Reported to cause central nervous system depression (anesthesia, dizziness, confusion), headache and nausea.
Chronic dietary exposure caused kidney and liver injury in experimental animals.

Target Organs

Active Ingredients

Acibenzolar-S-Methyl:	Blood, liver, spleen
Chlorothalonil:	Lung, kidney

Inert Ingredients

Propylene Glycol:	Nervous system, kidney, liver

12. ECOLOGICAL INFORMATION

Eco-Acute Toxicity

Chlorothalonil:

Green Algae 5-day EC50 190 ppb

Bird (Mallard Duck) LD50 Oral > 4640 mg/kg

Invertebrate (Water Flea) 48-hour EC50 70 ppb

Fish (Rainbow Trout) 96-hour LC50 47 ppb

Acibenzolar-S-Methyl:

Fish (Rainbow Trout) 96-hour LC50 0.88 ppm

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 2.9 ppm

Green Algae 72-hour EC50 80.1 ppm

Bird (Bobwhite Quail) 14-day LD50 > 2000 mg/kg

Environmental Fate

Acibenzolar-S-Methyl:

The information presented here is for the active ingredient, acibenazolar-s-methyl.
Low bioaccumulation potential. Not persistent in soil or water. Low mobility in soil. Sinks in water (after 24 h).

Chlorothalonil:

The information presented here is for the active ingredient, chlorothalonil.
Low bioaccumulation potential. Not persistent in soil or water. Low mobility in soil. Sinks 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
Not regulated.
Tank Truck: Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil), Marine Pollutant
Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III

Comments

Water Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil), Marine Pollutant
Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III

Air Transport
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil)
Hazard Class: Class 9
Identification Number: UN 3082
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:

Danger: Causes substantial but temporary eye injury. Harmful if swallowed May be fatal if inhaled. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

EPA Registration Number(s):

100-1364

EPCRA SARA Title III Classification:

Section 311/312 Hazard Classes: Acute Health Hazard

Section 313 Toxic Chemicals: Chlorothalonil 53.94% (CAS No. 1897-45-6)

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		HMIS Hazard Ratings	
Health:	2	Health:	2
Flammability:	1	Flammability:	1
Instability:	0	Reactivity:	0

0	Minimal
1	Slight
2	Moderate
3	Serious
4	Extreme

Syngenta Hazard Category: C,S

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 5/3/2011
Revision Date: 9/10/2013 Replaces: 6/21/2012
Section(s) Revised: 1, 2, 3, 4, 5, 6, 8, 9, 15

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.

United States
Environmental Protection
Agency

Prevention, Pesticides
And Toxic Substances
(7508C)

EPA-OPP738-F9?-???
November 2004

EPA R.E.D. FACTS

Thiophanate-Methyl

Pesticide Reregistration

All pesticides sold or distributed in the United States must be registered by EPA, based on scientific studies showing that they can be used without posing unreasonable risks to people or the environment. Because of advances in scientific knowledge, the law requires that pesticides which were first registered before November 1, 1984, be reregistered to ensure that they meet today's more stringent standards.

In evaluating pesticides for reregistration, EPA obtains and reviews a complete set of studies from pesticide producers, describing the human health and environmental effects of each pesticide. To implement provisions of the Food Quality Protection Act of 1996, EPA considers the special sensitivity of infants and children to pesticides, as well as aggregate exposure of the public to pesticide residues from all sources, and the cumulative effects of pesticides and other compounds with common mechanisms of toxicity. The Agency develops any mitigation measures or regulatory controls needed to effectively reduce each pesticide's risks. EPA then reregisters pesticides that meet the safety standard of the FQPA and can be used without posing unreasonable risks to human health or the environment.

When a pesticide is eligible for reregistration, EPA explains the basis for its decision in a Reregistration Eligibility Decision (RED) document. This fact sheet summarizes the information in the RED document for reregistration case 2680, thiophanate-methyl (TM) and its primary metabolite carbendazim (methyl 2-benzimidazole carbamate) or MBC.

Use Profile

TM is a systemic fungicide used on a variety of tree, vine, and root crops, as well as on canola and wheat. Residential homeowners may use TM on lawns and ornamentals. MBC is registered as a systemic fungicide in paints in residential settings, but has no registered food uses in the US, nor import tolerances. TM formulations include dust, granular, wettable powder, water-dispersible granular, and flowable concentrate. TM may be applied with aerial, chemigation or ground equipment (broadcast, band, or soil drench); as a dip treatment for cut flowers, rose budwood, or nursery stock; and as a seed treatment for peanuts and potato pieces. Handheld equipment may be used on turf and ornamentals. The majority of the crops are treated with postemergent broadcast applications.

Regulatory History

TM was first registered as a pesticide in the U.S. in 1973 for use as a fungicide. EPA issued a Registration Standard for TM in March, 1996.

Subsequent Data Call-Ins (DCIs) were issued in 1991, 1995, and 1996 for TM. There are Section 3 registrations, Section 18 emergency exemptions, and Section 24(c) Special Local Needs registrations concurrently registered under FIFRA.

Human Health Assessment

Toxicity

TM generally has been shown to have low acute oral/dermal/inhalation toxicity (toxicity categories III/IV). TM is not an irritant to the skin and only a slight occular irritant (toxicity category IV) and is a skin sensitizer. MBC generally has been shown to also have low acute oral/dermal/inhalation toxicity (toxicity categories III/IV). MBC is only a slight irritant to skin (toxicity category IV) and minimal to no irritation (toxicity category III) and is not a skin sensitizer.

The liver and thyroid are the primary target organs of TM and MBC in several species following subchronic or chronic dietary exposure. The testes is also a known target organ of MBC. TM is classified as "likely to be carcinogenic to humans based on dose-dependent increases in liver tumors in male and female mice. MBC is classified as a possible human carcinogen based on hepatocellular tumors in female mice. Developmental toxicity based on decreased fetal body weight and increases in skeletal variations was observed in the fetuses of rabbits exposed to TM. MBC was associated with adverse reproductive effects in rats.

Dietary Exposure (Food and Water)

People may be exposed to residues of TM or MBC through the diet. Tolerances or maximum residue limits have been established for almond, apple, apricot, banana, bean, blueberry, canola seed, cattle, celery, cherry, cucumber, egg, goat, grape, hog, horse, melon, milk, nectarine, onion, pecan, peach, peanut, pistachio, pear, plum, potato, poultry, pumpkin, sheep, soybean, squash, strawberry, sugar beet, and wheat.

EPA has assessed the dietary risk posed by TM and MBC.

For the overall U.S. population and all subgroups as measured by the Population Adjusted Dose (PAD), all acute and chronic food risks are below the EPA's level of concern for all population subgroups for both TM and MBC. The lifetime cancer risk estimates range are generally below the EPA's level of concern.

Occupational and Residential Exposure

Based on current use patterns, occupational handlers (mixer/loader/applicators) can become exposed while mixing, loading and applying TM formulations (e.g., dry flowables, dusts, granular, liquid flowables, and wettable powders) to a variety of agricultural crops, turf and ornamental plants. Handlers are not expected to be exposed to MBC, because MBC is formed during the environmental degradation of TM. Workers can also become exposed to TM

and MBC residues from treated foliage from re-entering treated fields, orchards, nurseries, greenhouses, or golf courses. Some potential re-entry exposure or postapplication scenarios of concern include: scouting, irrigation, harvesting, pruning, transplanting, thinning, and handling treated seed and seed pieces.

Occupational handler exposure assessments are completed by EPA using a baseline exposure scenario and, if required, increasing levels of mitigation (PPE and engineering controls) to achieve an adequate margin of exposure (MOE). For the case of TM, the level of is 100. Many scenarios are at acceptable levels of risk with the addition of a single layer of PPE (which includes chemical resistant gloves). However, mixing/loading wettable powder formulations for aerial/chemigation application requires the use of engineering controls (i.e., water soluble bags) to reach an acceptable risk level. Based on the cancer risk estimates, all handler risk estimates were in the acceptable range at below 1×10^{-4} and most were below 3×10^{-6} when adding either protective equipment or engineering controls.

For occupational postapplication activities, EPA calculates the number of days that must elapse after pesticide application until residues dissipate and risk (either non-cancer or cancer) to a worker falls below the target risk level. To address potential postapplication cancer risks to TM, the Agency has to adjust some of the REIs.

Residential handlers can apply TM formulated products to lawn and ornamentals. Residential risk mitigation for lawn and ornamental products was implemented before publication of this RED. MOEs and cancer risks are not of concern using the new label rates proposed. Therefore, no further risk mitigation is necessary.

Residential handlers may become exposed to MBC in paints, adhesives, and caulks. For the three painting scenarios assessed, all short-term dermal risks exceeded EPA's level of concern (i.e., MOEs<1,000) for residential handlers, with dermal MOEs ranging from 620-750. Mitigation to reduce the concentration of MBC in indoor paints is required to reduce the dermal exposure. Inhalation risk exposure for painters were initially of concern for airless sprayer. However, using the latest registrant submitted inhalation study indicate that MOEs are below EPA's level of concern (i.e., MOEs>1,000). It should be noted however that the Agency will include label amendments to reduce the concentration of MBC in paint based on dermal MOE which exceed the Agency's level of concern (i.e, MOEs<1,000). All residential cancer risk estimates for residential handlers were less than 1×10^{-6} and therefore not of concern. Postapplication risks (dermal and inhalation) were all below EPA's level of concern.

For residential postapplication to TM, two short-term MOEs for children playing on treated turf were less than 300 and therefore, exceed EPA's level of concern (MOEs range from 31 to 250) for hand to mouth activities and incidental granular ingestion based on a screening level assessment. Dermal MOEs are acceptable, however. The aggregate MOE for children based on combined dermal

and oral exposures are also below 300 (total MOE= 170 for treated turf). Application rates to turf are being reduced to address these risks.

Human Risk Assessment

TM and MBC are of low acute toxicity, but cause liver and thyroid effects in animal studies and has been classified as a probable human carcinogen. MBC has also been shown to cause adverse testicular effects. However, dietary exposure to TM residues in food and water is extremely low as is the cancer risk posed to the general population.

Of greater concern is the risk posed to pesticide workers, particularly mixers/loaders/applicators, and field workers who come into contact with treated foliage/crops/lawns/turf/etc. following application of this pesticide. Exposure and risk to workers will be mitigated by the use of PPE required by the WPS, supplemented by mitigation measures as required by this RED.

For post-application reentry, workers will be required to observe a 3-day Restricted Entry Intervals (REIs) for almonds and peanuts; 2-day REIs for apples, cherries, peaches, nectarines, apricots, and plums/prunes; 24-hour REIs for strawberries, blueberries, wheat, celery, cucurbits, soybeans, and green beans and 12-hour REIs for woody ornamentals.

FQPA Considerations

As part of the FQPA tolerance reassessment process, EPA assessed the risks associated with this pesticide. EPA has determined that risk from dietary exposure to TM is within it own "risk cup". An aggregate assessment was conducted for exposures through food, drinking water, and residential uses. The Agency has determined that the human health risks from these combined exposures are within acceptable levels. In other words, EPA has concluded that the tolerances for TM meet the FQPA safety standards. In reaching this determination, EPA has considered the available information on the special sensitivity of infants and children, as well as the chronic and acute food exposure.

Some of the tolerance limits will change because recent residue data may indicate that either a lower or higher value for the tolerance is needed. In addition, some tolerances have been revoked because they were either no longer a regulated commodity or significant livestock feed item, some of the tolerances were voluntarily canceled, some of the registered products used to establish tolerances were canceled and some of the older tolerances have been reassigned into a group tolerance.

Environmental Assessment

EPA's ecological risk assessment suggests that TM dose not pose a high acute risk to terrestrial or aquatic organisms. Acute high risk levels of concern (LOCs) are not exceeded for any registered uses except for use on golf course, which may present acute risk to small animals. Golf course uses of TM also appear

to generate acute concerns for endangered species.

TM is not stable or persistent in the environment, but transforms to MBC within a matter of days whether on foliage, in soil, or in water. Both photolysis and hydrolysis are important routes of degradation. MBC is persistent and mobile in the environment. Metabolism of MBC under aerobic and anaerobic conditions in both soil and water proceed at a very slow rate. Because of the rapid transformation of TM to MBC, MBC residue values were used in the TM chronic ecological risk assessment. EPA's ecological risk assessment suggests that TM/MBC is expected to pose a chronic risk to endangered birds, mammals, aquatic animals, and aquatic plants under most of the registered use scenarios. The acute risks to small mammals from golf course use and chronic risks to endangered species listed here are based on EPA's screening level assessment do not constitute "may affect" findings under the ESA.

Risk Mitigation

To mitigate human health risks of concern posed by TM, EPA is requiring the following risk mitigation measures:

- Reduce turf application rates in residential/public areas (e.g. parks, athletic fields, lawns) to 2.74 lbs ai/acre, maximum of 10.88 lbs ai/acre per year, 14 day retreatment interval.
- Reduce golf course turf application rates to 8.16 lbs ai/acre/application. 21.8 lbs ai/acre/year, 14 day retreatment interval for tees and greens.
- Reduce golf course turf application rates to 5.45 lbs ai/acre/year, except in Florida, which has a maximum annual rate of 2.72 lbs ai/acre on fairways.
- Require wettable powder formulations labeled for aerial/chemigation applications to be packaged in **water soluble bags**.
- Require wettable powder formulations <u>not</u> packaged in water soluble bags to specifically prohibit aerial/chemigation use.
- Require an **enclosed cab** for planters/operators while planting potato seed that has been treated with dust
- Require **double-layer PPE, chemical-resistant gloves, and a chemical-resistant apron** to be worn when applying dip treatment and mixing/loading/applying dip treatment.
- **Single-layer PPE (Baseline) and chemical-resistant gloves** must be worn when handlers are performing certain tasks (see section IV of the RED).
- **Single-layer PPE (Baseline)** must be worn by handlers during certain tasks (see section IV of the RED)
- The Agency has determined that significant risk reduction would occur by **reducing the maximum allowable rate on cut flowers to 0.5 lb ai/acre**. which is currently the typical rate at which TM is applied to cut flowers.
- For post-application reentry, workers will be required to observe a 3-day Restricted Entry Intervals (REIs) for almonds and peanuts; 2-day REIs for apples, cherries, peaches, nectarines, apricots, and plums/prunes; 24-hour

REIs for strawberries, blueberries, wheat, celery, cucurbits, soybeans, and green beans and 12-hour REIs for woody ornamentals.

- The maximum single application rate for ornamentals is 1.8 lb ai/acre for homeowners using spray products.
- Only granular formulations are now available to residents for broadcast lawn treatment. Use of liquid formulations for broadcast turf/lawn use is restricted to commercial pest control operators (PCOs).
- Product labels were revised to specifically prohibit belly grinder and hand application methods.
- PCO treatment of backyard fruit trees will be allowed only up to fruit set.
- As a result of ecological mitigation activities, application rates and applications per year have been reduced as follows: aerial application of grapes and apples 0.7 lb ai/acre and 4 applications per year; aerial application of soybeans 0.7 lb ai/acre and 2 applications per year; ground application of golf course fairways 5.45 lb ai/acre and 1 application per year; aerial application of potatoes 0.93 lb ai/acre and 3 allowable applications per year; and ground application of onions 1.4 lb ai/acre and 1 application per year.
- Reduce the concentration of MBC in paint from 0.5% to 0.35% based on dermal MOEs which exceed the Agency's level of concern (i.e, MOEs<1,000).

Additional Data Required

EPA is requiring the following additional generic studies for TM to confirm its regulatory assessments and conclusions:

Toxicology Data

TM:

OPPTS GLN 870.6200 - Rat Acute and Subchronic Neurotoxicity Screening Studies

OPPTS GLN 870.6300 - Developmental Neurotoxicity Study 'Reserved' pending the results of the above studies.

OPPTS GLN 870.3465 - 90-day Subchronic Inhalation Toxicity Test, Rat

MBC:

OPPTS GLN 870.3200 - Repeated Dose Dermal Toxicity Test (21 Day - rat)

OPPTS GLN 870.6300 - Developmental Neurotoxicity Study in rats

OPPTS GLN 870.3800 - 2-Generation Reproduction and Fertility Effects, Rat

Product Chemistry Data

OPPTS GLN 830.1620 - Starting Materials and Manufacturing Process

OPPTS GLN 830.1670 - Discussion of Formation of Impurities

OPPTS GLN 830.6313 - Stability

OPPTS GLN 830.7050 - UV/Visible Absorption

Residue Chemistry Data

OPPTS GLN 860.1200 - Directions for Use

OPPTS GLN 860.1340 - Residue Analytical Methods

OPPTS GLN 860.1360 - Multiresidue Method Testing

OPPTS GLN 860.1380 - Storage Stability Data

OPPTS GLN 860.1500 - Magnitude of the Residue in Plants

OPPTS GLN 860.1520 - Magnitude of the Residue in Processed Food/Feed

Occupational Exposure Data

Handlers:

OPPTS GLN 875.1100 - Dermal Exposure: Outdoor (Mixing/loading/applying WP/DF solution as a seedling or bulb treatment)

OPPTS GLN 875.1200 - Dermal Exposure: Indoor (Mixing/loading/applying wettable powder; greenhouse use)

OPPTS GLN 875.1300 - Inhalation Exposure: Outdoor (Mixing/loading/applying WP/DF solution as a seedling or bulb treatment)

OPPTS GLN 875.1400 - Inhalation Exposure: Indoor (Mixing/loading/applying wettable powder; greenhouse use)

Post-application Workers:

OPPTS GLN 875.2400 - Dermal Exposure - Handling treated seed & seedlings; sorting, packing crops; cultivating, transplanting in treated soil.

OPPTS GLN 875.2800 - Descriptions of human activity - Handling treated seed & seedlings; sorting, packing crops; cultivating, transplanting in treated soil.

The Agency also is requiring product-specific data including product chemistry and acute toxicity studies, revised Confidential Statements of Formula (CSFs), and revised labeling for reregistration.

Product Labeling Changes Required

All TM and MBC end-use products must comply with EPA's current pesticide product labeling requirements and with the following. For a comprehensive list of labeling requirements, please see the TM RED document.

Regulatory Conclusion

The use of currently registered products containing TM in accordance with approved labeling will not pose unreasonable risks or adverse effects to humans or the environment. Therefore, all uses of these products are eligible for reregistration. TM/MBC products will be reregistered once the required product-specific data, revised Confidential Statements of Formula, and revised labeling are received and accepted by EPA.

For More Information

EPA is requesting public comments on the Reregistration Eligibility Decision (RED) document for TM during a 60-day time period, as announced in a

Notice of Availability published in the Federal Register. To obtain a copy of the RED document or to submit written comments, please contact the Pesticide Docket, Public Information and Records Integrity Branch, Information Resources and Services Division (7502C), Office of Pesticide Programs (OPP), US EPA, Washington, DC 20460, telephone 703-305-5805. Electronic copies of the RED and this fact sheet are available on the Internet. See

http://www.epa.gov/pesticides/reregistration/status.htm

Printed copies of the RED and fact sheet can be obtained from EPA's National Service Center for Environmental Publications (EPA/NSCEP), PO Box 42419, Cincinnati, OH 45242-2419, telephone 1-800-490-9198; fax 513-489-8695.

Following the comment period, the TM RED document also will be available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161, telephone 1-800-553-6847, or 703-605-6000.

For more information about EPA's pesticide reregistration program, the TM RED, or reregistration of individual products containing TM, please contact the Special Review and Reregistration Division (7508C), OPP, US EPA, Washington, DC 20460, telephone 703-308-8000.

For information about the health effects of pesticides, or for assistance in recognizing and managing pesticide poisoning symptoms, please contact the National Pesticide Information Center (NPIC). Call toll-free 1-800-858-7378, from 6:30 am to 4:30 pm Pacific Time, or 9:30 am to 7:30 pm Eastern Standard Time, seven days a week. Their internet address is http://npic.orst.edu.

Safety Data Sheet

HERITAGE® FUNGICIDE

Date: 6/15/2015
Replaces: 12/8/2014

1. PRODUCT IDENTIFICATION

Product identifier on label: **HERITAGE® FUNGICIDE**
Product No.: A12704A
Use: Fungicide
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 mist, vapors, spray.
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.

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%
Kaolin Clay	Kaolin Clay	1332-58-7	Trade Secret
Other ingredients	Other ingredients	Trade Secret	>49%
Methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate	Azoxystrobin	131860-33-8	50%

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 contol 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 CO2 extinguishing media. If water is used to fight fire, dike and collect runoff.

Specific Hazards:

Fire will spread by burning with flame.

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

See also Sec. 7.

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:

Avoid dust formation.

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.

In general personnel handling this material and all conducting equipment should be electrically earthed or grounded. Bulk bags (FIBC) used to contain this material should be Type B, Type C or Type D. Type C bags must be electrically grounded or earthed before powder is charged to or discharged from the bag. If metal or fiber drums are used to contain this material, make certain the metal parts are bonded to the filling equipment and grounded.

This material could become charged under certain conditions such as pneumatic conveying.

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/m³/(%SiO2+2) (respirable dust)	0.025 mg/m³ (respirable silica)	0.05 mg/m³ (respirable dust)	NIOSH
Kaolin Clay	15 mg/m³ TWA (total); 5 mg/m³ TWA (respirable)	2 mg/m³ TWA (respirable)	10 mg/m³ TWA (total); 5 mg/m³ TWA (respirable)	NIOSH
Other ingredients	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Azoxystrobin	Not Established	Not Established	4 mg/m³ TWA	Syngenta

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. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

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.

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: Light beige to brown granules

Odor: No characteristic odor

Odor Threshold: Not Available

pH: 5 - 8 (w/w%)

Melting point/freezing point: 237.2 - 240.8 °F

Initial boiling point and boiling range: Not Available

Flash Point (Test Method): Not Applicable

Flammable Limits (% in Air): Not Available

Flammability: Combustible powder

Vapor Pressure: Azoxystrobin 8.25 x 10(-13) mmHg @ 68°F (20°C)

Vapor Density: Not Available

Relative Density: 0.58 - 0.65 g/ml; 31.2 - 43.7 lbs./cu.ft.

Solubility (ies): Azoxystrobin 6 mg/l in water @ 68°F (20°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: See "Unusual Fire, Explosion and Reactivity Hazards", Sec. 5. and "Handling and Storage", Sec. 7.

Incompatible materials: None known.

Hazardous Decomposition Products: Not Available

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 Rat) :	> 5000 mg/kg body weight
Dermal:	Dermal (LD50 Rat) :	> 2000 mg/kg body weight
Inhalation:	Inhalation (LC50 Rat) :	> 4.67 mg/l air - 4 hours
Eye Contact:	Moderately Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	Not a Sensitizer (Guinea Pig)	

Reproductive/Developmental Effects

Azoxystrobin : Did not show reproductive toxicity effects in animal experiments.

Chronic/Subchronic Toxicity Studies

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

Carcinogenicity

Azoxystrobin : Did not show carcinogenic effects in animal experiments.

Chemical Name	NTP/IARC/OSHA Carcinogen
Crystalline Silica, Quartz and Cristobalite	IARC 1; ACGIH A2
Kaolin Clay	No
Other ingredients	No
Methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate	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.

Kaolin Clay

May cause eye and respiratory tract irritation.
Long-term exposure to high concentrations of this dust may produce x-ray evidence of dust in the lungs.
Continued long-term exposure may affect respiratory function in some individuals.

Other ingredients

Not Applicable

Target Organs

Active Ingredients

Azoxystrobin :	Liver

Inert Ingredients

Crystalline Silica, Quartz and Cristobalite:	Respiratory tract
Kaolin Clay:	Eye, respiratory tract, lung
Other ingredients:	Not Applicable

12. ECOLOGICAL INFORMATION

Eco-Acute Toxicity

Azoxystrobin :

Fish (Rainbow Trout) 96-hour LC50 470 ppb

Green Algae 5-day EC50 106 ppb

Invertebrate (Water Flea) 48-hour EC50 259 ppb

Bird (Mallard Duck) 14-day LD50 > 250 mg/kg

Environmental Fate

Azoxystrobin :

The information presented here is for the active ingredient, azoxystrobin.
Low bioaccumulation potential. Not persistent in soil. Stable in water. Moderate mobility in soil. Sinks 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
Not regulated

Comments

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

European Road/Rail (ADR/RID)
Shipping Name: Environmentally Hazardous Substance, Solid, N.O.S. (Azoxystrobin)
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. (Azoxystrobin)
Hazard Class or Division: Class 9
Identification Number: UN 3077
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: Hrmful if inhaled. Irritating to eyes and skin. Dust may be irritating to nose and throat.

EPA Registration Number(s):

100-1093

EPCRA SARA Title III Classification:

Section 311/312 Hazard Classes:	Acute Health Hazard
	Fire Hazard
Section 313 Toxic Chemicals:	None

California Proposition 65:

This Product contains trace amounts of chemicals, known to the State of California to cause cancer, as unintended impurities resulting from other entities manufacturing or processing operations which Syngenta cannot control.

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		HMIS Hazard Ratings	
Health:	2	Health:	2*
Flammability:	3	Flammability:	1
Instability:	0	Reactivity:	0

Syngenta Hazard Category: D

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

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 1/30/1997
Revision Date: 6/15/2015 Replaces: 12/8/2014
Section(s) Revised: 2, 4, 11, 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.

1. Identification

Product identifier used on the label

INSIGNIA SC INTRINSIC BRAND FUNGICIDE

Recommended use of the chemical and restriction on use
Recommended use*: fungicide

* The “Recommended use” identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Substance number:	342244
EPA Register number:	7969-290
Molecular formula:	C19 H18 Cl N3 O4
Chemical family:	strobilurine
Synonyms:	pyraclostrobin

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	4 (Inhalation - vapour)	Acute toxicity
Acute Tox.	4 (oral)	Acute toxicity
Acute Tox.	4 (Inhalation - mist)	Acute toxicity
Skin Corr./Irrit.	2	Skin corrosion/irritation
STOT SE	3 (irritating to	Specific target organ toxicity — single exposure

	respiratory system)	
Aquatic Acute	1	Hazardous to the aquatic environment - acute
Aquatic Chronic	1	Hazardous to the aquatic environment - chronic

Label elements

Pictogram:

Signal Word:
Warning

Hazard Statement:

H315	Causes skin irritation.
H332	Harmful if inhaled.
H302	Harmful if swallowed.
H335	May cause respiratory irritation.

Precautionary Statements (Prevention):

P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves.
P260	Do not breathe dust/gas/mist/vapours.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P352	IF ON SKIN (on hair): Wash with plenty of soap and water.
P301 + P330	IF SWALLOWED: rinse mouth.
P332 + P313	If skin irritation occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash before reuse.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

Labeling of special preparations (GHS):
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 7 % dermal
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 10 % Inhalation - vapour
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 10 % Inhalation - mist

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

WARNING:
May be fatal if swallowed.
May be harmful if absorbed through skin.
May cause moderate but temporary irritation to the eyes.
KEEP OUT OF REACH OF CHILDREN.
KEEP OUT OF REACH OF DOMESTIC ANIMALS.
Avoid contact with the skin, eyes and clothing.
Avoid inhalation of dusts/mists/vapours.
Wash thoroughly after handling.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
175013-18-0	<= 23.0 %	Pyraclostrobin
77-78-1	< 0.2 %	dimethyl sulphate

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
175013-18-0	<= 23.0 %	Pyraclostrobin
	<= 76.0 %	Proprietary ingredients

4. First-Aid Measures

Description of first aid measures

General advice:
First aid providers should wear personal protective equipment to prevent exposure. Remove contaminated clothing. Move person to fresh air. If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or physician for treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.

First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:
Remove the affected individual into fresh air and keep the person calm.

Keep patient calm, remove to fresh air, seek medical attention.

If on skin:
Rinse skin immediately with plenty of water for 15 - 20 minutes.

Wash thoroughly with soap and water.

If in eyes:
Hold eyes open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing.

Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions. Do not induce vomiting. Have person sip a glass of water if able to swallow.

Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Indication of any immediate medical attention and special treatment needed

Note to physician

Antidote:	No known specific antidote.
Treatment:	Treat symptomatically.
Treatment:	Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
foam, dry powder, carbon dioxide, water spray

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon monoxide, carbon dioxide, nitrogen dioxide, nitrogen oxide, Hydrogen chloride, halogenated hydrocarbons, Hydrocarbons,
If product is heated above decomposition temperature, toxic vapours will be released. The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

Methods and material for containment and cleaning up
Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

Precautions for safe handling
RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment.

Protection against fire and explosion:
The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

Conditions for safe storage, including any incompatibilities
Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

Further information on storage conditions: Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed.

8. Exposure Controls/Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Components with occupational exposure limits

dimethyl sulphate	OSHA PEL	PEL 1 ppm 5 mg/m3 ; Skin Designation ; The substance can be absorbed through the skin.
	ACGIH TLV	TWA value 0.1 ppm ; Skin Designation ; The substance can be absorbed through the skin.

Advice on system design:
Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

Respiratory protection:
Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:
Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:
Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:
Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	suspension	
Odour:	odourless	
Odour threshold:		Not determined since harmful by inhalation.
Colour:	pure white	
pH value:	approx. 4.6 - 6.6	(1 %(m), 25 °C)
Freezing point:	approx. 0 °C	Information applies to the solvent.
Boiling point:	approx. 100 °C	Information applies to the solvent.
Flash point:		(Regulation 440/2008/EC, A.9) No flash point - Measurement made up to the boiling point.

Flammability:	Based on the structure or composition there is no indication of flammability	
Lower explosion limit:		As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Upper explosion limit:		As a result of our experience with this product and our knowledge of its composition we do not expect any hazard as long as the product is used appropriately and in accordance with the intended use.
Autoignition:	540 °C	(Regulation 440/2008/EC, A.15)
Vapour pressure:	approx. 23.3 hPa	(20 °C) Information applies to the solvent.
Density:	approx. 1.07 g/cm3	(20 °C)
	approx. 8.9296 Lb/USg	(68 °F)
Vapour density:		not applicable
Partitioning coefficient n-octanol/water (log Pow):		not applicable
Thermal decomposition:	> 350 °C (DSC (DIN 51007)) Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released. 200 °C, 1,600 kJ/kg (DSC (OECD 113)) (onset temperature) Not a substance liable to self-decomposition according to UN transport regulations, class 4.1.	
Viscosity, dynamic:	approx. 1,514 Pa.s	(approx. 20 °C)
Solubility in water:		dispersible
Molar mass:	387.82 g/mol	
Evaporation rate:		not applicable
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:
Corrosive effects to metal are not anticipated.

Oxidizing properties:
not fire-propagating

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions

The product is chemically stable.
Hazardous polymerization will not occur. No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid
Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures.

Incompatible materials
strong oxidizing agents, strong bases, strong acids

Hazardous decomposition products

Decomposition products:
Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
> 350 °C (DSC (DIN 51007))
Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released.
200 °C, 3 K/min (DSC (OECD 113))
(onset temperature) Not a substance liable to self-decomposition according to UN transport regulations, class 4.1.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: Relatively nontoxic after short-term inhalation. Moderately toxic after single ingestion. Relatively nontoxic after short-term skin contact.

Oral
Type of value: LD50
Species: rat (male/female)
Value: approx. 455 mg/kg (OECD Guideline 423)

Inhalation
Type of value: LC50
Species: rat (male/female)
Value: 5.06 mg/l (OECD Guideline 403)
Exposure time: 4 h
An aerosol was tested.

Dermal
Type of value: LD50
Species: rat (male/female)
Value: > 5,000 mg/kg (OECD Guideline 402)

Assessment other acute effects
Assessment of STOT single:
Causes temporary irritation of the respiratory tract.

The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion
Assessment of irritating effects: May cause moderate but temporary irritation to the eyes. May cause moderate irritation to the skin.

Skin
Species: rabbit
Result: moderately irritating
Method: OECD Guideline 404

Eye
Species: rabbit
Result: non-irritant
Method: OECD Guideline 405

Sensitization
Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.
There is no evidence of a skin-sensitizing potential.

Buehler test
Species: guinea pig
Result: Skin sensitizing effects were not observed in animal studies.
Method: OECD Guideline 406

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: pyraclostrobin
Assessment of repeated dose toxicity: After repeated exposure the prominent effect is local irritation. The substance may cause damage to the olfactory epithelium after repeated inhalation.

Genetic toxicity
Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Information on: Pyraclostrobin
Assessment of mutagenicity: No mutagenic effect was found in various tests with microorganisms and mammalian cell culture. The substance was not mutagenic in a test with mammals.

Carcinogenicity
Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

Information on: Pyraclostrobin

Assessment of carcinogenicity: In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.

Reproductive toxicity
Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Information on: Pyraclostrobin
Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity
Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Information on: Pyraclostrobin
Assessment of teratogenicity: Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals.

Other Information
Misuse can be harmful to health.

Symptoms of Exposure

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Very toxic (acute effect) to aquatic organisms.

Toxicity to fish

Information on: pyraclostrobin
LC50 (96 h) > 0.0121 - < 0.0258 mg/l, Cyprinus carpio
LC50 (96 h) > 0.0196 - < 0.0335 mg/l, Lepomis macrochirus
LC50 (96 h) 0.00616 mg/l, Oncorhynchus mykiss

Aquatic invertebrates

Information on: pyraclostrobin
EC50 (48 h) 0.0157 mg/l, Daphnia magna

Aquatic plants

Information on: pyraclostrobin

EC50 (96 h) > 0.843 mg/l, Pseudokirchneriella subcapitata

Assessment of terrestrial toxicity
With high probability not acutely harmful to terrestrial organisms.

Other terrestrial non-mammals

Information on: pyraclostrobin
LD50 > 2,000 mg/kg, Colinus virginianus
Colinus virginianus
LC50, Anas platyrhynchos
LD50 > 100 ug/bee, Apis mellifera

Persistence and degradability

Assessment biodegradation and elimination (H2O)

Information on: pyraclostrobin

Not readily biodegradable (by OECD criteria).

Bioaccumulative potential

Bioaccumulation potential

Information on: pyraclostrobin

Bioconcentration factor: 379 - 507, Oncorhynchus mykiss (OECD-Guideline 305)
Accumulation in organisms is not to be expected.

Mobility in soil

Assessment transport between environmental compartments
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: pyraclostrobin

Following exposure to soil, adsorption to solid soil particles is probable, therefore contamination of groundwater is not expected.

Additional information

Other ecotoxicological advice:
The ecological data given are those of the active ingredient. Do not release untreated into natural waters.

13. Disposal considerations

Waste disposal of substance:
Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions,

contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container disposal:
Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.
Contaminated packaging should be emptied as far as possible and disposed of in the same manner as the substance/product.

RCRA:
This product is not regulated by RCRA.

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Hazard class:	9
Packing group:	III
ID number:	UN 3082
Hazard label:	9, EHSM
Marine pollutant:	YES
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PYRACLOSTROBIN)

Air transport
IATA/ICAO

Hazard class:	9
Packing group:	III
ID number:	UN 3082
Hazard label:	9, EHSM
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PYRACLOSTROBIN)

15. Regulatory Information

Federal Regulations

Registration status:

Crop Protection	TSCA, US	released / exempt
Chemical	TSCA, US	blocked / not listed

EPCRA 311/312 (Hazard categories): Acute;

NFPA Hazard codes:
Health : 2 Fire: 1 Reactivity: 1 Special:

Labeling requirements under FIFRA

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 workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label.

WARNING:

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2014/08/29

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

Safety Data Sheet

BRISKWAY

Date: 6/22/2015
Replaces: 11/4/2014

1. PRODUCT IDENTIFICATION

Product identifier on label: **BRISKWAY**
Product No.: A13703G
Use: Fungicide
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: Inhalation: Category 4
Skin Sensitizer: Category 1B

Signal Word (OSHA): Warning

Hazard Statements: May cause an allergic skin reaction
Harmful if inhaled

Hazard Symbols:

Precautionary Statements: Avoid breathing mist, vapors, spray.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves, protective clothing, eye protection.
If on skin: Wash with plenty of soap and water.
If skin irritation or rash occurs: Get medical advice.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Call a poison center, doctor or Syngenta if you feel unwell.
See Section 4 First Aid Measures.
Wash contaminated clothing before reuse.
Dispose of contents and container in accordance with local regulations.

Other Hazard Statements: None

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	<70.4%
Methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate	Azoxystrobin	131860-33-8	18.2%
1H-1,2,4-Triazole, 1-[[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl]methyl]-	Difenoconazole	119446-68-3	11.4%

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 contol 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:

Allergic skin reaction

Indication of immediate medical attention and special treatment needed:

There is no specific antidote if this product is ingested.

Treat symptomatically.

Persons suffering a temporary allergic reaction may respond to treatment with antihistamines or steroid creams and/or systemic steroids.

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 in Protective Equipment Section. 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.

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:

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
Propylene Glycol	Not Established	Not Established	10 mg/m³ TWA	AIHA
Other ingredients	Not Applicable	Not Applicable	Not Applicable	Not Applicable
Azoxystrobin	Not Established	Not Established	4 mg/m³ TWA	Syngenta
Difenoconazole	Not Established	Not Established	5 mg/m³ 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 chemical splash 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.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Light yellow to yellow liquid

Odor: Weak

Odor Threshold: Not Available

pH: 5 -9 @ 1% w/v

Melting point/freezing point: Not Available

Initial boiling point and boiling range: Not Available

Flash Point (Test Method): > 212°F

Flammable Limits (% in Air): Not Available

Flammability: Not Applicable

Vapor Pressure: Azoxystrobin 8.25 x 10(-13) mmHg @ 68°F (20°C)
Difenoconazole 2.5 x 10(-10) mmHg @ 77°F (25°C)

Vapor Density: Not Available

Relative Density: 1.08 - 1.12 g/cm³ @ 68°F (20°C)

Solubility (ies): Azoxystrobin 6 mg/l in water @ 68°F (20°C)
Difenoconazole 15 mg/l @ 77°F (25°C)

Partition coefficient: n-octanol/water: Not Available

Autoignition Temperature: 941°F

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: Not Available

11. TOXICOLOGICAL INFORMATION

Health effects information

Likely routes of exposure: Dermal, Inhalation

Symptoms of exposure: Not Applicable

Delayed, immediate and chronic effects of exposure: Allergic skin reaction

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

Ingestion:	Oral (LD50 Female Rat) :	> 2000 mg/kg body weight
Dermal:	Dermal (LD50 Rat) :	> 2000 mg/kg body weight
Inhalation:	Inhalation (LC50 Rat) :	2.06 - 5.17 mg/l air - 4 hours
Eye Contact:	Mildly Irritating (Rabbit)	
Skin Contact:	Slightly Irritating (Rabbit)	
Skin Sensitization:	A skin sensitizer in animal tests (Guinea Pig)	

Reproductive/Developmental Effects

Azoxystrobin : Did not show reproductive toxicity effects in animal experiments.

Difenoconazole: None observed.

Chronic/Subchronic Toxicity Studies

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

Difenoconazole: Kidney and liver effects at high doses (>5000 ppm; rats); Eye effects in dogs at high dose levels.

Carcinogenicity

Azoxystrobin : Did not show carcinogenic effects in animal experiments.

Difenoconazole: Did not show carcinogenic effects in animal experiments.

Chemical Name	NTP/IARC/OSHA Carcinogen
1,2-Propanediol	No
Other ingredients	No
Methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate	No
1H-1,2,4-Triazole, 1-[[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl]methyl]-	No

Other Toxicity Information

Unlikely to be hazardous by inhalation unless present as a dust.

Toxicity of Other Components

Other ingredients

Not Applicable

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.

Target Organs

Active Ingredients

Azoxystrobin :	Liver
Difenoconazole:	Brain, liver, kidney, gastrointestinal tract

Inert Ingredients

Other ingredients:	Not Applicable
Propylene Glycol:	CNS, kidney, liver

12. ECOLOGICAL INFORMATION

Eco-Acute Toxicity

Azoxystrobin :

Fish (Rainbow Trout) 96-hour LC50 470 ppb

Green Algae 5-day EC50 106 ppb

Invertebrate (Water Flea) 48-hour EC50 259 ppb

Bird (Mallard Duck) 14-day LD50 > 250 mg/kg

Difenoconazole:

Fish (Rainbow Trout) 96-hour LC50 1.1 mg/l

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 0.77 mg/l

Green Algae 72-hour EbC50 0.032 mg/

Environmental Fate

Azoxystrobin :

The information presented here is for the active ingredient, azoxystrobin.
Low bioaccumulation potential. Not persistent in soil. Stable in water. Moderate mobility in soil. Sinks in water (after 24 h).

Difenoconazole:

The information presented here is for the active ingredient, difenoconazole.
Stable in soil and water. Low to moderate mobility in soil. Sinks 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
Not regulated

Comments

Water Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Azoxystrobin/Difenoconazole), Marine Pollutant
Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III

Air Transport
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Azoxystrobin/Difenoconazole)
Hazard Class: Class 9
Identification Number: UN 3082
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 or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wear protective eyewear. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

EPA Registration Number(s):

100-1433

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):

None

RCRA Hazardous Waste Classification (40 CFR 261):

Not Applicable

TSCA Status:

Exempt from TSCA, subject to FIFRA

16. OTHER INFORMATION

NFPA Hazard Ratings		HMIS Hazard Ratings	
Health:	2	Health:	2
Flammability:	1	Flammability:	1
Instability:	0	Reactivity:	0

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

Syngenta Hazard Category: C,S

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 2/20/2012
Revision Date: 6/22/2015 Replaces: 11/4/2014
Section(s) Revised: 2, 4, 11

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.

SECTION 1: PRODUCT INFORMATION

Product Identifier: INSTRATA® FUNGICIDE
Formulation Number: A14036B
Registration Number: 28861 (Pest Control Products Act)
Product Use: Fungicide. Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

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

SDS prepared by: Department of Regulatory & Biological Assessment, Syngenta Canada Inc.
For further information, contact: 1-87-SYNGENTA (1-877-964-3682)

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

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with UN GHS Version 5.

Hazard Classification(s):
Acute Toxicity (Inhalation) – Category 3
Acute Toxicity (Oral) – Category 4
Carcinogenicity – Category 2
Eye Irritation – Category 2A
Reproductive Toxicity – Category 2
Skin Irritation – Category 3
Skin Sensitization – Category 1
Specific Target Organ Toxicity (STOT) – Category 3

Hazard Symbol(s):

Signal Word: DANGER

Hazard Statement(s):
H302 – Harmful if swallowed.
H316 – Causes mild skin irritation.
H317 – May cause an allergic skin reaction.
H319 – Causes serious eye irritation.
H331 – Toxic if inhaled.
H335 – May cause respiratory irritation.
H351 – Suspected of causing cancer.
H361 – Suspected of damaging fertility or the unborn child.

Precautionary Statement(s):

Prevention:
P201 – Obtain special instructions before use.
P202 – Do not handle until all safety precautions have been read and understood.
P261 – Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 – Wash thoroughly after handling.
P270 – Do not eat, drink or smoke when using this product.
P271 – Use only outdoors or in a well-ventilated area.
P272 – Contaminated work clothing should not be allowed out of the workplace.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P301+P312 – IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P302+P352 – IF ON SKIN: Wash with plenty of water.
P304+P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 – IF exposed or concerned: Get medical advice/attention.
P311 – Call a POISON CENTER/doctor if inhaled.
P312 – Call a POISON CENTER/doctor if you feel unwell.
P321 – Specific treatment: See Section 4 of this SDS.
P330 – Rinse mouth.
P333+P313 – If skin irritation or rash occurs: Get medical advice/attention.
P337+P313 – If eye irritation persists: Get medical advice/attention.
P362+P364 – Take off contaminated clothing and wash it before reuse.

Storage:
P403+P233 – Store in a well-ventilated place. Keep container tightly closed.
P405 – Store locked up.

Disposal:
P501 – Dispose of contents/containers to an approved waste disposal plant.

Other Hazards Which do not Result in GHS Classification: To avoid risk to human health and the environment, comply with the instructions for use.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Common Name	CAS Number	Average % by weight
2,4,5,6-tetrachloro-1,3-benzenedicarbonitrile	Chlorothalonil	1897-45-6	29.9
Poly(oxy-1,2-ethanediyl), alpha-[tris(1-phenylethyl)phenyl]-omega-hydroxy-	Ethoxylated tristyrylphenols	99734-09-5	2.5 - 10
1-[[(2,4-dichlorophenyl)-4-propyl-1,3-dioxolan-2-yl]methyl]-1H-1,2,4-triazole	Propiconazole	60207-90-1	4.7
4-(2,2-difluoro-1,3-benzodioxol-4-yl)-1H-pyrrole-3-carbonitrile	Fludioxonil	131341-86-1	1.2

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 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. Have person sip a glass of water if able to do so. 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 breathing in of vomitus, rinse mouth and administer water.

Most Important Symptoms/Effects, Acute and Delayed:
Toxic if inhaled.
Harmful if swallowed.
Causes serious eye irritation.
Causes mild skin irritation.
May cause an allergic skin reaction. Prolonged or frequently repeated skin contact may cause an allergic reaction in some individuals. Individuals with allergic history or pre-existing dermatitis should use extra care in handling this product.
May cause respiratory irritation. Asthma or other respiratory conditions may be aggravated by chemical irritants.
Suspected of causing cancer.
Suspected of damaging fertility or the unborn child.

Indication of Immediate Medical Attention and Special Treatment:
There is no specific antidote.
Treat symptomatically.
Persons suffering from a temporary allergic reaction may respond to treatment with oral antihistamines or steroid creams and/or systemic steroids.

SECTION 5: FIRE FIGHTING MEASURES

Suitable (and Unsuitable) Extinguishing Media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist. Cool closed containers exposed to fire with water spray. Do not use a solid water stream as it may scatter and spread the fire.
Specific Hazards Arising from the Product: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.
Special Protective Equipment and Precautions for Fire-Fighters: 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 run-off can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Control the spill at its source. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Use adequate ventilation and equipment and wear clothing as described in Section 8 and/or the product label.
Environmental Precautions: Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory body.
Methods and Materials for Containment and Cleaning Up: Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or seep up material and place into a disposal container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into a 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.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling: 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, dust 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.
Conditions for Safe Storage, Including Any Incompatibilities: Store in original container in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Refer to the product label for specific storage recommendations, including minimum storage temperature and freeze/thaw stability. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

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.

Control Parameters:

Component	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Chlorothalonil	Not established	Not established	0.1 mg/m^3 TWA*** (possible skin and respiratory sensitizer)	IARC Group 2B	Not established
Ethoxylated tristyrylphenols	Not established	Not established	Not established	No	Not established
Propiconazole	Not established	Not established	5 mg/m^3 TWA***	No	Not established
Propylene glycol	Not established	Not established	10 mg/m^3 TWA AIHA WEEL****; 50 ppm (155 mg/m^3) TWA (total vapour & particulates) (ON)	No	Yes
Fludioxonil	Not established	Not established	5 mg/m^3 TWA***	No	Not established

* Recommended by Manufacturer
** 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

Appropriate 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.

Individual Protection Measures:
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: A particulate filter respirator may be necessary until effective engineering controls are installed to comply with occupational exposure limits. Use a 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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Grey liquid.
Formulation Type: Suspension concentrate.
Physical State: Liquid.
Odour: Aromatic.
Odour Threshold: Not available.
pH: 5.5 @ 25 °C.
Melting Point: Not applicable.
Freezing Point: Not available.
Initial Boiling Point and Boiling Range: Not available.
Flash Point: > 100 °C.
Evaporation Rate: Not available.
Flammability (solid/gas): Not applicable.
Lower Explosive Limit: Not applicable.
Upper Explosive Limit: Not applicable.
Vapour Pressure: Chlorothalonil: 5.70×10^{-7} mmHg @ 20 °C.
Propiconazole: 4.20×10^{-7} mmHg @ 20 °C.
Fludioxonil: 2.90×10^{-9} mmHg @ 20 °C.
Vapour Density: Not available.
Relative Density: 1.21 g/cm^3.
Solubility(ies): Chlorothalonil: 0.81 mg/L @ 20 °C, pH 7 (water).
Propiconazole: 100 mg/L @ 20 °C, pH 7 (water).
Fludioxonil: 1.8 mg/L @ 20 °C, pH 7 (water).
Partition Coefficient (n-octanol water): Chlorothalonil: 2.9
Propiconazole: 3.7
Fludioxonil: 4.1
Auto-Ignition Temperature: > 650 °C.
Decomposition Temperature: Not available.
Viscosity: 450 – 750 mPa·s @ 20 °C.

Other Information: Not applicable.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical Stability: Stable under normal use and storage conditions.
Possibility of Hazardous Reactions: No hazardous reactions with normal handling and storage according to the label directions.
Conditions to Avoid: No decomposition if used as directed. Avoid excessive heat or cold.
Incompatible Materials: No substances are known which lead to the formation of hazardous substances or thermal reactions.
Hazardous Decomposition Products: Can decompose at high temperatures forming toxic gases. During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.

SECTION 11: TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Dermal, inhalation, oral.
Symptoms of Acute Exposure: Toxic if inhaled. Harmful if swallowed. Causes serious eye irritation. Causes mild skin irritation.
Potential Health Effects: May cause an allergic skin reaction. Prolonged or frequently repeated skin contact may cause an allergic reaction in some individuals. Individuals with allergic history or pre-existing dermatitis should use extra care in handling this product. May cause respiratory irritation. Asthma or other respiratory conditions may be aggravated by chemical irritants. Suspected of causing cancer. Suspected of damaging fertility or the unborn child.

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	Slightly Acutely Toxic	
	Oral (LD50 Female Rat)	> 1,750 and < 5,000 mg/kg body weight
Dermal:	Low Acute Toxicity	
	Dermal (LD50 Rat)	> 5,000 mg/kg body weight
Inhalation:	Slightly Acutely Toxic	
	Inhalation (LC50 Rat)	0.52 – 2.01 mg/L air – 4 hours
Eye Contact:	Moderately Irritating (Rabbit)	
Skin Contact:	Mildly Irritating (Rabbit)	
Skin Sensitization:	Skin Sensitizer (Guinea Pig)	

Specific Target Organ Toxicity (STOT) Single Exposure:

Chlorothalonil:	May cause respiratory irritation.
Propiconazole:	Not classified as a specific target organ toxicant, single exposure.
Fludioxonil:	Not classified as a specific target organ toxicant, single exposure.

Specific Target Organ Toxicity (STOT) Repeated Exposure:

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

Carcinogenicity:

Chlorothalonil:	Chlorothalonil causes kidney tumours in rats and mice via a non-genotoxic mode of action secondary to target organ toxicity. IARC identified chlorothalonil as a 2B carcinogen (possibly carcinogenic to humans).
Propiconazole:	Did not show carcinogenic effects in animal experiments.
Fludioxonil:	Did not show carcinogenic effects in animal experiments.

Reproductive Toxicity:

Chlorothalonil:	Did not show reproductive toxicity effects in animal experiments.
Propiconazole:	Some adverse effects on development, based on animal experiments.
Fludioxonil:	Did not show reproductive toxicity effects in animal experiments.

Mutagenicity:

Chlorothalonil:	Did not show mutagenic effects in animal experiments.
Propiconazole:	Did not show mutagenic effects in animal experiments.
Fludioxonil:	Did not show mutagenic effects in animal experiments.

Aspiration Hazard:

Chlorothalonil:	Not classified as an aspiration hazard.
Propiconazole:	Not classified as an aspiration hazard.
Fludioxonil:	Not classified as an aspiration hazard.

Other Toxicity Information:

Chlorothalonil:	May cause sensitization by skin contact. Exposure of the skin to chlorothalonil may result in weak contact dermatitis.

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.

Ethoxylated tristyrylphenols:	The acute toxicity test results reported in Section 11, above, for the finished product take into account any acute hazards related to the ethoxylated tristyrylphenols in the formulation.
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.

SECTION 12: ECOLOGICAL INFORMATION

Eco-Acute Toxicity:

Chlorothalonil:

Invertebrates (Water Flea) 48-hour LC_{50}/EC_{50}	0.07 ppm
Fish (Rainbow Trout) 96-hour LC_{50}/EC_{50}	0.047 ppm
Birds (Oral – Mallard Duck) LC_{50}	> 4,640 ppm

Propiconazole:

Invertebrates (Water Flea) 48-hour LC_{50}/EC_{50}	2.2 ppm
Fish (Rainbow Trout) 96-hour LC_{50}/EC_{50}	0.85 ppm
Birds (8-day dietary – Mallard Duck) LC_{50}	> 5,620 ppm

Fludioxonil:

Invertebrates (Water Flea) 48-hour LC_{50}/EC_{50}	0.9 ppm
Fish (Rainbow Trout) 96-hour LC_{50}/EC_{50}	0.23 ppm
Birds (8-day dietary – Mallard Duck) LC_{50}/EC_{50}	> 5,200 ppm

Persistence & Degradability:

Chlorothalonil:	Low persistence in soil. Low persistence in water.
Propiconazole:	Moderately persistent in soil. Persistent in water; partitions to sediment.
Fludioxonil:	Moderately persistent in soil. Persistent in water; partitions to sediment.

Bioaccumulation Potential:

Chlorothalonil:	BCF < 500; does not bioaccumulate.
Propiconazole:	BCF < 500; does not bioaccumulate.
Fludioxonil:	BCF < 500; does not bioaccumulate.

Mobility in Soil:

Chlorothalonil:	Low mobility in soil.
Propiconazole:	Moderate to low mobility in soil.
Fludioxonil:	Low mobility in soil.

Other Adverse Effects: Not applicable.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Methods:

Waste from residues: Refer to the product label for specific disposal/recycling information.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Refer to the product label for specific disposal/recycling information.
Empty remaining contents
Triple rinse containers
Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not reuse empty containers.

SECTION 14: TRANSPORT INFORMATION

TDG Classification – Road/Rail:

UN Number:	UN 3082
Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil, Propiconazole, Fludioxonil).
Transport Hazard Class:	Class 9
Packing Group:	PG III
Environmental Hazards:	Environmentally hazardous.

Remarks:
Class 9 Exemption from Part 3, Documentation, and Part 4, Dangerous Goods Safety Marks, if transported solely on land by road vehicle or railway vehicle. 1.45.1. SOR/2008-34

Water Transport – International (IMDG):

UN Number:	UN 3082
Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil, Propiconazole, Fludioxonil), Marine Pollutant.
Transport Hazard Class:	Class 9
Packing Group:	PG III
Environmental Hazards:	Marine pollutant.

Air Transport (IATA-DGR):

UN Number:	UN 3082
Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Chlorothalonil, Propiconazole, Fludioxonil).
Transport Hazard Class:	Class 9
Packing Group:	PG III
Environmental Hazards:	Environmentally hazardous.

Special Precautions for User:
The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code:
Not applicable.

SECTION 15: REGULATORY INFORMATION

There are Canada-specific environmental requirements for handling, use and disposal of this pest control product that are indicated on the product label.

Hazardous Products Act Information:
This product has been classified in accordance with the amended Hazardous Products Act and the Hazard Criteria of the Hazardous Products Regulations (HPR), and the SDS contains all the information required by the HPR.

Hazardous Products Act Information: WHMIS 2015 Classification
This product is exempt under WHMIS 2015.

Pest Control Products Act (PCPA) Registration No.: 28861

Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.

This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:

PCPA Label Hazard Communications:
Read the label and pamphlet before using.
Keep out of reach of children.
Caution: Poison.
Warning: Eye and Skin Irritant.
Potential Skin Sensitizer.

PCPA Hazard on Label:	**Poison**	**GHS Hazard Classification:**	**Acute Toxicity (Inhalation) – Category 3; Acute Toxicity (Oral) – Category 4**
PCPA Precautionary Symbol:		GHS Hazard Symbol:	
PCPA Signal Word(s):	Caution	GHS Signal Word:	Danger
PCPA Hazard Statement:	Not applicable.	GHS Hazard Statement:	H331 – Toxic if inhaled. H302 – Harmful if swallowed.
PCPA Hazard on Label:	**Eye Irritant**	**GHS Hazard Classification:**	**Eye Irritation – Category 2A**
PCPA Precautionary Symbol:	Not applicable.	GHS Hazard Symbol:	
PCPA Signal Word(s):	Warning	GHS Signal Word:	Warning
PCPA Hazard Statement:	Not applicable.	GHS Hazard Statement:	H319 – Causes serious eye irritation.
PCPA Hazard on Label:	**Skin Irritant**	**GHS Hazard Classification:**	**Skin Irritation – Category 3**
PCPA Precautionary Symbol:	Not applicable.	GHS Hazard Symbol:	Not applicable.
PCPA Signal Word(s):	Warning	GHS Signal Word:	Warning
PCPA Hazard Statement:	Not applicable.	GHS Hazard Statement:	H316 – Causes mild skin irritation.
PCPA Hazard on Label:	**Potential Skin Sensitizer**	**GHS Hazard Classification:**	**Skin Sensitization – Category 1**
PCPA Precautionary Symbol:	Not applicable.	GHS Hazard Symbol:	
PCPA Signal Word(s):	Not applicable.	GHS Signal Word:	Warning
PCPA Hazard Statement:	Not applicable.	GHS Hazard Statement:	H317 – May cause an allergic skin reaction.

Allergens Contained in the Pest Control Product:
Product may cause an allergic skin reaction.

NPRI Components:
Not applicable.

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 product is under the jurisdiction of the Pest Control Products Act and is exempt from the requirements for a WHMIS compliant SDS. Hazardous properties of all ingredients have been considered in the preparation of this SDS. Read the entire SDS for the complete hazard evaluation of this product.

Full Text of Abbreviations:
AB – Province of Alberta
BC – Province of British Columbia
BCF – Bioconcentration factor
EC_{50} – Effective concentration, 50%
GHS – Globally Harmonized System of Classification and Labeling of Chemicals
LC_{50} – Lethal concentration, 50%
LD_{50} – Lethal dose, 50%
IARC – International Agency for Research on Cancer
IATA-DGR – International Air Transport Association Dangerous Goods Regulations
IMDG – International Maritime Code for Dangerous Goods
NTP –National Toxicology Program
ON – Province of Ontario
OSHA – Occupational Safety & Health Administration
PEL – Permissible Exposure Limit
TDG – Transportation of Dangerous Goods
TLV – Threshold Limit Value
QC – Province of Quebec
SDS – Safety Data Sheet
WHMIS – Workplace Hazardous Materials Information System

Changes since last revision: Converted to SDS format.

Revision Date (Y-M-D): 2019-01-30
Supersedes Date (Y-M-D): 2017-12-31

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

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END OF SAFETY DATA SHEET.

PRIMO MAXX

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
7.1	08.10.2021	S150323286	

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : PRIMO MAXX

Design code : A11825A

Manufacturer or supplier's details

Company : Syngenta Australia Pty Ltd (ABN 33 002 933 717)
www.syngenta.com.au

Address : 2-4 Lyonpark Road
Macquarie Park NSW 2113
Australia

Telephone : (02) 8014 5200

Emergency telephone number : 13 11 26 (Poison Information Centre)
1800 033 111 (Syngenta)

Telefax : (02) 8876 8446

Recommended use of the chemical and restrictions on use

Recommended use : Plant growth regulator

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids : Category 4

Serious eye damage/eye irritation : Category 2A

Reproductive toxicity : Category 1B

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H227 Combustible liquid.
H319 Causes serious eye irritation.
H360 May damage fertility or the unborn child.

Precautionary statements : **Prevention:**

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ eye protection/ face protection.
P281 Use personal protective equipment as required.

Response:

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in classification

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
tetrahydro-2-furyl-methanol	97-99-4	>= 30 -< 60
trinexapac-ethyl	95266-40-3	>= 10 -< 30

SECTION 4. FIRST AID MEASURES

General advice : Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.

If inhaled : Move the victim to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Keep patient warm and at rest.
Call a physician or poison control centre immediately.

In case of skin contact : Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a physician.

Wash contaminated clothing before re-use.

In case of eye contact	:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.
If swallowed	:	If swallowed, seek medical advice immediately and show this container or label. Do NOT induce vomiting.
Most important symptoms and effects, both acute and delayed	:	Nonspecific No symptoms known or expected.
Notes to physician	:	There is no specific antidote available. Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Extinguishing media - small fires Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Extinguishing media - large fires Alcohol-resistant foam
Unsuitable extinguishing media	:	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards during firefighting	:	As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health. Flash back possible over considerable distance.
Specific extinguishing methods	:	Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.
Special protective equipment for firefighters	:	Wear full protective clothing and self-contained breathing apparatus.
Hazchem Code	:	•3Z

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Refer to protective measures listed in sections 7 and 8. Keep people away from and upwind of spill/leak. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Remove all sources of ignition. Pay attention to flashback.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local

/ national regulations (see section 13).
Clean contaminated surface thoroughly.
Clean with detergents. Avoid solvents.
Retain and dispose of contaminated wash water.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling : Avoid contact with skin and eyes.
When using do not eat, drink or smoke.
Use only in an area containing flame proof equipment.
Take precautionary measures against static discharges.
For personal protection see section 8.

Conditions for safe storage : Keep containers tightly closed in a dry, cool and well-ventilated place.
Keep out of the reach of children.
Keep away from combustible material.
Keep in an area equipped with sprinklers.
Keep away from food, drink and animal feedingstuffs.
No smoking.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
trinexapac-ethyl	95266-40-3	TWA	5 mg/m3	Syngenta

Engineering measures : THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION AND PACKAGING OF THE PRODUCT. FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.

The extent of these protection measures depends on the actual risks in use.

Maintain air concentrations below occupational exposure standards.
Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.
When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection

Material	:	Nitrile rubber
Break through time	:	> 480 min
Glove thickness	:	0.5 mm
Remarks	:	Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	:	Tightly fitting safety goggles Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Remove and wash contaminated clothing before re-use. Wear as appropriate: Impervious clothing
Protective measures	:	The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice. Personal protective equipment should comply with relevant national standards

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	orange to red
Odour	:	odourless
Odour Threshold	:	No data available
pH	:	2 - 6 Concentration: 1 % w/v
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available

Flash point	:	82 °C Method: Pensky-Martens closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Density	:	1.07 g/cm3 (20 °C)
Solubility(ies)		
Water solubility	:	No data available
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	265 °C
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	48.7 mPa.s (20 °C) 23.5 mPa.s (40 °C)
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Surface tension	:	38.6 mN/m, 20 °C
Particle size	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	None reasonably foreseeable.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.

Conditions to avoid	:	No decomposition if used as directed.
Incompatible materials	:	None known.
Hazardous decomposition products	:	No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Exposure routes : Ingestion
Inhalation
Skin contact
Eye contact

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat, male and female): > 5,050 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 2.57 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,020 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Components:

trinexapac-ethyl:

Acute oral toxicity : LD50 (Rat, male and female): 4,460 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.69 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 4,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Product:

Species : Rabbit
Result : No skin irritation

Components:

trinexapac-ethyl:

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation

Product:

Species : Rabbit
Result : Irritation to eyes, reversing within 21 days

Components:

tetrahydro-2-furyl-methanol:

Result : Eye irritation

trinexapac-ethyl:

Species : Rabbit
Result : No eye irritation

Respiratory or skin sensitisation

Product:

Test Type : Buehler Test
Species : Guinea pig
Result : Did not cause sensitisation on laboratory animals.

Components:

trinexapac-ethyl:

Test Type : mouse lymphoma cells
Species : Mouse
Result : Did not cause sensitisation on laboratory animals.

Chronic toxicity

Germ cell mutagenicity

Components:

trinexapac-ethyl:

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

Carcinogenicity

Components:

trinexapac-ethyl:

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

Reproductive toxicity

Components:

tetrahydro-2-furyl-methanol:

Reproductive toxicity - Assessment : Clear evidence of adverse effects on development, based on animal experiments., Some evidence of adverse effects on sexual function and fertility, based on animal experiments.

trinexapac-ethyl:

Reproductive toxicity - Assessment : No toxicity to reproduction

Repeated dose toxicity

Components:

trinexapac-ethyl:

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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 125 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 118 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Anabaena flos-aquae (cyanobacterium)): > 120 mg/l
Exposure time: 96 h

NOEC (Anabaena flos-aquae (cyanobacterium)): 120 mg/l
End point: Growth rate
Exposure time: 96 h

NOEC (Lemna gibba G3 (gibbous duckweed)): 6.25 mg/l
End point: Frond growth
Exposure time: 7 d

ErC50 (Lemna gibba G3 (gibbous duckweed)): > 100 mg/l
End point: Frond growth
Exposure time: 7 d

Components:

trinexapac-ethyl:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 68 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Americamysis): 6.5 mg/l Exposure time: 96 h
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): 24.5 mg/l Exposure time: 96 h ErC50 (Myriophyllum spicatum (Eurasian watermilfoil)): 1.2 mg/l Exposure time: 14 d EC10 (Myriophyllum spicatum (Eurasian watermilfoil)): 0.011 mg/l Exposure time: 14 d
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 0.41 mg/l Exposure time: 35 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Daphnia magna (Water flea)): 2.4 mg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	:	1
Toxicity to microorganisms	:	EC50 (activated sludge): > 100 mg/l Exposure time: 3 h

Ecotoxicology Assessment

Acute aquatic toxicity	:	Toxic to aquatic life.
Chronic aquatic toxicity	:	Very toxic to aquatic life with long lasting effects.

Persistence and degradability

Components:

trinexapac-ethyl:

Biodegradability	:	Result: Not readily biodegradable.
Stability in water	:	Degradation half life: 3.9 - 5.5 d Remarks: Product is not persistent.

Bioaccumulative potential

Components:

trinexapac-ethyl:

Bioaccumulation	:	Remarks: Does not bioaccumulate.
Partition coefficient: n-octanol/water	:	log Pow: -2.1 (25 °C) log Pow: -0.29 (25 °C)

log Pow: 1.5 (25 °C)

Mobility in soil

Components:

trinexapac-ethyl:

Distribution among environmental compartments	:	Remarks: Moderately mobile in soils
Stability in soil	:	Dissipation time: < 0.2 d Percentage dissipation: 50 % (DT50) Remarks: Product is not persistent.

Other adverse effects

Components:

trinexapac-ethyl:

Results of PBT and vPvB assessment	:	This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.
Contaminated packaging	:	Non-returnable containers: Triple rinse containers. Add rinsings to spray tank If recycling, replace cap and return clean containers to recycler or designated collection point. Containers marked with the drumMUSTER container logo can be taken to a drumMUSTER collection site (02 6206 6868, www.drummuster.org.au). Empty containers can be landfilled, when in accordance with the local regulations. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt. Returnable containers: Empty contents fully into application equipment. Close all valves and return to point of supply for refill or storage.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRINEXAPAC-ETHYL)
Class	:	9
Packing group	:	III
Labels	:	9

IATA-DGR

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (TRINEXAPAC-ETHYL)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964
Environmentally hazardous	:	yes

IMDG-Code

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRINEXAPAC-ETHYL)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

ADG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (TRINEXAPAC-ETHYL)
Class	:	9
Packing group	:	III
Labels	:	9
Hazchem Code	:	•3Z
Remarks	:	Environmentally Hazardous Substances meeting the descriptions of UN 3077 or UN 3082 are not subject to the Australian Code for the Transport of Dangerous Goods (ADG). This applies when transported by road or rail in packagings that do not incorporate a receptacle exceeding 500 kg(L) or IBCs per ADG Special Provision AU01.

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Standard for the Uniform Scheduling of Medicines and Poisons	:	Schedule 5
Prohibition/Licensing Requirements	:	There is no applicable prohibition, authorisation and restricted use requirements, including for carcinogens referred to in Schedule 10 of the model WHS Act and Regulations.
Product Registration Number	:	APVMA Approval No. 54275

SECTION 16. OTHER INFORMATION

Revision Date	:	08.10.2021
Date format	:	dd.mm.yyyy

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumu-

lative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

AU / EN

SAFETY DATA SHEET

PROSTAR® 70 WP FUNGICIDE

Version 3.0 / USA
102000014262

Revision Date: 01/25/2017
Print Date: 01/25/2017

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier	
Trade name	PROSTAR® 70 WP FUNGICIDE
Product code (UVP)	06013324
SDS Number	102000014262
EPA Registration No.	432-1223
Relevant identified uses of the substance or mixture and uses advised against	
Use	Fungicide
Restrictions on use	See product label for restrictions.
Information on supplier	
Supplier	Bayer Environmental Science 2 T.W. Alexander Drive Research Triangle PK, NC 27709 United States
Responsible Department	Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.	
Emergency Telephone Number (24hr/ 7 days)	1-800-334-7577
Product Information Telephone Number	1-800-331-2867

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Combustible dust

Labelling in accordance with regulation HCS 29CFR §1910.1200
Signal word: Warning

Hazard statements
May form combustible dust concentrations in air
Conduct Dust Hazard Assessment (DHA).

Hazards Not Otherwise Classified (HNOC)
No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Flutolanil	66332-96-5	70.0
Dibutyl naphthalenesulfonic acid, sodium salt	25417-20-3	2.8
Fatty acid methyl tauride sodium salt	137-20-2	1.5

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Eye contact Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Ingestion Call a physician or poison control center immediately. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Rinse out mouth and give water in small sips to drink. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms No symptoms known or expected.

Indication of any immediate medical attention and special treatment needed

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable Water, Foam, Carbon dioxide (CO2), Dry powder

Unsuitable None known.

Special hazards arising from the substance or mixture	Accumulation of fine dust may entail the risk of a dust explosion in the presence of air., Dangerous gases are evolved in the event of a fire.
Advice for firefighters	
Special protective equipment for firefighters	Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.
Further information	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point	Not applicable
Auto-ignition temperature	No data available
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Explosivity	No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions	Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up	Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean contaminated floors and objects thoroughly, observing environmental regulations.
Additional advice	Use personal protective equipment. If material is accidentally spilled, do not allow to enter soil, waterways or waste water canal.
Reference to other sections	Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.
Hygiene measures	Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after

handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

Advice on common storage Keep away from food, drink and animal feedingstuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Synthetic amorphous silica	112926-00-8	6 mg/m3 (REL)	2010	NIOSH
Synthetic amorphous silica	112926-00-8	6 mg/m3 (TWA)	06 2008	TN OEL
Synthetic amorphous silica	112926-00-8	27ug/m3 (ST ESL)	03 2014	TX ESL
Synthetic amorphous silica	112926-00-8	2ug/m3 (AN ESL)	03 2014	TX ESL
Synthetic amorphous silica	112926-00-8	20millions of particles per cubic foot of air (TWA)	2000	Z3
Synthetic amorphous silica	112926-00-8	0.8 mg/m3 (TWA)	2000	Z3

Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection Chemical resistant nitrile rubber gloves

Eye protection Tightly fitting safety goggles

Skin and body protection Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	grey
Physical State	powder
Odor	odourless
Odour Threshold	No data available
pH	7.5 - 8.5 at 10 %
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Bulk density	230 - 260 kg/m3
Evaporation rate	Not applicable
Boiling Point	Not applicable
Melting / Freezing Point	Not applicable
Water solubility	dispersible
Minimum Ignition Energy	> 3 - 10 mJ MIE Cluster evaluated acc. to BTS report 2016/00141a
Decomposition temperature	No data available
Partition coefficient: n-octanol/water	No data available
Viscosity	Not applicable
Flash point	Not applicable
Auto-ignition temperature	No data available
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Explosivity	No data available

SECTION 10: STABILITY AND REACTIVITY

Reactivity	
Thermal decomposition	No data available
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.

Conditions to avoid	Exposure to moisture. Heat, flames and sparks.
Incompatible materials	No data available
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Skin contact, Eye contact, Dust inhalation, Ingestion
Immediate Effects	
Eye	Moderate eye irritation.
Skin	Harmful if absorbed through skin.
Inhalation	May cause respiratory tract irritation.

Information on toxicological effects

Acute oral toxicity	LD50 (Rat) > 5,000 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 7.4 mg/l Exposure time: 4 h Determined in the form of dust.
Acute dermal toxicity	LD50 (Rat) > 5,000 mg/kg
Skin irritation	No skin irritation (Rabbit)
Eye irritation	slight irritation (Rabbit)
Sensitisation	Non-sensitizing. (Guinea pig)

Assessment STOT Specific target organ toxicity – repeated exposure

Flutolanil did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Flutolanil was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Flutolanil was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Flutolanil did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Flutolanil did not cause developmental toxicity in rats and rabbits.

Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Biodegradability	Flutolanil: Not rapidly biodegradable
Koc	Flutolanil: Koc: 457 - 1340
Bioaccumulation	Flutolanil: Bioconcentration factor (BCF) 100 Does not bioaccumulate.
Mobility in soil	Flutolanil: Slightly mobile in soils
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift. Drift and runoff from treated areas may be hazardous to aquatic organisms in adjacent sites. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Do not contaminate water, food, or feed by disposal. Pesticide, spray mixture or rinse water that cannot be used according to label instructions may be disposed of on site or at an approved waste disposal facility.
Contaminated packaging	Completely empty container into application equipment, then dispose of empty container in a sanitary landfill, by incineration or by other procedures approved by state/provincial and local authorities. If burned, stay out of smoke. Follow advice on product label and/or leaflet.

RCRA Information Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

49CFR Not dangerous goods / not hazardous material

IMDG

UN number	**3077**
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (FLUTOLANIL MIXTURE)

IATA

UN number	**3077**
Class	9
Packaging group	III
Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (FLUTOLANIL MIXTURE)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 432-1223
US Federal Regulations
TSCA list

Dibutyl naphthalenesulfonic acid, sodium salt	25417-20-3
Fatty acid methyl tauride sodium salt	137-20-2

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
None.
SARA Title III - Section 302 - Notification and Information
None.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.
US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
None.

Canadian Regulations
Canadian Domestic Substance List
None.

Environmental
CERCLA
None.
Clean Water Section 307 Priority Pollutants
None.
Safe Drinking Water Act Maximum Contaminant Levels
None.

EPA/FIFRA Information:
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 required on the pesticide label:

Signal word:	Caution!
Hazard statements:	Moderate eye irritation. Harmful if absorbed through skin. Avoid contact with skin, eyes and clothing. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove and wash contaminated clothing before re-use.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified

NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 1 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Revised according to the current OSHA Hazard Communication Standard (29CFR1910.1200)

Revision Date: 01/25/2017

This information is provided in good faith but without express or implied warranty. The customer assumes all responsibility for safety and use not in accordance with label instructions. The product names are registered trademarks of Bayer.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name	PROXY® GROWTH REGULATOR
Product code (UVP)	05927285
SDS Number	102000004255
EPA Registration No.	432-1230

Relevant identified uses of the substance or mixture and uses advised against

Use	Growth regulator
Restrictions on use	See product label for restrictions.

Information on supplier

Supplier	Bayer Environmental Science A division of Bayer CropScience LP 5000 Centregreen Way, Suite 400 Cary, NC 27513 USA
Responsible Department	Email: SDSINFO.BCS-NA@bayer.com
Emergency telephone no.	
Emergency Telephone Number (24hr/ 7 days)	1-800-334-7577
Product Information Telephone Number	1-800-331-2867

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Serious eye damage: Category 1

Labelling in accordance with regulation HCS 29CFR §1910.1200

Signal word: Danger

Hazard statements
Causes serious eye damage.

Precautionary statements

Wear eye protection/ face protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER/doctor/ physician.

Hazards Not Otherwise Classified (HNOC)
No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Ethephon	16672-87-0	21.7

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Call a physician or poison control center immediately.

Eye contact Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.

Ingestion Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms To date no symptoms are known.

Indication of any immediate medical attention and special treatment needed

Risks Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Treatment Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

After oral ingestion of undiluted ethephon, treatment must follow the regimens for acid ingestion. In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. Contraindication: atropine.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Water spray, Carbon dioxide (CO2), Foam, Dry powder
Unsuitable	High volume water jet
Special hazards arising from the substance or mixture	Dangerous gases are evolved in the event of a fire., In the event of fire the following may be released:, Carbon monoxide (CO), Hydrogen chloride (HCl), Nitrogen oxides (NOx)

Advice for firefighters

Special protective equipment for firefighters	Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.
Further information	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point	Not relevant; aqueous solution
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions	Keep people away from and upwind of spill/leak. Avoid contact with spilled product or contaminated surfaces. When dealing with a spillage do not eat, drink or smoke. Use personal protective equipment.

Methods and materials for containment and cleaning up

Methods for cleaning up	Recover the product by pumping, suction or absorption using a dry and inert absorbent clay. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Clean floors and contaminated objects with plenty of water. Decontaminate tools and equipment following cleanup.

Additional advice	Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.
Reference to other sections	Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.
Advice on protection against fire and explosion	Keep away from heat and sources of ignition.
Hygiene measures	Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Protect from freezing.
Advice on common storage	Keep away from food, drink and animal feedingstuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Ethephon	16672-87-0	1.4 mg/m3 (TWA)		OES BCS*

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry

	recommendations.
Hand protection	Chemical-resistant gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)
Eye protection	Use tightly sealed goggles and face protection.
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks.
General protective measures	Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Form	Liquid
Colour	colourless to brown
Odour	characteristic
Odour Threshold	No data available
pH	ca. 0.8 (100 %) (23 °C) Determined in the undiluted form.
Melting point/freezing point	-5 °C / 23 °F
Boiling Point	No data available
Flash point	Not relevant; aqueous solution
Flammability	No data available
Auto-ignition temperature	No data available
Thermal decomposition	170 °C
Minimum ignition energy	No data available
Self-accelarating decomposition temperature (SADT)	No data available
Upper explosion limit	No data available
Lower explosion limit	No data available
Vapour pressure	< 0.013 hPa (25 °C)
Evaporation rate	No data available
Relative vapour density	No data available
Relative density	No data available
Density	ca. 1.11 g/cm³ (20 °C)

Water solubility	soluble
Partition coefficient: n-octanol/water	Ethephon: log Pow: -1.89
Viscosity, dynamic	No data available
Viscosity, kinematic	No data available
Oxidizing properties	No data available
Explosivity	No data available
Other information	Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Corrodes metals in the presence of water or moisture. Risk of ethylene emission in case of increasing pH. No dangerous reaction known under conditions of normal use.
Conditions to avoid	Exposure to moisture. Heat, flames and sparks.
Incompatible materials	Zinc, Iron, Copper, Strong oxidizing agents, Bases, Mild steel, Aluminium
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Skin contact, Ingestion, Inhalation
Immediate Effects	
Eye	Corrosive - causes irreversible eye damage.
Skin	Harmful if absorbed through skin.
Ingestion	Harmful if swallowed.
Inhalation	Harmful if inhaled.May cause irritation of the mucous membranes.
Information on toxicological effects	
Acute oral toxicity	LD50 (male/female combined Rat) > 5,000 mg/kg
Acute inhalation toxicity	LC50 (male/female combined Rat) 4.5 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.

	(actual) The value mentioned relates to the active ingredient.
Acute dermal toxicity	LD50 (male/female combined Rabbit) > 2,000 mg/kg
Skin corrosion/irritation	Moderate skin irritation. (Rabbit)
Serious eye damage/eye irritation	corrosive (Rabbit)
Respiratory or skin sensitisation	Skin: Non-sensitizing. (Guinea pig) The value mentioned relates to the active ingredient.

Assessment STOT Specific target organ toxicity – single exposure

Ethephon: Based on available data, the classification criteria are not met.

Assessment STOT Specific target organ toxicity – repeated exposure

Ethephon did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Ethephon was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Ethephon was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Ethephon did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Ethephon did not cause developmental toxicity in rats and rabbits.

Aspiration hazard

Based on available data, the classification criteria are not met.

Further information

Acute toxicity studies have been bridged from a similar formulation(s).
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Oncorhynchus mykiss (rainbow trout)) 720 mg/l Exposure time: 96 h The value mentioned relates to the active ingredient ethephon.
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) > 1,000 mg/l Exposure time: 48 h The value mentioned relates to the active ingredient ethephon.
Toxicity to aquatic plants	EC50 (Raphidocelis subcapitata (freshwater green alga)) 13 mg/l Exposure time: 72 h The value mentioned relates to the active ingredient ethephon.
	EC50 (Lemna gibba (gibbous duckweed)) > 1.6 mg/l Exposure time: 14 d The value mentioned relates to the active ingredient ethephon.
	EC10 (Lemna gibba (gibbous duckweed)) 0.21 mg/l The value mentioned relates to the active ingredient ethephon.
Biodegradability	Ethephon: Not rapidly biodegradable
Koc	Ethephon: Koc: 2540
Bioaccumulation	Ethephon: Does not bioaccumulate.
Mobility in soil	Ethephon: Slightly mobile in soils

Results of PBT and vPvB assessment

PBT and vPvB assessment	Ethephon: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).
Additional ecological information	No other effects to be mentioned.
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. Dispose in accordance with all local, state/provincial and federal

	regulations.
Contaminated packaging	Triple rinse containers. Puncture container to avoid re-use. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke. Follow advice on product label and/or leaflet.
RCRA Information	Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

49CFR

UN number	**3265**
Class	8
Packaging group	III
Proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (ETHEPHON)

IMDG

UN number	**3265**
Class	8
Packaging group	III
Marine pollutant	NO
Proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (ETHEPHON SOLUTION)
Segregation group according to 5.4.1.5.11.1	IMDG SEGREGATION GROUP 1 - ACIDS

IATA

UN number	**3265**
Class	8
Packaging group	III
Environm. Hazardous Mark	NO
Proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (ETHEPHON SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification: INHIBITORS, MODIFIERS OR REGULATORS, plant growth

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 432-1230
US Federal Regulations
TSCA list
Water 7732-18-5
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No export notification needs to be made.
SARA Title III - Section 302 - Notification and Information
Not applicable.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.

US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
Ethephon 16672-87-0 CT

Environmental
CERCLA
None.
Clean Water Section 307(a)(1)
None.
Safe Drinking Water Act Maximum Contaminant Levels
None.

EPA/FIFRA Information:
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 required on the pesticide label:

Signal word: Danger!

Hazard statements: Corrosive - causes irreversible eye damage.
Harmful if swallowed or absorbed through skin.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms
49CFR Code of Federal Regulations, Title 49

ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):

Health - 3	Flammability - 1	Instability - 0	Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)

Health - 3	Flammability - 0	Physical Hazard - 0	PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: The following sections have been revised: Section 2: Hazards Identification. Section 6. Accidental Release Measures. Section 7: Handling and Storage. Section 8: Exposure Controls / Personal Protection. Section 12. Ecological information. Reviewed and updated for general editorial purposes.

Revision Date: 05/28/2021

SAFETY DATA SHEET
Tebuconazole

Revision: 04/21/2018

according to Regulation (EC) No. 1907/2006 as amended by (EC) No. 1272/2008

Section 1. Identification of the Substance/Mixture and of the Company/Undertaking

1.1 Product Code: 24052

Product Name: Tebuconazole

Synonyms: .alpha.-[2-(4-chlorophenyl)ethyl]-.alpha.-(1,1-dimethylethyl)-1H-1,2,4-triazole-1-ethanol; BAY HWG-1608;

1.2 Relevant identified uses of the substance or mixture and uses advised against:

Relevant identified uses: For research use only, not for human or veterinary use.

1.3 Details of the Supplier of the Safety Data Sheet:

Company Name: Cayman Chemical Company
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108

Web site address: www.caymanchem.com

Information: Cayman Chemical Company +1 (734)971-3335

1.4 Emergency telephone number:

Emergency Contact: CHEMTREC Within USA and Canada: +1 (800)424-9300
CHEMTREC Outside USA and Canada: +1 (703)527-3887

Section 2. Hazards Identification

2.1 Classification of the Substance or Mixture:

Acute Toxicity: Oral, Category 4

Toxic To Reproduction, Category 2

Aquatic Toxicity (Acute), Category 1

Aquatic Toxicity (Chronic), Category 1

2.2 Label Elements:

GHS Signal Word: **Warning**

GHS Hazard Phrases:

H302: Harmful if swallowed.

H361: Suspected of damaging fertility or the unborn child.

H400: Very toxic to aquatic life.

H410: Very toxic to aquatic life with long lasting effects.

GHS Precaution Phrases:

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P264: Wash {hands} thoroughly after handling.

P273: Avoid release to the environment.

P280: Wear {protective gloves/protective clothing/eye protection/face protection}.

GHS Response Phrases:

P301+312: IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P308+313: IF exposed or concerned: Get medical attention/advice.

P330: Rinse mouth.

P391: Collect spillage.

GHS Storage and Disposal Phrases:

Please refer to Section 7 for Storage and Section 13 for Disposal information.

2.3 Adverse Human Health Effects and Symptoms: Harmful if swallowed.
Material may be irritating to the mucous membranes and upper respiratory tract.
May be harmful by inhalation or skin absorption.
May cause eye, skin, or respiratory system irritation.
Suspected of damaging fertility or the unborn child.
Very toxic to aquatic life with long lasting effects.
To the best of our knowledge, the toxicological properties have not been thoroughly investigated.

Section 3. Composition/Information on Ingredients

CAS # / RTECS #	Hazardous Components (Chemical Name)/ REACH Registration No.	Concentration	EC No./ EC Index No.	GHS Classification
107534-96-3 XZ4803270	1H-1,2,4-Triazole-1-ethanol, .alpha.-[2-(4-chlorophenyl)ethyl]-.alpha.-(1,1-dimethylethyl)-	100.0 %	403-640-2 603-197-00-7	Toxic Repro. 2: H361d Acute Tox.(O) 4: H302 Aquatic (A) 1: H400 Aquatic (C) 1: H410

Section 4. First Aid Measures

4.1 Description of First Aid Measures:

In Case of Inhalation: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Get immediate medical attention.

In Case of Skin Contact: Immediately wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

In Case of Eye Contact: Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Have eyes examined and tested by medical personnel.

In Case of Ingestion: Wash out mouth with water provided person is conscious. Never give anything by mouth to an unconscious person. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel.

Section 5. Fire Fighting Measures

5.1 Suitable Extinguishing Media: Use alcohol-resistant foam, carbon dioxide, water, or dry chemical spray.
Use water spray to cool fire-exposed containers.

Unsuitable Extinguishing Media: A solid water stream may be inefficient.

5.2 Flammable Properties and Hazards: No data available.

No data available.

Flash Pt: No data.

Explosive Limits: LEL: No data. UEL: No data.

Autoignition Pt: No data.

5.3 Fire Fighting Instructions: As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent), and full protective gear to prevent contact with skin and eyes.

Section 6. Accidental Release Measures

6.1 Protective Precautions, Protective Equipment and Emergency Procedures: Avoid raising and breathing dust, and provide adequate ventilation. As conditions warrant, wear a NIOSH approved self-contained breathing apparatus, or respirator, and appropriate personal protection (rubber boots, safety goggles, and heavy rubber gloves).

6.2 Environmental Precautions: Take steps to avoid release into the environment, if safe to do so.

6.3 Methods and Material For Containment and Cleaning Up: Contain spill and collect, as appropriate. Transfer to a chemical waste container for disposal in accordance with local regulations.

Section 7. Handling and Storage

7.1 Precautions To Be Taken in Handling: Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid prolonged or repeated exposure.

7.2 Precautions To Be Taken in Storing: Keep container tightly closed. Store in accordance with information listed on the product insert.

Section 8. Exposure Controls/Personal Protection

8.1 Exposure Parameters:

8.2 Exposure Controls:

8.2.1 Engineering Controls (Ventilation etc.): Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

8.2.2 Personal protection equipment:

Eye Protection: Safety glasses

Protective Gloves: Compatible chemical-resistant gloves

Other Protective Clothing: Lab coat

Respiratory Equipment (Specify Type): NIOSH approved respirator, as conditions warrant.

Work/Hygienic/Maintenance Practices: Do not take internally. Facilities storing or utilizing this material should be equipped with an eyewash and a safety shower. Wash thoroughly after handling.

No data available.

Section 9. Physical and Chemical Properties

9.1 Information on Basic Physical and Chemical Properties

Physical States:	[ ] Gas [ ] Liquid [X] Solid
Appearance and Odor:	A solid
pH:	No data.
Melting Point:	No data.
Boiling Point:	No data.
Flash Pt:	No data.
Evaporation Rate:	No data.
Flammability (solid, gas):	No data available.
Explosive Limits:	LEL: No data. UEL: No data.
Vapor Pressure (vs. Air or mm Hg):	No data.
Vapor Density (vs. Air = 1):	No data.

	Specific Gravity (Water = 1):	No data.
	Solubility in Water:	No data.
	Solubility Notes:	Soluble (slightly) in: chloroform; MeOH;
	Octanol/Water Partition Coefficient:	No data.
	Autoignition Pt:	No data.
	Decomposition Temperature:	No data.
	Viscosity:	No data.
9.2	**Other Information**	
	Percent Volatile:	No data.
	Molecular Formula & Weight:	C16H22ClN3O 307.8

Section 10. Stability and Reactivity

10.1	**Reactivity:**	No data available.
10.2	**Stability:**	Unstable [ ] Stable [X]
10.3	**Stability Note(s):**	Stable if stored in accordance with information listed on the product insert.
	Polymerization:	Will occur [ ] Will not occur [X]
10.4	**Conditions To Avoid:**	No data available.
10.5	**Incompatibility - Materials To Avoid:**	strong oxidizing agents
10.6	**Hazardous Decomposition or Byproducts:**	carbon dioxide carbon monoxide hydrogen chloride gas nitrogen oxides

Section 11. Toxicological Information

11.1	**Information on Toxicological Effects:**	The toxicological effects of this product have not been thoroughly studied. Tebuconazole - Toxicity Data: Oral LD50 (rat): 3352 mg/kg; Intraperitoneal LD50 (rat): 395 mg/kg; Oral LD50 (mouse): 1615 mg/kg;
	Chronic Toxicological Effects:	Tebuconazole - Investigated as an agricultural chemical, mutagen, and reproductive effector. Only select Registry of Toxic Effects of Chemical Substances (RTECS) data is presented here. See actual entry in RTECS for complete information. Tebuconazole RTECS Number: XZ4803270

CAS #	Hazardous Components (Chemical Name)	NTP	IARC	ACGIH	OSHA
107534-96-3	1H-1,2,4-Triazole-1-ethanol, .alpha.-[2-(4-chlorophenyl)ethyl]-.alpha.-(1,1-dimethylethyl)-	n.a.	n.a.	n.a.	n.a.

Section 12. Ecological Information

12.1	**Toxicity:**	Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.
12.2	**Persistence and Degradability:**	No data available.
12.3	**Bioaccumulative Potential:**	No data available.
12.4	**Mobility in Soil:**	No data available.
12.5	**Results of PBT and vPvB assessment:**	No data available.
12.6	**Other adverse effects:**	No data available.

Section 13. Disposal Considerations

13.1 Waste Disposal Method: Dispose in accordance with local, state, and federal regulations.

Section 14. Transport Information

14.1 LAND TRANSPORT (US DOT):

DOT Proper Shipping Name: Not dangerous goods.

DOT Hazard Class:

UN/NA Number:

14.1 LAND TRANSPORT (European ADR/RID):

ADR/RID Shipping Name: Environmentally hazardous substances, solid, n.o.s. (Tebuconazole)

UN Number: 3077 **Packing Group:** III

Hazard Class: 9 - CLASS 9

14.3 AIR TRANSPORT (ICAO/IATA):

ICAO/IATA Shipping Name: Environmentally hazardous substances, solid, n.o.s. (Tebuconazole)

UN Number: 3077 **Packing Group:** III

Hazard Class: 9 - CLASS 9 **IATA Classification:** 9

Additional Transport Information: Transport in accordance with local, state, and federal regulations.
When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

Section 15. Regulatory Information

EPA SARA (Superfund Amendments and Reauthorization Act of 1986) Lists

CAS #	Hazardous Components (Chemical Name)	S. 302 (EHS)	S. 304 RQ	S. 313 (TRI)
107534-96-3	1H-1,2,4-Triazole-1-ethanol, .alpha.-[2-(4-chlorophenyl)ethyl]-.alpha.-(1,1-dimethylethyl)-	No	No	No

CAS #	Hazardous Components (Chemical Name)	Other US EPA or State Lists
107534-96-3	1H-1,2,4-Triazole-1-ethanol, .alpha.-[2-(4-chlorophenyl)ethyl]-.alpha.-(1,1-dimethylethyl)-	CAA HAP,ODC: No; CWA NPDES: No; TSCA: No; CA PROP.65: No

Regulatory Information Statement: This SDS was prepared in accordance with 29 CFR 1910.1200 and Regulation (EC) No.1272/2008.

Section 16. Other Information

Revision Date: 04/21/2018

Additional Information About This Product: No data available.

Company Policy or Disclaimer: DISCLAIMER: This information is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.

BASF

We create chemistry

Safety Data Sheet
DRIVE XLR8 HERBICIDE

1. Identification

Product identifier used on the label

DRIVE XLR8 HERBICIDE

Recommended use of the chemical and restriction on use

Recommended use*: herbicide

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Substance number:	252437
EPA Registration number:	7969-272
Molecular formula:	C10 H5 Cl2 N O2
Chemical family:	quinoline derivative
Synonyms:	quinclorac

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	4 (oral)	Acute toxicity
Eye Dam./Irrit.	1	Serious eye damage/eye irritation
STOT RE	2	Specific target organ toxicity — repeated exposure
Aquatic Acute	3	Hazardous to the aquatic environment - acute

Aquatic Chronic	4	Hazardous to the aquatic environment - chronic

Label elements

Pictogram:

Signal Word:
Warning

Hazard Statement:

H373	May cause damage to organs through prolonged or repeated exposure.
H413	May cause long lasting harmful effects to aquatic life.

Precautionary Statements (Prevention):

P280	Wear eye/face protection.
P260	Do not breathe dust/gas/mist/vapours.
P273	Avoid release to the environment.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P330	Rinse mouth.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

Labeling of special preparations (GHS):
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 0 - 1 % dermal
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 0 - 1 % oral
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 0 - 1 % Inhalation - vapour
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 0 - 1 % Inhalation - mist

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

CAUTION:
Causes eye irritation.
HARMFUL IF SWALLOWED.
HARMFUL IF ABSORBED THROUGH SKIN.
HARMFUL IF INHALED.
Prolonged or repeated skin contact may cause sensitization or allergic reactions.
KEEP OUT OF REACH OF CHILDREN.
KEEP OUT OF REACH OF DOMESTIC ANIMALS.

Avoid contact with the skin, eyes and clothing.
Avoid inhalation of mists/vapours.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Weight %	Chemical name
84087-01-4	15.95 %	quinclorac
107-21-1	25.0 - 75.0%	ethylene glycol
124-40-3	1.0 - 5.0%	dimethylamine

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Weight %	Chemical name
84087-01-4	15.95 %	quinclorac
107-21-1	49.7 %	1,2-Ethanediol
	34.35 %	Proprietary ingredients

4. First-Aid Measures

Description of first aid measures

General advice:
Remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

If on skin:
Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

If in eyes:
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
foam, dry powder, carbon dioxide, water spray

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon monoxide, carbon dioxide, nitrogen dioxide, Hydrogen chloride, halogenated hydrocarbons, Hydrocarbons,
Traces of the substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
Evacuate area of all unnecessary personnel. Contain contaminated water/firefighting water. Do not allow to enter drains or waterways.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Take appropriate protective measures. Clear area. Shut off source of leak only under safe conditions. Extinguish sources of ignition nearby and downwind. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment.

Environmental precautions

Do not discharge into the subsoil/soil. Do not discharge into drains/surface waters/groundwater. Contain contaminated water/firefighting water.

Methods and material for containment and cleaning up

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

Precautions for safe handling

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Ensure adequate ventilation. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect contents from the effects of light. Protect against heat. Protect from air. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact

with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment.

Protection against fire and explosion:
The relevant fire protection measures should be noted. Fire extinguishers should be kept handy. Avoid all sources of ignition: heat, sparks, open flame. Sources of ignition should be kept well clear. Avoid extreme heat. Keep away from oxidizable substances. Electrical equipment should conform to national electric code. Ground all transfer equipment properly to prevent electrostatic discharge. Electrostatic discharge may cause ignition.

Conditions for safe storage, including any incompatibilities

Segregate from incompatible substances. Segregate from foods and animal feeds. Segregate from textiles and similar materials.

Further information on storage conditions: Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Protect containers from physical damage. Protect against contamination. The authority permits and storage regulations must be observed.
Protect from temperatures above: 40 °C
Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

8. Exposure Controls/Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

Components with occupational exposure limits

ethylene glycol	OSHA PEL	CLV 50 ppm 125 mg/m3 ;
	ACGIH TLV	TLV value 100 mg/m3 aerosol ; Ceiling Limit
dimethylamine	OSHA PEL	PEL 10 ppm 18 mg/m3 ;
	ACGIH TLV	TWA value 5 ppm ; STEL value 15 ppm ;

Advice on system design:
Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

Respiratory protection:
Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:
Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:
Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:
Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	characteristic	
Odour threshold:	Not determined due to potential health hazard by inhalation.	
Colour:	yellow	
pH value:	approx. 7.9 - 9.9 (1 %(m), 25 °C)	
Boiling point:	approx. 197.4 °C (1,013 hPa) Information applies to the solvent.	
Flash point:	approx. 111 °C Information applies to the solvent.	
Flammability:	not applicable	
Autoignition:	approx. 398 °C Information applies to the solvent.	
Vapour pressure:	approx. 0.123 hPa (25 °C) Information applies to the solvent.	(measured)
Density:	approx. 1.13 g/cm3 (20 °C) 9.4378 Lb/USg (68 °F)	
Vapour density:	not applicable	
Partitioning coefficient n-octanol/water (log Pow):	The statements are based on the properties of the individual components.	
Information on: quinclorac		
Partitioning coefficient n-octanol/water (log Pow):	-0.74 (20 °C) -3.74 (20 °C) 1.76 (20 °C)	(Directive 92/69/EEC, A.8) (Directive 92/69/EEC, A.8) (Directive 92/69/EEC, A.8)
Thermal decomposition:	carbon monoxide, carbon dioxide, nitrogen dioxide, Hydrogen chloride, halogenated hydrocarbons, Hydrocarbons Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released.	

Viscosity, dynamic:	approx. 10.27 mPa.s (20 °C)
Solubility in water:	dispersible
Evaporation rate:	not applicable
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:
Not an oxidizer.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
The product is chemically stable.
Hazardous polymerization will not occur. No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid
Avoid all sources of ignition: heat, sparks, open flame. Avoid prolonged storage. Avoid electro-static discharge. Avoid contamination. Avoid prolonged exposure to extreme heat. Avoid extreme temperatures.

Incompatible materials
strong oxidizing agents, strong bases, strong acids

Hazardous decomposition products

Decomposition products:
Hazardous decomposition products: No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
Possible thermal decomposition products:
carbon monoxide, carbon dioxide, nitrogen dioxide, Hydrogen chloride, halogenated hydrocarbons, Hydrocarbons
Stable at ambient temperature. If product is heated above decomposition temperature toxic vapours may be released.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity

Assessment of acute toxicity: Slightly toxic after single ingestion. Relatively nontoxic after short-term inhalation. Relatively nontoxic after short-term skin contact.

Oral
Type of value: LD50
Species: rat
Value: > 2,000 mg/kg
No mortality was observed.

Inhalation
Type of value: LC50
Species: rat
Value: > 5.2 mg/l
Exposure time: 4 h
No mortality was observed.

Dermal
Type of value: LD50
Species: rat
Value: > 5,000 mg/kg

Assessment other acute effects
Assessment of STOT single:
Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

The product has not been tested. The statement has been derived from the properties of the individual components.

Irritation / corrosion
Assessment of irritating effects: May cause slight irritation to the skin. May cause moderate but temporary irritation to the eyes.

Skin
Species: rabbit
Result: non-irritant
Method: OECD Guideline 404

Eye
Species: rabbit
May cause slight but temporary irritation to the eyes.

Sensitization
Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

modified Buehler test
Species: guinea pig
Result: Non-sensitizing.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: ethylene glycol

Assessment of repeated dose toxicity: The substance may cause damage to the kidney after repeated ingestion. The substance may cause damage to the kidney after repeated skin contact with high doses.

Information on: dimethylamine
Assessment of repeated dose toxicity: After repeated exposure the prominent effect is local irritation.

Genetic toxicity
Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components. Mutagenicity tests revealed no genotoxic potential.

Carcinogenicity
Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of various animal studies gave no indication of a carcinogenic effect.

Reproductive toxicity
Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components. The results of animal studies gave no indication of a fertility impairing effect.

Teratogenicity
Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Quinclorac
Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Information on: ethylene glycol
Assessment of teratogenicity: In animal studies the substance caused malformations when given at high doses.
However, the relevance of this result for humans is unclear.

Other Information
Misuse can be harmful to health.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further important symptoms and effects are so far not known.

12. Ecological Information

Toxicity

Toxicity to fish

Information on: Quinclorac
LC50 (96 h) > 100 mg/l, Oncorhynchus mykiss (EPA 72-1, static)
LC50 (96 h) > 100 mg/l, Lepomis macrochirus (EPA 72-1, static)

Aquatic invertebrates

Information on: Quinclorac
EC50 (48 h) > 100 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Aquatic plants

Information on: Quinclorac
EC50 (96 h) > 100 mg/l (biomass), Pseudokirchneriella subcapitata (OECD Guideline 201, static)
EC50 (96 h) > 100 mg/l (growth rate), Anabaena flos-aquae (OECD Guideline 201)

Chronic toxicity to fish

Information on: quinclorac
No observed effect concentration (38 d) 31 mg/l, Pimephales promelas
---

Chronic toxicity to aquatic invertebrates

Information on: quinclorac
No observed effect concentration (21 d) 110 mg/l, Daphnia magna
---

Assessment of terrestrial toxicity
With high probability not acutely harmful to terrestrial organisms.

Other terrestrial non-mammals

Information on: Quinclorac
LC50, Anas platyrhynchos
With high probability not acutely harmful to terrestrial organisms.
LD50 > 100 ug/bee, Apis mellifera
With high probability not acutely harmful to terrestrial organisms.

Bioaccumulative potential

Assessment bioaccumulation potential
The product has not been tested. The statement has been derived from the properties of the individual components.

Mobility in soil

Assessment transport between environmental compartments
The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: quinclorac

Following exposure to soil, the product trickles away and can - dependant on degradation - be transported to deeper soil areas with larger water loads.

Additional information

Other ecotoxicological advice:
The ecological data given are those of the active ingredient. Do not release untreated into natural waters.

13. Disposal considerations

Waste disposal of substance:
Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container disposal:
Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

RCRA:
This product is not regulated by RCRA.

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

Further information
DOT: This product is regulated if the amount in a single receptacle exceeds the Reportable Quantity (RQ). Please refer to Section 15 of this MSDS for the RQ for this product.

15. Regulatory Information

Federal Regulations

Registration status:

Crop Protection	TSCA, US	released / exempt
Chemical	TSCA, US	blocked / not listed

EPCRA 311/312 (Hazard categories): Acute; Chronic; Fire

EPCRA 313:

CAS Number	Chemical name
107-21-1	ethylene glycol
124-40-3	dimethylamine

CERCLA RQ	CAS Number	Chemical name
5000 LBS	107-21-1	ethylene glycol

CA Prop. 65:
CA PROP 65: An assessment has determined that there is no significant risk present.

Labeling requirements under FIFRA

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 workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label.

CAUTION:
Causes eye irritation.
HARMFUL IF SWALLOWED.
HARMFUL IF ABSORBED THROUGH SKIN.
HARMFUL IF INHALED.
Prolonged or repeated skin contact may cause sensitization or allergic reactions.
KEEP OUT OF REACH OF CHILDREN.
KEEP OUT OF REACH OF DOMESTIC ANIMALS.
Avoid contact with the skin, eyes and clothing.
Avoid inhalation of mists/vapours.

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2015/09/22

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF OUR TERMS AND CONDITIONS OF SALE. FURTHER, YOU EXPRESSLY UNDERSTAND AND AGREE THAT THE DESCRIPTIONS, DESIGNS, DATA, AND INFORMATION FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

SAFETY DATA SHEET

REVOLVER® HERBICIDE

Version 4.0 / USA
102000022418

Revision Date: 10/19/2021
Print Date: 10/20/2021

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name	REVOLVER® HERBICIDE
Product code (UVP)	79644205, 86252163
SDS Number	102000022418
EPA Registration No.	432-1266

Relevant identified uses of the substance or mixture and uses advised against

Use	Herbicide
Restrictions on use	See product label for restrictions.

Information on supplier

Supplier	Bayer Environmental Science A division of Bayer CropScience LP 5000 Centregreen Way, Suite 400 Cary, NC 27513 USA
Responsible Department	Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days)	1-800-334-7577
Product Information Telephone Number	1-800-331-2867

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Skin sensitisation, Aspiration hazard: Category 1
Skin irritation, Carcinogenicity: Category 2

Labelling in accordance with regulation HCS 29CFR §1910.1200

Signal word: Danger

Hazard statements
May cause an allergic skin reaction.

May be fatal if swallowed and enters airways.
Causes skin irritation.
Suspected of causing cancer.

Precautionary statements

Avoid breathing mist/ spray.
Contaminated work clothing should not be allowed out of the workplace.
Wash thoroughly after handling.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wear protective gloves/ protective clothing/ eye protection/ face protection.
IF ON SKIN: Wash with plenty of water/ soap.
If skin irritation or rash occurs: Get medical advice/ attention.
Specific treatment (see supplemental first aid instructions on this label).
IF SWALLOWED: Immediately call a POISON CENTER/doctor/ physician.
Take off immediately all contaminated clothing and wash it before reuse.
Do NOT induce vomiting.
IF exposed or concerned: Get medical advice/ attention.
Store locked up.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)

No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Foramsulfuron	173159-57-4	2.34
Hydrocarbons, C10-C13, aromatics, <1% naphthalene		34.31
Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	68953-96-8	1.8
Octan-1-ol	111-87-5	1.2
Naphthalene	91-20-3	0.35

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice
When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.

Inhalation
Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.

Skin contact
Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.

Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms	Aspiration may cause pulmonary oedema and pneumonitis.

Indication of any immediate medical attention and special treatment needed

Risks	Contains hydrocarbon solvents. May pose an aspiration pneumonia hazard.
Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Water spray, Carbon dioxide (CO2), Foam, Sand
Unsuitable	High volume water jet
Special hazards arising from the substance or mixture	In the event of fire the following may be released:, Carbon monoxide (CO), Carbon dioxide (CO2), Hydrogen cyanide (hydrocyanic acid), Nitrogen oxides (NOx), Sulphur dioxide (SO2), Dangerous gases are evolved in the event of a fire.

Advice for firefighters

Special protective equipment for firefighters	Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.
Further information	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point	128 °C / 262.4 °F
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	No data available

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions	Isolate hazard area. Keep unauthorized people away. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Clean contaminated floors and objects thoroughly, observing environmental regulations. Keep in suitable, closed containers for disposal.
Additional advice	Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal. Do not allow product to contact non-target plants.
Reference to other sections	Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Use only in area provided with appropriate exhaust ventilation. Handle and open container in a manner as to prevent spillage.
Hygiene measures	Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area. Protect from freezing.
Advice on common storage	Keep away from food, drink and animal feedingstuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Foramsulfuron	173159-57-4	10 mg/m3		OES BCS*

		(TWA)		
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene (Non-aerosol.)	64742-94-5	200 mg/m3 (TWA)	03 2014	ACGIH
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	400 mg/m3/100 ppm (REL)	2010	NIOSH
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	100 mg/m3 (REL)	2010	NIOSH
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	400 mg/m3/100 ppm (PEL)	02 2006	OSHA Z1
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	400 mg/m3/100 ppm (TWA)	1989	OSHA Z1A
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	400 mg/m3/100 ppm (TWA)	06 2008	TN OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	1,600 mg/m3/400 ppm (TWA PEL)	08 2010	US CA OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	1,350 mg/m3/300 ppm (TWA PEL)	09 2013	US CA OEL
Solvent Naphtha (petroleum), heavy aromatic, <1% naphthalene	64742-94-5	1,800 mg/m3/400 ppm (STEL)	09 2013	US CA OEL
1-Octanol	111-87-5	265 mg/m3/50 ppm (TWA)	2007	WEEL
Naphthalene	91-20-3	10 ppm (TWA)	02 2012	ACGIH
Naphthalene	91-20-3	50 mg/m3/10 ppm (REL)	2010	NIOSH
Naphthalene	91-20-3	75 mg/m3/15 ppm (STEL)	2010	NIOSH
Naphthalene	91-20-3	50 mg/m3/10 ppm (PEL)	02 2006	OSHA Z1
Naphthalene	91-20-3	75 mg/m3/15 ppm	06 2008	TN OEL

		(STEL)		
Naphthalene	91-20-3	50 mg/m3/10 ppm (TWA)	06 2008	TN OEL
Naphthalene	91-20-3	0.5 mg/m3/0.1 ppm (TWA PEL)	10 2014	US CA OEL
Naphthalene	91-20-3	10 ppm (TLV)		OES BCS*

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Biological occupational exposure limits

Components	CAS-No.	Parameters	Biological specimen	Sampling time	Conc.	Basis
Naphthalene	91-20-3	1-Naphthol, with hydrolysis + 2-Naphthol, with hydrolysis		Sampling time: End of shift.		ACGIH BEI

Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.

Hand protection Chemical-resistant gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)

Eye protection Safety glasses with side-shields

Skin and body protection Wear long-sleeved shirt and long pants and shoes plus socks.

General protective measures Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water.
Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Form Liquid

Colour beige

Odour aromatic

Odour Threshold No data available

pH 5.0 - 7.0 (10 %) (23 °C) (deionized water)

Melting point/range	No data available
Boiling Point	No data available
Flash point	128 °C / 262.4 °F
Flammability	No data available
Auto-ignition temperature	No data available
Thermal decomposition	No data available
Minimum ignition energy	No data available
Self-accelarating decomposition temperature (SADT)	No data available
Upper explosion limit	No data available
Lower explosion limit	No data available
Vapour pressure	No data available
Evaporation rate	No data available
Relative vapour density	No data available
Relative density	No data available
Density	ca. 0.96 g/cm³ (20 °C)
Water solubility	dispersible
Partition coefficient: n-octanol/water	Foramsulfuron: log Pow: 0.60
Viscosity, dynamic	25 - 100 mPa.s (20 °C) Velocity gradient 20 /s 20 - 60 mPa.s (20 °C) Velocity gradient 100 /s
Viscosity, kinematic	No data available
Oxidizing properties	No data available
Explosivity	No data available
Other information	Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under recommended storage conditions.

Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	Strong acids, Strong bases, Store only in the original container.
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Skin contact, Ingestion, Inhalation
Immediate Effects	
Eye	Causes moderate eye irritation.
Skin	Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. May cause skin irritation.

Information on toxicological effects

Acute oral toxicity	LD50 (male/female combined Mouse) > 2,000 mg/kg
Acute inhalation toxicity	LC50 (Rat) > 5.25 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
Acute dermal toxicity	LD50 (male/female combined Rat) > 2,000 mg/kg
Skin corrosion/irritation	Irritating to skin. (Rabbit)
Serious eye damage/eye irritation	slight irritation (Rabbit)
Respiratory or skin sensitisation	Skin: Sensitising (Mouse) OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment STOT Specific target organ toxicity – single exposure

Foramsulfuron: Based on available data, the classification criteria are not met.

Assessment STOT Specific target organ toxicity – repeated exposure

Foramsulfuron did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Foramsulfuron was not mutagenic or genotoxic based on the overall weight of evidence in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Foramsulfuron was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

Naphthalene	91-20-3	Group A3

NTP

Naphthalene	91-20-3	

IARC

Naphthalene	91-20-3	Overall evaluation: 2B

OSHA

None.

Assessment toxicity to reproduction

Foramsulfuron did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Foramsulfuron did not cause developmental toxicity in rats and rabbits.

Aspiration hazard

May be fatal if swallowed and enters airways.

Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) 6.9 mg/l Exposure time: 48 h
Toxicity to aquatic plants	EC50 (Raphidocelis subcapitata (freshwater green alga)) > 5 mg/l Growth rate; Exposure time: 96 h
	EC50 (Lemna gibba (gibbous duckweed)) 0.75 µg/l Growth rate; Exposure time: 7 d
Biodegradability	Foramsulfuron: Not rapidly biodegradable
Koc	Foramsulfuron: Koc: 38 - 151
Bioaccumulation	Foramsulfuron: Does not bioaccumulate.
Mobility in soil	Foramsulfuron: Mobile in soils

Results of PBT and vPvB assessment

PBT and vPvB assessment	Foramsulfuron: This substance is not considered to be persistent, bioaccumulative and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulative (vPvB).
Additional ecological	The ecological data refer to a similar formulation.

information	No other effects to be mentioned.
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift. Drift or runoff from treated areas may adversely affect non-target plants. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Dispose in accordance with all local, state/provincial and federal regulations.
Contaminated packaging	Consult state and local regulations regarding the proper disposal of container. Follow advice on product label and/or leaflet.
RCRA Information	Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply.

SECTION 14: TRANSPORT INFORMATION

49CFR

UN number	**3082**
Class	9
Packaging group	III
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (NAPHTHALENE)
RQ	Reportable Quantity is reached with 28,571 lb of product.

IMDG

UN number	**3082**
Class	9
Packaging group	III
Marine pollutant	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ALKYL (C3-C6) BENZENE SOLUTION)

IATA

UN number	**3082**
Class	9
Packaging group	III

Environm. Hazardous Mark	YES
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ALKYL (C3-C6) BENZENE SOLUTION)

This transportation information is not intended to convey all specific regulatory information relating to this product. It does not address regulatory variations due to package size or special transportation requirements.

Freight Classification:	COMPOUNDS, TREE OR WEEDKILLING, N.O.I., other than poison; HAVING A DENSITY OF GREATER THAN 20 LBS. PER CUBIC FOOT

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 432-1266
US Federal Regulations
TSCA list

Fatty acids, C16-18 and C18-unsatd., Me esters	67762-38-3
Castor oil, ethoxylated	61791-12-6
Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	68953-96-8
Octan-1-ol	111-87-5

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No export notification needs to be made.
SARA Title III - Section 302 - Notification and Information
Not applicable.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.

US States Regulatory Reporting
CA Prop65
WARNING: This product contains a chemical known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Naphthalene	91-20-3

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients

Octan-1-ol	111-87-5	CT, MN, RI

Environmental
CERCLA
None.
Clean Water Section 307(a)(1)

Yes
Naphthalene 91-20-3

Safe Drinking Water Act Maximum Contaminant Levels
Yes
Naphthalene 91-20-3

EPA/FIFRA Information:
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 required on the pesticide label:

Signal word: Caution!

Hazard statements: Causes moderate eye irritation.
Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):
Health - 2 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)
Health - 2 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: The following sections have been revised: Section 2: Hazards Identification. Section 3: Composition / Information on Ingredients. Section 4: First Aid Measures. Section 8: Exposure Controls / Personal Protection. Section 10. Stability and reactivity. Section 11: Toxicological Information. Reviewed and updated for general editorial purposes.

Revision Date: 10/19/2021

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Safety Data Sheet

Conforms to UN Globally Harmonized System and WHMIS Hazard Communication requirements

Segway™ 400SC Fungicide

SECTION 1. IDENTIFICATION	
Product Name:	Segway 400SC Fungicide
Synonyms:	Cyazofamid, IKF-916
Chemical Name:	Cyazofamid; CA: 4-chloro-2-cyano-*N,N*-dimethyl-5-(4-methylphenyl)-1H-imidazole-1-sulfonamide
Chemical Family:	Cyanoimidazole
Recommended Uses:	Turf: Fungicide
PMRA Registration No.:	32642
SDS No.:	-
Company Identification:	ISK Biosciences Corporation 7470 Auburn Road, Suite A Concord, OH 44077-9703 (440) 357-4640
24 Hour Emergency Number:	For Transportation emergency, spills, leak, fire or accident call: CHEMTREC 1-800-424-9300 For Medical emergency call: 1-888-484-7546

SECTION 2. HAZARDS IDENTIFICATION

Hazard Classification: Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

Signal Word: **WARNING**

Hazard Symbols:

Hazard Statements:
Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Precautionary Statements:
Avoid release to the environment. Collect spillage. Dispose of contents and container in accordance with the product label.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	CAS #:	% by Weight:	TLV/PEL:
Active Ingredient: Cyazofamid*	120116-88-3	34.5	Not established
Propylene glycol	57-55-6	5 - 10	Not established
*4-chloro-2-cyano-*N,N*-dimethyl-5-(4-methylphenyl)-1*H*-imidazole-1-sulfonamide (CA)			

SECTION 4. FIRST-AID MEASURES	
Skin Contact:	Take off contaminated clothing. Rinse skin immediately with plenty of soap and water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Eye Contact:	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
Ingestion:	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
Inhalation:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for treatment advice.
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	

SECTION 5. FIRE-FIGHTING MEASURES	
Extinguishing Media:	**SMALL FIRE:** Use water spray, dry chemicals, foam or carbon dioxide. **LARGE FIRE:** Use water spray, dry chemicals, foam or carbon dioxide. DO NOT use water jet.
Unusual Fire and Explosion Hazards:	May decompose under fire conditions emitting gases and vapors, which may be toxic and irritating to the respiratory tract.
Fire Fighting Instructions:	Wear full firefighting turn-out gear and self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES	
Precautionary Measures:	Use protective equipment and engineering controls identified in section 8 of this document.
Containment and Clean-Up:	Contain spill. Remove as much as possible and remove any contaminated soil. Place in closed, labeled container and store in a safe place to await proper disposal. Do not contaminate water while cleaning equipment or disposing of wastes.

SECTION 7. HANDLING AND STORAGE	
Precautions:	Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before use.
Storage:	Store in original container, in a secure, dry place separate from food and feed. Keep out of reach of children and domestic animals.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION	
The recommendations in this section for exposure controls and Personal Protection are intended for industrial settings (such as formulation or packaging facilities) or for other non-application situations. For commercial applications and/or on-farm applications of this product refer to the precautions/warnings on the product label. Always follow the label instructions when handling and applying this product.	
Exposure Limits:	Not established.
Engineering Controls:	Ensure adequate ventilation, especially in confined areas.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)

Personal Protection:

Ingestion:	Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.
Eye Contact:	Where eye contact is likely, use protective eyewear (such as chemical splash goggles).
Skin Contact:	Applicators and other handlers must wear long-sleeved shirt and long pants, socks, shoes, and chemical resistant gloves made of any waterproof material.
Inhalation:	A respirator is not normally required when handling sealed containers. Use effective engineering controls to comply with facility occupational exposure limits. In case of emergency spills, use a NIOSH approved respirator with any N, R, P or HE filter.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Appearance:	Light tan/beige liquid
Odor:	Slight odor; “musty latex paint”
pH:	6.2 (1% dilution in water)
Boiling Point:	Not determined
Melting Point:	152.7ºC (based on active ingredient)
Freezing Point:	-5ºC
Flash Point:	None observed
Evaporation Rate:	Not available
Flammability:	Non-flammable
Flammable Limits:	Not established
Vapor Pressure:	$<1 \times 10^{-7}$ mm Hg @ 25°C (1.33×10^{-5} Pascal) (based on active ingredient)
Vapor Density:	Not available
Density:	1.154 g/ml @ 25°C
Solubility:	0.107 mg/L in water @ 20°C (pH 7) (based on active ingredient)
N-Octanol/Water:	Log Pow = 3.2 (based on active ingredient)
Auto-Ignition Temperature:	503°C (937°F) using 100 µl.
Decomposition Temperature:	Not available
Volatility:	Not available

SECTION 10. STABILITY AND REACTIVITY

Reactivity:	No evidence of reactivity.
Stability:	This product is stable under normal use and storage conditions.
Possibility of Hazardous Reactions:	None known.
Conditions to Avoid:	Avoid contact with heat or open flame.
Incompatible Materials:	Active ingredient degrades with iron, aluminum, iron acetate or aluminum acetate at 54°C.
Hazardous Decomposition Products:	May decompose under fire conditions to release vapors or gases which are toxic and irritating to the respiratory tract.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	Acute oral toxicity (LD_{50}):	>5000 mg/kg [Rat].
	Acute dermal toxicity (LD_{50}):	>5000 mg/kg [Rabbit].
	Acute inhalation toxicity (LC_{50}):	>5.854 mg/L [actual airborne concentration]; >16.2 mg/L (nominal) 4 hour(s) [Rat].
Skin Irritation:	Non-irritating; Primary dermal irritation index = 0.0 [Rabbit]	
Eye Irritation:	Non-irritating; No positive effects were observed in exposed animals [Rabbit]	
Sensitization:	Not a sensitizer	
Mutagenicity:	No evidence of mutagenicity.	
Carcinogenicity:	No evidence of carcinogenicity was observed in mice exposed to the active ingredient via ingestion at doses up to 7000 ppm or in rats at doses up to 20,000 ppm	
Reproductive Toxicity:	Animal studies show no evidence of toxicity resulting from exposure to the active ingredient.	
Target Organ Effects:	Increased kidney weights and/or lesions were observed in rats ingesting at least 5000 ppm of the active ingredient daily over a period of 13 weeks.	
Aspiration:	No data available.	

SECTION 12. ECOLOGICAL INFORMATION

Summary of Effects:
As with all crop protection products, take precautions when handling and applying so as to prevent contamination of areas surrounding the application site. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash waters or rinsate.

Ecotoxicity Data (Cyazofamid):

Fish (Rainbow Trout & Bluegill) 96-hour LC_{50} > 1.4 mg/L (No effects up to the limit of solubility)

Invertebrate (*Daphnia magna*) 48-hour EC_{50} > 1.4 mg/L (No effects up to the limit of solubility)

Green Algae 96 hour EC_{50} = 0.025 mg/L

Bobwhite Quail Acute LD_{50} > 2000 mg/kg body weight (practically non-toxic)

Mallard Duck Acute LD_{50} > 2000 mg/kg body weight (practically non-toxic)

Sub-Acute Dietary Bird LD_{50} > 5000 ppm in diet for both Quail and Mallard

Bee contact > 100 ug/bee (practically non-toxic)

Persistence / Degradability:	Cyazofamid degrades rapidly in soil (maximum DT_{50} < 6 days at 20°C, DT_{90} < 40 days in aerobic soils). In a water/sediment study, cyazofamid degraded rapidly, with an average DT_{50} in the water phase of about 6.1 days and a DT_{90} for the system of 13.6 days.
Bioaccumulative Potential:	Tests with rainbow trout show that cyazofamid biodegrades extensively and demonstrates a very low potential for bioaccumulation in fish.
Mobility in Soil:	Cyazofamid and its metabolites have low mobility in soil.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal:	For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer and the provincial regulatory agency in case of a spill, and for clean-up of spills.
Container Disposal:	Triple- or pressure-rinse the empty container. Add the rinsings to the spray mixture in the tank. Follow provincial instruction for any required additional cleaning of the container prior to its disposal. Make the empty container unsuitable for further use. Dispose of the container in accordance with provincial requirements.

SECTION 14. TRANSPORT INFORMATION

US DOT Classification:	CLASS 9, Marine Pollutant. Not regulated when shipped in non-bulk packaging by highway or rail.	
	Non-bulk (Ground Transport)	**Bulk (Ground Transport)**
Proper Shipping Name:	Not regulated	Environmentally Hazardous Substance, Liquid, N.O.S. (Cyazofamid)
Hazard Class:	Not regulated	Class 9, Marine Pollutant
Identification Number:	Not regulated	UN 3082
Packing Group:	Not regulated	PG III
Hazardous Substances Reportable Quantity:	Not applicable.	
Special Provisions for Transport:	Class 9 placard not required for non-bulk packaging transported by highway or rail within the U.S. [49CFR 172.504(f)(9)].	
	IATA (Air Transport)	**IMDG (Ocean Transport)**
Proper Shipping Name:	Environmentally Hazardous Substance, Liquid, N.O.S. (Cyazofamid)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (CYAZOFAMID)
Hazard Class:	Class 9	CLASS 9, MARINE POLLUTANT
Identification Number:	UN 3082	UN 3082
Packing Group:	PG III	PG III

SECTION 15. REGULATORY INFORMATION

U.S. Federal and State Regulations:

SARA 313 Inventory Ingredients: Not Listed

SARA 312 Hazards Classification: None

Listed as carcinogen by:

IARC: Not Listed

NTP: Not Listed

OSHA: Not Listed

CA Prop 65: Not Listed

TSCA: Exempt from TSCA, subject to FIFRA.

SECTION 15. REGULATORY INFORMATION (Continued)

Canada (PMRA): Registration No. 32642, Pest Control Products Act

This chemical is a pesticide product registered by the Pest Management Regulatory Agency and is subject to certain labeling requirements under federal law. PMRA requirements can differ from GHS classification criteria and hazard information required for safety data sheets in Section 2. Following is the hazard information as required by PMRA on the pesticide label:

DO NOT take internally. Harmful if swallowed. Avoid contact with eyes. Avoid prolonged contact with skin. Wash exposed areas of skin thoroughly with soap and warm water after handling or using. Remove contaminated clothing and wash before re-use. Avoid breathing spray mist. Apply only when the potential for drift to areas of human habitation or areas of human activity such as houses, cottages, schools and recreational areas is minimal. Toxic to aquatic organisms and non-target terrestrial plants.

Canada (WHMIS): Exempt

SECTION 16. OTHER INFORMATION

NFPA Hazard Ratings		**0 Minimal**
Health:	0	**1 Slight**
Flammability:	1	**2 Moderate**
Instability:	0	**3 Serious**
		4 Extreme

Notice to Reader

All information contained in this Safety Data Sheet is furnished free of charge and is intended for your evaluation. In our opinion, the information as of the date of the Safety Data Sheet is reliable; however, it is your responsibility to determine the suitability of the information for your use. You are advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional or variable conditions or circumstances exist or because of applicable laws or government regulations. Therefore, you should use this information only as a supplement to other information gathered by you; and you must make independent determinations of the suitability and completeness of the information from all sources to assure both proper use of the material described herein and the safety and health of employees. Accordingly, no guarantee expressed or implied is made by ISK Biosciences Corporation as to the results to be obtained based upon your use of the information, nor does ISK Biosciences Corporation assume any liability arising out of your use of the information.

Prepared by: ISK Biosciences Corporation
Contact: (440) 357-4640

SAFETY DATA SHEET

BANOL® FUNGICIDE

Version 5.0 / USA
102000000806

Revision Date: 01/10/2020
Print Date: 01/13/2020

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product identifier

Trade name	BANOL® FUNGICIDE
Product code (UVP)	05933765
SDS Number	102000000806
EPA Registration No.	432-942

Relevant identified uses of the substance or mixture and uses advised against

Use	Fungicide
Restrictions on use	See product label for restrictions.

Information on supplier

Supplier	Bayer Environmental Science A division of Bayer CropScience LP 500 Centregreen Way, Suite 400 Cary, NC 27513 USA
Responsible Department	Email: SDSINFO.BCS-NA@bayer.com

Emergency telephone no.

Emergency Telephone Number (24hr/ 7 days)	1-800-334-7577
Product Information Telephone Number	1-800-331-2867

SECTION 2: HAZARDS IDENTIFICATION

Classification in accordance with regulation HCS 29CFR §1910.1200
Skin sensitisation: Category 1
Acute toxicity(Oral): Category 4

Labelling in accordance with regulation HCS 29CFR §1910.1200

Signal word: Warning

Hazard statements
May cause an allergic skin reaction.

Harmful if swallowed.

Precautionary statements
Avoid breathing mist/ spray.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
IF ON SKIN: Wash with plenty of water/ soap.
If skin irritation or rash occurs: Get medical advice/ attention.
Specific treatment (see supplemental first aid instructions on this label).
Wash contaminated clothing before reuse.
IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.
Rinse mouth.
Dispose of contents/container in accordance with local regulation.

Hazards Not Otherwise Classified (HNOC)
No physical hazards not otherwise classified.
No health hazards not otherwise classified.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Component Name	CAS-No.	Concentration % by weight
Propamocarb hydrochloride	25606-41-1	66.5

SECTION 4: FIRST AID MEASURES

Description of first aid measures

General advice	When possible, have the product container or label with you when calling a poison control center or doctor or going for treatment.
Inhalation	Move to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a physician or poison control center immediately.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Eye contact	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse out mouth and give water in small sips to drink. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person. Do not leave victim unattended.

Most important symptoms and effects, both acute and delayed

Symptoms	The following symptoms may occur:, Lethargy, Ataxia, Spasm

Indication of any immediate medical attention and special treatment needed

Risks	This product, although being a carbamate, is NOT a cholinesterase inhibitor.
Treatment	Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended. There is no specific antidote. Contraindication: atropine.

SECTION 5: FIREFIGHTING MEASURES

Extinguishing media

Suitable	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable	High volume water jet
Special hazards arising from the substance or mixture	Dangerous gases are evolved in the event of a fire., In the event of fire the following may be released:, Carbon monoxide (CO), Hydrogen chloride (HCl), Nitrogen oxides (NOx)

Advice for firefighters

Special protective equipment for firefighters	Firefighters should wear NIOSH approved self-contained breathing apparatus and full protective clothing.
Further information	Keep out of smoke. Fight fire from upwind position. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses.
Flash point	> 100 °C No flash point - Determination conducted up to the boiling point.
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Precautions	Keep unauthorized people away. Isolate hazard area. Avoid contact with spilled product or contaminated surfaces.

Methods and materials for containment and cleaning up

Methods for cleaning up	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Collect and transfer the product into a properly labelled and tightly closed container. Clean contaminated floors and objects thoroughly, observing environmental regulations. Contaminated soil may have to be removed and disposed.
Additional advice	Use personal protective equipment. If the product is accidentally spilled, do not allow to enter soil, waterways or waste water canal.
Reference to other sections	Information regarding safe handling, see section 7. Information regarding personal protective equipment, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling	Handle and open container in a manner as to prevent spillage. Use only in area provided with appropriate exhaust ventilation.
Hygiene measures	Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, using the toilet or applying cosmetics. Remove Personal Protective Equipment (PPE) immediately after handling this product. Before removing gloves clean them with soap and water. Remove soiled clothing immediately and clean thoroughly before using again. Wash thoroughly and put on clean clothing.

Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	Store in a cool, dry place and in such a manner as to prevent cross contamination with other crop protection products, fertilizers, food, and feed. Store in original container and out of the reach of children, preferably in a locked storage area.
Advice on common storage	Keep away from food, drink and animal feedingstuffs.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components	CAS-No.	Control parameters	Update	Basis
Propamocarb hydrochloride	25606-41-1	1.1 mg/m3		OES BCS*

		(TWA)		

*OES BCS: Internal Bayer AG, Crop Science Division "Occupational Exposure Standard"

Exposure controls

Personal protective equipment
In normal use and handling conditions please refer to the label and/or leaflet. In all other cases the following recommendations would apply.

Respiratory protection	When respirators are required, select NIOSH approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industry recommendations.
Hand protection	Chemical-resistant gloves (barrier laminate, butyl rubber, nitrile rubber or Viton)
Eye protection	Tightly fitting safety goggles
Skin and body protection	Wear long-sleeved shirt and long pants and shoes plus socks.
General protective measures	Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and warm/tepid water. Keep and wash PPE separately from other laundry.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	colourless to light yellow
Physical State	Liquid
Odor	slightly perceptible
Odour Threshold	No data available
pH	2.0 - 4.0 (100 %) (23 °C)
Viscosity, kinematic	No data available
Vapor Pressure	No data available
Vapor Density (Air = 1)	No data available
Density	ca. 1.09 g/cm³ (20 °C)
Evaporation rate	No data available
Boiling Point	ca. 100 °C / 212 °F
Melting / Freezing Point	No data available
Water solubility	completely miscible
Minimum Ignition Energy	Not applicable
Decomposition temperature	Not applicable
Self-accelarating	No data available

decomposition temperature (SADT)	
Partition coefficient: n-octanol/water	No data available
Viscosity	34.23 mPa.s (20 °C)
Flammability	No data available
Flash point	> 100 °C No flash point - Determination conducted up to the boiling point.
Auto-ignition temperature	No data available
Lower explosion limit	No data available
Upper explosion limit	No data available
Explosivity	Not applicable
Particle size	No data available
Other information	Further safety related physical-chemical data are not known.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	
Thermal decomposition	Not applicable
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	No hazardous reactions when stored and handled according to prescribed instructions.
Conditions to avoid	Extremes of temperature and direct sunlight.
Incompatible materials	No data available
Hazardous decomposition products	No decomposition products expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Exposure routes	Eye contact, Ingestion, Skin Absorption, Inhalation
Immediate Effects	
Eye	May cause eye irritation.
Skin	Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Harmful if absorbed through skin.
Ingestion	May be harmful if swallowed.

Information on toxicological effects

Acute oral toxicity	LD50 (male Rat) 2,900 mg/kg LD50 (female Rat) 2,000 mg/kg
Acute inhalation toxicity	LC50 (male/female combined Rat) > 7.9 mg/l Exposure time: 4 h Determined in the form of liquid aerosol.
Acute dermal toxicity	LD50 (male/female combined Rat) > 3,000 mg/kg
Skin corrosion/irritation	slight irritation (Rabbit)
Serious eye damage/eye irritation	Mild eye irritation. (Rabbit)
Respiratory or skin sensitisation	Skin: Sensitising (Mouse) OECD Test Guideline 429, local lymph node assay (LLNA)

Assessment STOT Specific target organ toxicity – single exposure

Propamocarb hydrochloride: Based on available data, the classification criteria are not met.

Assessment STOT Specific target organ toxicity – repeated exposure

Propamocarb hydrochloride did not cause specific target organ toxicity in experimental animal studies.

Assessment mutagenicity

Propamocarb hydrochloride was not mutagenic or genotoxic in a battery of in vitro and in vivo tests.

Assessment carcinogenicity

Propamocarb hydrochloride was not carcinogenic in lifetime feeding studies in rats and mice.

ACGIH

None.

NTP

None.

IARC

None.

OSHA

None.

Assessment toxicity to reproduction

Propamocarb hydrochloride did not cause reproductive toxicity in a two-generation study in rats.

Assessment developmental toxicity

Propamocarb hydrochloride caused developmental toxicity only at dose levels toxic to the dams. The developmental effects seen with Propamocarb hydrochloride are related to maternal toxicity.

Aspiration hazard

Based on available data, the classification criteria are not met.

Further information

Only acute toxicity studies have been performed on the formulated product.
The non-acute information pertains to the active ingredient(s).

SECTION 12: ECOLOGICAL INFORMATION

Toxicity to fish	LC50 (Lepomis macrochirus (Bluegill sunfish)) > 92 mg/l static test; Exposure time: 96 h The value mentioned relates to the active ingredient propamocarb-hydrochloride.
Chronic toxicity to fish	Oncorhynchus mykiss (rainbow trout) NOEC: > 100 mg/l Exposure time: 21 d
Toxicity to aquatic invertebrates	EC50 (Daphnia magna (Water flea)) > 106 mg/l static test; Exposure time: 48 h The value mentioned relates to the active ingredient propamocarb-hydrochloride.
Toxicity to aquatic plants	IC50 (Raphidocelis subcapitata (freshwater green alga)) > 85 mg/l Exposure time: 72 h The value mentioned relates to the active ingredient propamocarb-hydrochloride.
Biodegradability	Propamocarb hydrochloride: rapidly biodegradable
Koc	Propamocarb hydrochloride: Koc: 719
Bioaccumulation	Propamocarb hydrochloride: Does not bioaccumulate.
Mobility in soil	Propamocarb hydrochloride: Slightly mobile in soils
Additional ecological information	No other effects to be mentioned.
Environmental precautions	Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment wash water. Do not apply when weather conditions favor runoff or drift. Apply this product as specified on the label.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods

Product	Do not contaminate water, food, or feed by disposal. Dispose in accordance with all local, state/provincial and federal

	regulations. Follow container label instructions for disposal of wastes generated during use in compliance with the product label.
Contaminated packaging	Do not re-use empty containers. Triple rinse containers. Puncture container to avoid re-use. Dispose of empty container in a sanitary landfill or by incineration, or, if allowed by State/Provincial and local authorities, by burning. If burned, stay out of smoke. Follow advice on product label and/or leaflet.
RCRA Information	Characterization and proper disposal of this material as a special or hazardous waste is dependent upon Federal, State and local laws and are the user's responsibility. RCRA classification may apply. When and if this material is determined to be a waste, if discarded, this material will carry RCRA waste code(s) **D002**. State and local laws may vary and must be considered.

SECTION 14: TRANSPORT INFORMATION

According to national and international transport regulations this material is not classified as dangerous goods / hazardous material.

Freight Classification: INSECTICIDES OR FUNGICIDES, N.O.I., OTHER THAN POISON

SECTION 15: REGULATORY INFORMATION

EPA Registration No. 432-942
US Federal Regulations
TSCA list
Water 7732-18-5
US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)
No export notification needs to be made.
SARA Title III - Section 302 - Notification and Information
Not applicable.
SARA Title III - Section 313 - Toxic Chemical Release Reporting
None.

US States Regulatory Reporting
CA Prop65
This product does not contain any substances known to the State of California to cause cancer.

This product does not contain any substances known to the State of California to cause reproductive harm.

US State Right-To-Know Ingredients
None.

None.

EPA/FIFRA Information:
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 required on the pesticide label:

Signal word:	Caution!
Hazard statements:	Harmful if swallowed or absorbed through skin. Moderate eye irritation. Avoid contact with skin, eyes and clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

SECTION 16: OTHER INFORMATION

Abbreviations and acronyms

49CFR	Code of Federal Regulations, Title 49
ACGIH	US. ACGIH Threshold Limit Values
ATE	Acute toxicity estimate
CAS-Nr.	Chemical Abstracts Service number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EINECS	European inventory of existing commercial substances
ELINCS	European list of notified chemical substances
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
N.O.S.	Not otherwise specified
NTP	US. National Toxicology Program (NTP) Report on Carcinogens
OECD	Organization for Economic Co-operation and Development
TDG	Transportation of Dangerous Goods
TWA	Time weighted average
UN	United Nations
WHO	World health organisation

NFPA 704 (National Fire Protection Association):
Health - 1 Flammability - 1 Instability - 0 Others - none

HMIS (Hazardous Materials Identification System, based on the Third Edition Ratings Guide)
Health - 1 Flammability - 1 Physical Hazard - 0 PPE -

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

Reason for Revision: Reviewed and updated for general editorial purposes.

Revision Date: 01/10/2020

BASF
We create chemistry

Safety Data Sheet
Lexicon Intrinsic Brand Fungicide

1. Identification

Product identifier used on the label

Lexicon Intrinsic Brand Fungicide

Recommended use of the chemical and restriction on use

Recommended use*: crop protection product, fungicide
Recommended use*: fungicide

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Substance number:	619007
EPA Registration number:	7969-350
Synonyms:	Pyraclostrobin + Fluxapyroxad

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Eye Dam./Irrit.	1	Serious eye damage/eye irritation
Carc.	2	Carcinogenicity
Skin Corr./Irrit.	2	Skin corrosion/irritation
Acute Tox.	4 (Inhalation - mist)	Acute toxicity
Acute Tox.	4 (oral)	Acute toxicity

Repr.	Add. cat. lact.	Reproductive toxicity
STOT SE	3 (irritating to respiratory system)	Specific target organ toxicity — single exposure
Aquatic Acute	1	Hazardous to the aquatic environment - acute
Aquatic Chronic	1	Hazardous to the aquatic environment - chronic

Label elements

Pictogram:

Signal Word:
Danger

Hazard Statement:

H318	Causes serious eye damage.
H315	Causes skin irritation.
H362	May cause harm to breast-fed children.
H335	May cause respiratory irritation.
H351	Suspected of causing cancer.
H302 + H332	Harmful if swallowed or if inhaled
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary Statements (Prevention):

P280	Wear protective gloves, protective clothing and eye protection or face protection.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P201	Obtain special instructions before use.
P260	Do not breathe dust/mist/vapours.
P202	Do not handle until all safety precautions have been read and understood.
P270	Do not eat, drink or smoke when using this product.
P264	Wash contaminated body parts thoroughly after handling.
P263	Avoid contact during pregnancy and while nursing.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P352	IF ON SKIN (or hair): Wash with plenty of soap and water.
P330	Rinse mouth.
P391	Collect spillage.
P362 + P364	Take off contaminated clothing and wash it before reuse.

Precautionary Statements (Storage):

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.

Precautionary Statements (Disposal):

P501	Dispose of contents and container to hazardous or special waste collection point.

Hazards not otherwise classified

Labeling of special preparations (GHS):
May produce an allergic reaction. Contains: 1,2-benzisothiazol-3(2H)-one, 2-Methyl-4-Isothiazolin-3-one
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 5 % dermal
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 10 % Inhalation - vapour
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 10 % Inhalation - mist
Product contains the following components and may cause an allergic skin reaction: Acticide MBS

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Pyraclostrobin
CAS Number: 175013-18-0
Content (W/W): 28.58 %
Synonym: No data available.

Fluxapyroxad
CAS Number: 907204-31-3
Content (W/W): 14.33 %
Synonym: No data available.

4. First-Aid Measures

Description of first aid measures

General advice:
First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

If on skin:
Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

If in eyes:
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11., (Further) symptoms and / or effects are not known so far

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, carbon dioxide, foam, dry powder

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon monoxide, carbon dioxide, nitrogen oxides, chlorides, organochloric compounds, halogenated hydrocarbons
The substances/groups of substances mentioned can be released in case of fire.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
In case of fire and/or explosion do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing. Avoid contact with the skin, eyes and clothing. Do not breathe vapour/spray.

Environmental precautions

Contain contaminated water/firefighting water.

Methods and material for containment and cleaning up

Dike spillage. Pick up with suitable absorbent material. Place into suitable containers for reuse or disposal in a licensed facility. Spilled substance/product should be recovered and applied according to label rates whenever possible. If application of spilled substance/product is not possible, then spills should be contained, solidified, and placed in suitable containers for disposal. After decontamination, spill area can be washed with water. Collect wash water for approved disposal.

7. Handling and Storage

Precautions for safe handling

RECOMMENDATIONS ARE FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS. PESTICIDE APPLICATORS & WORKERS must refer to the Product Label and Directions for Use attached to the product for Agricultural Use Requirements in accordance with the EPA Worker Protection Standard 40 CFR part 170. Provide good ventilation of working area (local exhaust ventilation if necessary). Keep away from sources of ignition - No smoking. Keep container tightly sealed. Protect against heat. Handle and open container with care. Do not open until ready to use. Once container is opened, content should be used as soon as possible. Avoid aerosol formation. Avoid dust formation. Provide means for controlling leaks and spills. Do not return residues to the storage containers. Follow label warnings even after container is emptied. The substance/ product may be handled only by appropriately trained personnel. Avoid all direct contact with the substance/product. Avoid contact with the skin, eyes and clothing. Avoid inhalation of dusts/mists/vapours. Wear suitable personal protective clothing and equipment.

Protection against fire and explosion:
No special precautions necessary. The substance/product is non-combustible. Product is not explosive.

Conditions for safe storage, including any incompatibilities
Segregate from foods and animal feeds.

Further information on storage conditions: Keep away from heat. Protect from direct sunlight.
Protect from temperatures below: 0 °C
The product can crystallize below the limit temperature.
Protect from temperatures above: 40 °C
Changes in the properties of the product may occur if substance/product is stored above indicated temperature for extended periods of time.

8. Exposure Controls/Personal Protection

Users of a pesticidal product should refer to the product label for personal protective equipment requirements.

No occupational exposure limits known.

Advice on system design:
Whenever possible, engineering controls should be used to minimize the need for personal protective equipment.

Personal protective equipment

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

Respiratory protection:
Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) organic vapour/particulate respirator. For situations where the airborne concentrations may exceed the level for which an air purifying respirator is effective, or where the levels are unknown or Immediately Dangerous to Life or Health (IDLH), use NIOSH-certified full facepiece pressure demand self-contained breathing apparatus (SCBA) or a full facepiece pressure demand supplied-air respirator (SAR) with escape provisions.

Hand protection:
Chemical resistant protective gloves, Protective glove selection must be based on the user's assessment of the workplace hazards.

Eye protection:
Safety glasses with side-shields. Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

Body protection:
Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical-protection suit.

General safety and hygiene measures:
Wear long sleeved work shirt and long work pants in addition to other stated personal protective equipment. Work place should be equipped with a shower and an eye wash. Handle in accordance with good industrial hygiene and safety practice. Personal protective equipment should be decontaminated prior to reuse. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks). Take off immediately all contaminated clothing. Store work clothing separately. Hands and/or face should be washed before breaks and at the end of the shift. No eating, drinking, smoking or tobacco use at the place of work. Keep away from food, drink and animal feeding stuffs.

9. Physical and Chemical Properties

Form:	liquid	
Odour:	faint odour, fruity	
Odour threshold:	Not determined due to potential health hazard by inhalation.	
Colour:	off-white	
pH value:	approx. 6 - 8 (20 °C) (measured with the undiluted substance)	(pH Meter)
Boiling point:	approx. 100 °C	(measured)
Flash point:	No flash point - Measurement made up to the boiling point.	
Flammability:	not applicable	
Autoignition:	535 °C	(Directive 92/69/EEC, A.15)
SADT:	> 75 °C Heat accumulation / Dewar 500 ml (SADT, UN-Test H.4, 28.4.4)	
Density:	approx. 1.16 g/cm3 (20 °C) approx. 9.6807 Lb/USg (68 °F)	(OECD Guideline 109)
Vapour density:	not applicable	
Partitioning coefficient n-octanol/water (log Pow):	not applicable	
Thermal decomposition:	95 °C, 20 kJ/kg (DSC (OECD 113)) 165 °C, 140 kJ/kg (DSC (OECD 113)) 270 °C, 590 kJ/kg (DSC (OECD 113)) Not a substance liable to self-decomposition according to UN transport regulations, class 4.1.	
Viscosity, dynamic:	39 mPa.s (40 °C)	(OECD 114)
Solubility in water:	dispersible	
Evaporation rate:	not applicable	
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Oxidizing properties:
not fire-propagating (Directive 2004/73/EC, A.21)

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
No hazardous reactions if stored and handled as prescribed/indicated.

Conditions to avoid
Avoid all sources of ignition: heat, sparks, open flame. Avoid extreme temperatures. Avoid contamination. Avoid electro-static discharge. Avoid prolonged storage.

Incompatible materials
strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products

Decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated., Prolonged thermal loading can result in products of degradation being given off.

Thermal decomposition:
95 °C, 2.5 K/min (DSC (OECD 113))

165 °C, 2.5 K/min (DSC (OECD 113))

270 °C, 2.5 K/min (DSC (OECD 113))
Not a substance liable to self-decomposition according to UN transport regulations, class 4.1.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: Slightly toxic after single ingestion. Relatively nontoxic after short-term inhalation. Relatively nontoxic after short-term skin contact.

Oral
Type of value: LD50
Species: rat (female)
Value: > 500 - < 2,000 mg/kg (OECD Guideline 423)

Inhalation
Type of value: LC50

Species: rat (male)
Value: > 6.11 mg/l (OECD Guideline 403)
Exposure time: 4 h
An aerosol with respirable particles was tested.

Dermal
Type of value: LD50
Species: rat (male/female)
Value: > 5,000 mg/kg (OECD Guideline 402)
No mortality was observed.

Irritation / corrosion
Assessment of irritating effects: May cause slight but temporary irritation to the eyes. May cause moderate irritation to the skin.

Skin
Species: rabbit
Result: non-irritant
Method: OECD Guideline 404

Eye
Species: rabbit
Result: non-irritant
Method: OECD Guideline 405

Sensitization
Assessment of sensitization: Skin sensitizing effects were not observed in animal studies.

Buehler test
Species: guinea pig
Result: Skin sensitizing effects were not observed in animal studies.
Method: OECD Guideline 406

Aspiration Hazard
No aspiration hazard expected. The product has not been tested. The statement has been derived from the properties of the individual components.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: pyraclostrobin
Assessment of repeated dose toxicity: After repeated exposure the prominent effect is local irritation. The substance may cause damage to the olfactory epithelium after repeated inhalation.

Information on: Fluxapyroxad
Assessment of repeated dose toxicity: Adaptive effects were observed after repeated exposure in animal studies.

Genetic toxicity
Assessment of mutagenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Carcinogenicity

Assessment of carcinogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Fluxapyroxad
Assessment of carcinogenicity: Indication of possible carcinogenic effect in animal tests.

Information on: Pyraclostrobin
Assessment of carcinogenicity: In long-term studies in rats and mice in which the substance was given by feed, a carcinogenic effect was not observed.

Reproductive toxicity
Assessment of reproduction toxicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Information on: Fluxapyroxad
Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect. May cause harm to children via breast-feeding.

Teratogenicity
Assessment of teratogenicity: The product has not been tested. The statement has been derived from the properties of the individual components.

Other Information
Misuse can be harmful to health.

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Very toxic (acute effect) to aquatic invertebrates. Very toxic (acute effect) to fish. Acutely toxic for aquatic plants.

Aquatic plants
EC50 (72 h) 2.8 mg/l (growth rate), Pseudokirchneriella subcapitata (OECD Guideline 201, static)

Toxicity to fish

Information on: pyraclostrobin
LC50 (96 h) > 0.0121 - < 0.0258 mg/l, Cyprinus carpio
LC50 (96 h) > 0.0196 - < 0.0335 mg/l, Lepomis macrochirus
LC50 (96 h) 0.00616 mg/l, Oncorhynchus mykiss

Information on: Fluxapyroxad
LC50 (96 h) 0.29 mg/l, Cyprinus carpio (Fish test acute, semistatic)
LC50 (96 h) 0.546 mg/l, Oncorhynchus mykiss (OECD Guideline 203, static)
LC50 (96 h) 1.15 mg/l, Lepomis macrochirus (OECD Guideline 203, static)
LC50 (96 h) 0.466 mg/l, Pimephales promelas (OECD Guideline 203, static)

Aquatic invertebrates

Information on: pyraclostrobin
EC50 (48 h) 0.0157 mg/l, Daphnia magna

Information on: Fluxapyroxad
EC50 (48 h) 6.78 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Chronic toxicity to fish

Information on: Fluxapyroxad
No observed effect concentration (33 d) 0.0359 mg/l, Pimephales promelas (OECD Guideline 210, Flow through.)

Information on: pyraclostrobin
No observed effect concentration (98 d) approx. 0.00235 mg/l, Oncorhynchus mykiss (OECD Guideline 210, Flow through.)

Chronic toxicity to aquatic invertebrates

Information on: Fluxapyroxad
No observed effect concentration (21 d) 0.5 mg/l, Daphnia magna (OECD Guideline 211, semistatic)

Information on: pyraclostrobin
No observed effect concentration (21 d) 0.004 mg/l, Daphnia magna (OECD Guideline 202, part 2, semistatic)
The details of the toxic effect relate to the nominal concentration.
No observed effect concentration (28 d) 0.00128 mg/l, Mysidopsis bahia (OPP 72-4 (EPA-Guideline), Flow through.)
The statement of the toxic effect relates to the analytically determined concentration.

Mobility in soil

Assessment transport between environmental compartments
The product has not been tested. The statement has been derived from the properties of the individual components.

Additional information

Other ecotoxicological advice:
Do not discharge product into the environment without control.

13. Disposal considerations

Waste disposal of substance:
Pesticide wastes are regulated. Improper disposal of excess pesticide, spray mix or rinsate is a violation of federal law. If pesticide wastes cannot be disposed of according to label instructions, contact the State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Container disposal:
Rinse thoroughly at least three times (triple rinse) in accordance with EPA recommendations. Consult state or local disposal authorities for approved alternative procedures such as container recycling. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Hazard class:	9
Packing group:	III
ID number:	UN 3082
Hazard label:	9, EHSM
Marine pollutant:	YES
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PYRACLOSTROBIN, FLUXAPYROXAD)

Air transport
IATA/ICAO

Hazard class:	9
Packing group:	III
ID number:	UN 3082
Hazard label:	9, EHSM
Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains PYRACLOSTROBIN, FLUXAPYROXAD)

Further information
The following provisions may apply for product in packages containing a net quantity of 5 L or less
ADR, RID, ADN: Special Provision 375;
IMDG: 2.10.2.7;
IATA: A197;
TDG: Special Provision 99(2);
49CFR: §171.4 (c) (2).

15. Regulatory Information

Federal Regulations

Registration status:

Crop Protection	TSCA, US	released / exempt
Chemical	TSCA, US	blocked / not listed

EPCRA 311/312 (Hazard categories): Refer to SDS section 2 for GHS hazard classes applicable for this product.

State regulations

State RTK	CAS Number	Chemical name
PA	57-55-6	Propylene glycol
	108-88-3	Toluene

MA	108-88-3	Toluene
NJ	57-55-6	Propylene glycol
	108-88-3	Toluene

Safe Drinking Water & Toxic Enforcement Act, CA Prop. 65:

BASF Risk Assessment, CA Prop. 65:

Based on an evaluation of the product's composition and the use(s), this product does not require a California Proposition 65 Warning.

NFPA Hazard codes:
Health: 1 Fire: 1 Reactivity: 0 Special:

Labeling requirements under FIFRA

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 workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label.

CAUTION:
KEEP OUT OF REACH OF CHILDREN.
HARMFUL IF SWALLOWED.
Avoid contact with the skin, eyes and clothing.

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2020/01/02

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

FURNISHED BY OUR COMPANY HEREUNDER ARE GIVEN GRATIS AND WE ASSUME NO OBLIGATION OR LIABILITY FOR THE DESCRIPTION, DESIGNS, DATA AND INFORMATION GIVEN OR RESULTS OBTAINED, ALL SUCH BEING GIVEN AND ACCEPTED AT YOUR RISK.
END OF DATA SHEET

ASCERNITY

Date: 4/18/2016
Replaces: N\A

1. PRODUCT IDENTIFICATION

Product identifier on label: **ASCERNITY**
Product No.: A19188B
Use: Fungicide
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
Inhalation: Category 4
Eye Damage/Irritation: Category 2A
Flammable Liquid: Category 4

Signal Word (OSHA): Warning

Hazard Statements:
Combustible liquid
Harmful if swallowed
Causes serious eye irritation
Harmful if inhaled

Hazard Symbols:

Precautionary Statements:
Keep away from heat, sparks, open flames, hot surfaces. No smoking.
Avoid breathing mist, vapors, spray.
Wash hands and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves, protective clothing, eye protection.
If swallowed: Call a poison center, doctor or Syngenta if you feel unwell. Rinse mouth.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Call a poison center, doctor or Syngenta if you feel unwell.
If eye irritation persists: Get medical advice.

ASCERNITY

Date: 4/18/2016
Replaces: N\A

In case of fire: Use dry chemical, foam or CO2 for extinction.

Store in a well-ventilated place. Keep cool.

Dispose of contents and container in accordance with local regulations.

Other Hazard Statements: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Common Name	CAS Number	Concentration
Butyl Alpha-Hydroxypropionate	Butyl Lactate	138-22-7	Trade Secret
Other ingredients	Other ingredients	Trade Secret	<90.28%
1H-1,2,4-Triazole, 1-[[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl]methyl]-	Difenoconazole	119446-68-3	7.48%
N-[9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide	Benzovindiflupyr	1072957-71-1	2.24%

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:

Eye irritation

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 CO2 extinguishing media. If water is used to fight fire, dike and collect runoff.

Specific Hazards:

Combustible liquid. Can release vapors that form explosive mixtures at temperatures at or above the flash point. Heavy vapors can flow along surfaces to distant ignition sources and flash back.

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.

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
Butyl Lactate	Not Established	5 ppm TWA	5 ppm TWA	NIOSH
Other ingredients	Not Established	Not Established	Not Established	Not Applicable
Difenoconazole	Not Established	Not Established	5 mg/m³ TWA	Manufacturer
Benzovindiflupyr	Not Established	Not Established	1 mg/m³ TWA	Syngenta

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 chemical splash goggles. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

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.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Transparent light brown liquid

Odor: Aromatic

Odor Threshold: Not Available

pH: 4.2 (1% solution in deionized H2O @ 77°F [25°C])

Melting point/freezing point: Not Available

Initial boiling point and boiling range: Not Available

Flash Point (Test Method): ~ 177°F (Pensky-Martens CC)

Flammable Limits (% in Air): Not Available

Flammability: Combustible liquid

Vapor Pressure: Benzovindiflupyr Not Available

Difenoconazole 2.5 x 10(-10) mmHg @ 77°F (25°C)

Vapor Density: Not Available

Relative Density: 1.055 g/cm³ ; 8.804 lbs/gal @ 68°F (20°C)

Solubility (ies): Benzovindiflupyr Not Available

Difenoconazole 15 mg/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.

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Replaces: N\A

Conditions to Avoid: None known.

Incompatible materials: None known.

Hazardous Decomposition Products: Not Available

11. TOXICOLOGICAL INFORMATION

Health effects information

Likely routes of exposure: Dermal, Inhalation

Symptoms of exposure: Eye irritation

Delayed, immediate and chronic effects of exposure: Eye irritation

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

Ingestion:	Oral (LD50 Rat) :	1030 mg/kg body weight
Dermal:	Dermal (LD50 Rat) :	> 5000 mg/kg body weight
Inhalation:	Inhalation (LC50 Rat) :	> 2.60 mg/l air - 4 hours
Eye Contact:	Moderately Irritating (Rabbit)	
Skin Contact:	Non-Irritating (Rabbit)	
Skin Sensitization:	Not a Sensitizer (Guinea Pig)	

Reproductive/Developmental Effects

Benzovindiflupyr: Did not show reproductive toxicity effects in animal experiments.

Difenoconazole: None observed.

Chronic/Subchronic Toxicity Studies

Benzovindiflupyr: The substance or mixture is not classified as specific target organ toxicant, single exposure.

Difenoconazole: Kidney and liver effects at high doses (>5000 ppm; rats); Eye effects in dogs at high dose levels.

Carcinogenicity

Benzovindiflupyr: Animal testing did not show any mutagenic effects.
Studies in rodents have shown no treatment-related tumor findings of relevance to human health.

Difenoconazole: Did not show carcinogenic effects in animal experiments.

Chemical Name	NTP/IARC/OSHA Carcinogen
Butyl Alpha-Hydroxypropionate	No
Other ingredients	No
1H-1,2,4-Triazole, 1-[[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl]methyl]-	No
N-[9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide	No

Other Toxicity Information

None

Toxicity of Other Components

Butyl Lactate

May cause irritation of the eyes, digestive tract and the mucous membranes.

Other ingredients

Not Established

Target Organs

Active Ingredients

Benzovindiflupyr:	Not Applicable
Difenoconazole:	Brain, liver, kidney, gastrointestinal tract

Inert Ingredients

Butyl Lactate:	Eye, digestive tract, mucous membranes
Other ingredients:	Not Established

12. ECOLOGICAL INFORMATION

Eco-Acute Toxicity

Difenoconazole:

Fish (Rainbow Trout) 96-hour LC50 1.1 mg/l

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 0.77 mg/l

Green Algae 72-hour EbC50 0.032 mg/

Benzovindiflupyr:

Invertebrate (Water Flea) Daphnia Magna 48-hour EC50 0.085 mg/l

Fish (Carp) 96-hour LC50 0.0035 mg/l

Environmental Fate

Benzovindiflupyr:

The following information is for the active ingredient, benzovindiflupyr.
Biodegradability: Not biodegradable.
Does not bioaccumulate.
Slightly mobile in soils.
Results of PBT and vPvB assessment: This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

Difenoconazole:

The information presented here is for the active ingredient, difenoconazole.
Stable in soil and water. Low to moderate mobility in soil. Sinks 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

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Replaces: N\A

14. TRANSPORT INFORMATION

DOT Classification

Ground Transport - NAFTA
< 119 gallons: Not regulated
> 119 gallons:
Proper Shipping Name: Combustible Liquid, N.O.S. (Butyl Lactate)
Hazard Class: Class 3
Identification Number: NA 1993
Packing Group: PG III

Comments

Water Transport - International
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Benzovindiflupyr, Difenoconazole), Marine Pollutant
Hazard Class: Class 9
Identification Number: UN 3082
Packing Group: PG III

Air Transport
Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (Benzovindiflupyr, Difenoconazole)
Hazard Class: Class 9
Identification Number: UN 3082
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: Causes moderate eye irritation. Harmful if swallowed. Avoid contact with skin, eyes or clothing.

EPA Registration Number(s):

100-1477

EPCRA SARA Title III Classification:

Section 311/312 Hazard Classes:	Acute Health Hazard
	Fire Hazard
Section 313 Toxic Chemicals:	None

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

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Replaces: N\A

16. OTHER INFORMATION

NFPA Hazard Ratings		HMIS Hazard Ratings	
Health:	2	Health:	2
Flammability:	2	Flammability:	2
Instability:	0	Reactivity:	0

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

Syngenta Hazard Category: B,S

For non-emergency questions about this product call:

1-800-334-9481

Original Issued Date: 4/18/2016

Revision Date: Replaces:

Section(s) Revised:

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