MATERIAL SAFETY DATA SHEET

Syngenta Canada Inc.
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In Case of Emergency, Call
1-800-327-8633 (FAST MED)

Date of MSDS Preparation (Y/M/D): 2014-12-31

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MSDS prepared by:
Department of Regulatory & Biological Assessment
Syngenta Canada Inc.

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1-87-SYNGENTA (1-877-964-3682)

SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: **PROPERO™ Herbicide** Formulation No.: A10321A
Registration Number: 29164 (Pest Control Products Act)
Chemical Classes: A mixture of substituted benzoic acid and triazine herbicides.

Active Ingredient (%): Atrazine (22 %) CAS No.: 1912-24-9
Chemical Name: 2-chloro-4-ethylamino-6-isopropylamino-s-triazine.
Chemical Class: Triazine Herbicide

Active Ingredient (%): Dicamba (Potassium Salt) (11.4 %) CAS No.: 1918-00-9
Chemical Name: 3,6-dichloro-o-anisic acid (present as potassium salt)
Chemical Class: Substituted Benzoic Acid Herbicide

Product Use: A water based herbicide which is diluted in water and sprayed on certain registered crops for the control of broadleaf weeds. Please refer to product label for further details.

SECTION – 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen	WHMIS†
Atrazine (22 %)	Not Established	5 mg/m³ TWA	5 mg/m^3 TWA **	IARC Group 3	Not Established
Dicamba ((11.4 %)	Not Established	Not Established	10 mg/m³ TWA ***	No	Not Established

** Recommended by NIOSH
*** Syngenta Occupational Exposure Limit (OEL)
† Material listed in Ingredient Disclosure List under Hazardous Products Act.

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

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

May cause eye irritation. May cause skin and mucous membrane irritation.

Hazardous Decomposition Products

Can decompose at high temperatures forming toxic gases.

Physical Properties

Appearance: Brown slurry.
Odour: Mild.

Unusual Fire, Explosion and Reactivity Hazards

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

Potential Health Effects

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

Adverse health effects from exposure to product or ingredients of product:

Potentially irritating via ocular, dermal, inhalation and ingestion routes.

SECTION – 4: FIRST AID MEASURES

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

EYE CONTACT:	Flush eyes with clean water, holding eyelids apart for a minimum of 15 - 20 minutes. Remove contact lenses, if present, after 5 minutes, then continue rinsing eye. Call Syngenta, a poison control center or doctor for treatment advice. Obtain medical attention immediately if irritation persists.
SKIN CONTACT:	Immediately remove contaminated clothing and wash skin, hair and fingernails thoroughly with soap and water. Flush skin with plenty of water for 15-20 minutes. Call Syngenta, a poison control centre or doctor for treatment advice.
INHALATION:	Move victim to fresh air. If not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call Syngenta, a poison control centre or doctor for treatment advice.
INGESTION:	If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person. Do not induce vomiting unless directed by a physician or a poison control center. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer water.

NOTES TO PHYSICIAN:

There is no specific antidote. Dicamba may cause mild irritation to the eyes, and irritation to the skin and mucous membranes. Symptoms of overexposure to dicamba may include dizziness, muscle weakness, loss of appetite, weight loss, vomiting, decreased heart rate, shortness of breath, excitement, tenseness, depression, incontinence, cyanosis, muscle spasms, exhaustion and loss of voice. Treat symptomatically.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED:

Persons with known allergy to dicamba or with a history of allergic sensitivity should use extra care in handling this product.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: Not applicable.
Upper and lower flammable (explosive) limits in air: Not applicable.
Auto-ignition temperature: Not available.
Flammability: Not Applicable.
Hazardous combustion products: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.
Conditions under which flammability could occur: None known
Extinguishing media: Use foam, carbon dioxide, dry powder, halon extinguishant or water fog or mist, (avoid use of water jet). Wear full protective clothing and self-contained breathing apparatus. Evacuate nonessential personnel from the area to prevent human exposure to fire, smoke, fumes or products of combustion. Prevent use of contaminated buildings, area, and

equipment until decontaminated. Water runoff can cause environmental damage. Contain run-off water with, for example, temporary earth barriers.
Sensitivity to explosion by mechanical impact: None.
Sensitivity to explosion by static discharge: None.

SECTION – 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices. A small spill can be handled routinely. Use adequate ventilation and wear equipment and clothing as described in Section 8 and/or the product label.
Procedures for dealing with release or spill: Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Scoop or sweep up material, keeping dust to a minimum, and place into a disposable container. Wash area with detergent and water. Pick up wash liquid with additional absorbent and place into compatible disposal container. On soils, small amounts will naturally decompose. For large amounts, skim off the upper contaminated layer and collect for disposal. Once all material is cleaned up and placed in a disposal container, seal container and arrange for disposal. Spillages or uncontrolled discharges into watercourses must be reported to the appropriate regulatory authority.

SECTION – 7: HANDLING AND STORAGE

Handling practices: KEEP OUT OF REACH OF CHILDREN. Avoid exposure to dust. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. After work, rinse gloves and remove protective equipment. Wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.
Appropriate storage practices/requirements: Store in original container only in a well-ventilated, cool, dry, secure area. Protect from heat, sparks and flame. Do not expose sealed containers to temperatures above 40 °C. Keep separate from other products to prevent cross contamination. Rotate stock. Clean up spilled material immediately.
National Fire Code classification: Not required.

SECTION – 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Applicable control measures, including engineering controls: Ensure work areas have ventilation, containment, and procedures sufficient to maintain airborne levels below the TLV. Warehouses, production area, parking lots and waste holding facilities must have adequate containment to prevent environmental contamination. Provide separate shower and eating facilities.

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

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

Personal protective equipment for each exposure route:
General: Avoid breathing dust, vapours or aerosols. Avoid contact with eye, skin and clothing. Wash thoroughly with soap and water after handling and before eating, drinking, applying cosmetics or using 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, wear chemical goggles or a full-face shield. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
SKIN:	Where contact is likely, wear chemical-resistant (such as nitrile or butyl) gloves, coveralls, socks and chemical-resistant footwear. For overhead exposure, wear chemical-resistant headgear.
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.

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: Brown slurry.
Formulation Type: Suspension
Odour: Mild.
pH: 9 - 10.
Vapour pressure and reference temperature: Dicamba (Potassium salt): Not available
2.9×10^{-7} mmHg @ 20 ^{o}C (Atrazine technical)
Vapour density: Not available.
Boiling point: Not applicable.
Melting point: Not available.
Freezing point: Not applicable.
Specific gravity or density: 1.15 g/mL @ 20 ^{o}C.
Evaporation Rate: Not available.
Water/oil partition coefficient: Not available.
Odour threshold: Not applicable.
Viscosity: Not applicable.
Solubility in Water: > 250 g/L @ 25 ºC (Dicamba Technical)
33 mg/L @ 20^{o}C (Atrazine technical)

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable under normal use and storage conditions.
Conditions to avoid: None known.
Incompatibility with other materials: None known.
Hazardous decomposition products: During a fire, irritating and possibly toxic gases may be generated by thermal decomposition or combustion.
Hazardous polymerization: Will not occur.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

Ingestion:	Low AcuteToxicity Oral (LD50 Rat):	> 5,900 mg/kg body weight
Dermal:	Low AcuteToxicity Dermal (LD50 Rat):	> 2,000 mg/kg body weight
Inhalation:	Low AcuteToxicity Inhalation (LC50 Rat):	> 3.38 mg/L air – 4 hours.
Eye Contact:	Non-Irritating (Rabbit)	
Skin Contact:	Non-Irritating (Rabbit)	
Skin Sensitization:	Not a Sensitizer	

Reproductive/Developmental Effects

Dicamba (Potassium Salt):	None observed.
Atrazine:	None Observed.

Chronic/Subchronic Toxicity Studies

Dicamba (Potassium Salt):	None observed.
Atrazine:	Cardiotoxicity in long term study with high doses (dogs).

Carcinogenicity

Dicamba (Potassium Salt):	None observed.
Atrazine:	Mammary tumours (female Sprague-Dawley rats), sex and strain specific. None observed (male Sprague-Dawley rats, F-344 rats or mice). Atrazine is listed by IARC as a Group 3 carcinogen (not classifiable as to its carcinogenicity in humans).

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.

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

Target Organs

Active Ingredients

Dicamba (Potassium Salt):	Eye, skin.
Atrazine:	Heart

Inert Ingredients

Not Applicable

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects

This product is a herbicide (containing to two active ingredients) that is mixed with water and applied as a spray for the control of broadleaf weeds. The active ingredient, atrazine, is highly toxic to fish and water invertebrates; however, it is non-toxic to birds and insects. The second active ingredient, dicamba, is practically non-toxic to aquatic invertebrates (water flea), birds, and insects, but is slightly toxic to fish.

Eco-Acute Toxicity

Atrazine:

Green Algae 5-Day EC_{50}	49 ppb
Fish (Rainbow Trout) 96-hour LC_{50}/EC_{50}	4.5 ppm
Invertebrates (*Daphnia magna*) 48-hour EC_{50}	6.9 ppm
Bird (Bobwhite Quail) 12-day Oral LD_{50}	940 ppm

Dicamba (Potassium Salt):

Green Algae 5-Day EC_{50}	> 3.7 ppm
Invertebrate (Water Flea) 48-hour EC_{50}	> 11.37 ppm
Fish (Rainbow Trout) 96-hour LC_{50}	135.4 ppm
Bird (Mallard Duck) Oral LD_{50}	216 ppm

Environmental Fate

The active ingredient dicamba acid has a low bioaccumulation potential and is not persistent in the environment. In soil and water, the half-life is <14 days. It is highly mobile in soil, but actual movement is limited by rapid degradation.

The active ingredient atrazine is moderately persistent in soil and is biodegradable via microbial activity and hydrolysis in soil and natural waters. It has a low bioaccumulation potential. Under typical conditions of use, the half-life of atrazine is between 18 and 70 days. Atrazine is moderately to highly mobile in soil, but actual movement is limited by rapid degradation.

SECTION – 13: DISPOSAL CONSIDERATIONS

Waste disposal information: Do not reuse empty containers unless they are specifically designed to be re-filled. Empty

container retains product residue. Triple rinse, or equivalent, empty container, return rinse water to dilution mixture, and dispose of dilution mixture as a hazardous waste if it cannot be disposed of by use according to label instructions. If not refillable, make the empty, rinsed container unsuitable for further use. Dispose of empty containers in accordance with local regulations. Consult provincial environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents must accompany the shipment.

SECTION – 14 : TRANSPORT INFORMATION

Shipping information such as shipping classification:

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION - ROAD/RAIL

Not Regulated

SECTION – 15: REGULATORY INFORMATION

WHMIS classification for product: Exempt

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

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

Other regulations; restrictions and prohibitions

Pest Control Products (PCP) Act Registration No.: 29164

SECTION – 16: OTHER INFORMATION

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

Prepared by: Syngenta Canada Inc.
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