

SECTION 1: PRODUCT INFORMATION

Product Identifier: REFLEX® LIQUID HERBICIDE

Formulation Number: A8339C

Registration Number: 24779 (Pest Control Products Act)

Product Use: Herbicide. Read the label, authorized under the Pest Control Products Act, prior to using or handling the pest control product.

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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): Eye Damage – Category 1
 Specific Target Organ Toxicity (STOT) Repeated Exposure – Category 1

Hazard Symbol(s):



Signal Word: DANGER

Hazard Statement(s): H318 – Causes serious eye damage.
 H372 – Causes damage to organs through prolonged or repeated exposure.

Precautionary Statement(s):

- Prevention:** P260 – Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 - Wash thoroughly after handling.
 P270 – Do not eat, drink or smoke when using this product.
 P280 – Wear eye protection/face protection.
- 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/doctor if in eyes.
 P314 – Get medical attention if you feel unwell.
- Storage:** Not applicable.
- Disposal:** P501 – Dispose of contents/container to an approved waste disposal plant.

Other Hazards Which do not To avoid risk to human health and the environment, comply with the instructions for use.
Result in GHS Classification: Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS
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Chemical Name	Common Name	CAS Number	Average % by weight
Sodium[5-(2-chloro- α,α,α -trifluoro-p-tolyloxy)-2-nitrobenzoyl]mesylazanide	Fomesafen (sodium salt)	108731-70-0	21.7

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 damage.

May cause mild skin irritation.

Causes damage to organs through prolonged or repeated exposure (liver).

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: 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†
Fomesafen	Not established	Not established	2 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: Clear, light to dark amber liquid.

Formulation Type: Liquid suspension.

Physical State: Liquid.

Odour: Not available.

Odour Threshold: Not available.

pH: 7.2 – 9.0

Melting Point: Not applicable.

Freezing Point: Not available.

Initial Boiling Point and Boiling Range: Not available.

Flash Point: Not available.

Evaporation Rate: Not available.

Flammability (solid/gas): Not applicable.

Lower Explosive Limit: Not applicable.

Upper Explosive Limit: Not applicable.

Vapour Pressure: Fomesafen: 3.00×10^{-8} mmHg @ 20 °C.

Vapour Density: Not available.

Relative Density: 1.0975 – 1.1175 g/mL.

Solubility(ies): Fomesafen: Miscible @ 20 °C, pH 7 (water).

Partition Coefficient (n-octanol water): Fomesafen: 3.4

Auto-Ignition Temperature: Not available.

Decomposition Temperature: Not available.

Viscosity: Not available.

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.

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: Causes serious eye damage. May cause mild skin irritation.

Potential Health Effects: Causes damage to organs through prolonged or repeated exposure.

Acute Toxicity/Irritation Studies (Finished Product):

Ingestion:	<u>Low Acute Toxicity</u> Oral (LD50 Rat)	> 2,000 mg/kg body weight (based on a substantially similar formulation)
Dermal:	<u>Low Acute Toxicity</u> Dermal (LD50 Rat)	> 2,000 mg/kg body weight (based on a substantially similar formulation)
Inhalation:	<u>Low Acute Toxicity</u> Inhalation (LC50 Rat)	5.48 mg/L air – 4 hours (based on a substantially similar formulation)
Eye Contact:	<u>Corrosive (Rabbit)</u>	(based on a substantially similar formulation)
Skin Contact:	<u>Slightly Irritating (Rabbit)</u>	(based on a substantially similar formulation)
Skin Sensitization:	<u>Not a Sensitizer (Guinea Pig)</u>	(based on a substantially similar formulation)

Specific Target Organ Toxicity (STOT) Single Exposure:

Fomesafen: Not classified as a specific target organ toxicant, single exposure.

Specific Target Organ Toxicity (STOT) Repeated Exposure:

Fomesafen: Liver changes in rodents have been observed.

Carcinogenicity:

Fomesafen: Did not show carcinogenic effects in animal experiments. Tumours in mice at the highest dose tested were caused by a mode of action that is not relevant to humans.

Reproductive Toxicity:

Fomesafen: No toxicity to reproduction in animal studies.

Mutagenicity:

Fomesafen: Not genotoxic in laboratory studies.

Aspiration Hazard:

Fomesafen: Not classified as an aspiration hazard.

Other Toxicity Information:

Fomesafen: Reduced triglyceride and cholesterol levels and body weights, and increased liver weights were seen in animals after they consumed high dietary levels of technical fomesafen (45-75% a.i.). These lipid and hepatic effects were reversible after treatment was stopped. Embryotoxicity in rats was also evident after the pregnant rats received high oral doses. Mice developed liver tumors after consuming high dietary levels of technical fomesafen (45-75% a.i.) The effect was not seen in rats. Fomesafen appears to present very little carcinogenic risk to 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.

SECTION 12: ECOLOGICAL INFORMATION

Eco-Acute Toxicity:

Fomesafen:

Invertebrates (Water Flea) 48-hour LC ₅₀ /EC ₅₀	294 ppm
Fish (Rainbow Trout) 96-hour LC ₅₀ /EC ₅₀	170 ppm
Birds (5-day dietary – Mallard Duck) LC ₅₀ /EC ₅₀	> 20,000 ppm

Persistence & Degradability:

Fomesafen: Moderately persistent in soil. Low persistence in water.

Bioaccumulation Potential:

Fomesafen: BCF < 500; does not bioaccumulate.

Mobility in Soil:

Fomesafen: High 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:**

Not regulated.

Water Transport – International (IMDG):

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

Special Precautions for User:

Not applicable.

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.: 24779

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 attached booklet before using.

Keep out of reach of children.

Danger – Corrosive: Causes irreversible eye damage.

Harmful if swallowed, inhaled or absorbed through skin.

PCPA Hazard on Label: PCPA Precautionary Symbol: PCPA Signal Word(s): PCPA Hazard Statement:	Irreversible Eye Damage Not applicable. Danger - Corrosive Not applicable.	GHS Hazard Classification: GHS Hazard Symbol: GHS Signal Word: GHS Hazard Statement:	Eye Damage – Category 1  Danger H318 – Causes serious eye damage.
PCPA Hazard on Label: PCPA Precautionary Symbol: PCPA Signal Word(s): PCPA Hazard Statement:	Harmful if Swallowed Not applicable. Not applicable. Not applicable.	GHS Hazard Classification: GHS Hazard Symbol: GHS Signal Word: GHS Hazard Statement:	Not applicable. Not applicable. Not applicable. Not applicable.
PCPA Hazard on Label: PCPA Precautionary Symbol: PCPA Signal Word(s): PCPA Hazard Statement:	Harmful if Inhaled Not applicable. Not applicable. Not applicable.	GHS Hazard Classification: GHS Hazard Symbol: GHS Signal Word: GHS Hazard Statement:	Not applicable. Not applicable. Not applicable. Not applicable.
PCPA Hazard on Label: PCPA Precautionary Symbol: PCPA Signal Word(s): PCPA Hazard Statement:	Harmful if Absorbed Through Skin Not applicable. Not applicable. Not applicable.	GHS Hazard Classification: GHS Hazard Symbol: GHS Signal Word: GHS Hazard Statement:	Not applicable. Not applicable. Not applicable. Not applicable.

Allergens Contained in the Pest Control Product:

Contains 1,2-benzisothiazolin-3-one. May produce an allergic 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

EC₅₀ – Effective concentration, 50%

GHS – Globally Harmonized System of Classification and Labeling of Chemicals

LC₅₀ – Lethal concentration, 50%LD₅₀ – 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: Reference in Section's 1 & 16 to MSDS updated to SDS.

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END OF SAFETY DATA SHEET.