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

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MSDS prepared by:
Department of Regulatory & Biology Assessment
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1-87-SYNGENTA (1-877-964-3682)

SECTION – 1: PRODUCT IDENTIFICATION

Product Identifier: VENTURE® L Herbicide Formulation No.: A12791N
Registration Number: 21209 (Pest Control Products Act)
Chemical Class: A post emergence herbicide.

Active Ingredient (%): Fluazifop-P-Butyl Technical (12.9 %) CAS No.: 79241-46-6
Chemical Name: butyl (2*R*)-2-[4-[[5-(trifluoromethyl)-2-pyridinyl]oxy]phenoxy]propanoate

Product Use: A post- emergence herbicide for control of grasses in broadleaf crops. 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† |
|---|-----------------|-------------------|-------------------------------------|---------------------------------------|-----------------|
| Fluazifop-P-Butyl Technical (12.9 %) | Not Established | Not Established | 0.5 mg/m ³ TWA*** | No | Not Established |
| 1,2,4-Trimethylbenzene (CAS # 95-63-6) (≤ 1.1%) | Not Established | 25 ppm TWA | 25 ppm TWA** | No | Yes |
| Naphthalene (CAS # 91-20-3) (≤ 5.8%) | 10 ppm TWA | 10 ppm TWA (skin) | 10 ppm TWA** | Group 2B; See "Toxicity", Section 11. | Yes |
| Isobutanol (CAS # 78-83-1) | 100 ppm TWA | 50 ppm TWA | 50 ppm TWA** | No | Not Established |
| Polyethylene glycol octylphenyl ether (CAS # 9036-19-5) | Not Established | Not Established | Not Established | Not Established | Yes |
| Petroleum Solvent | Not Established | Not Established | 100 mg/m ³ (15 ppm) TWA* | No | Not Established |

* Recommended by manufacturer

** 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.

SECTION – 3: HAZARDS IDENTIFICATION

Symptoms of Acute Exposure

Causes skin and respiratory irritation. May cause eye irritation. Exposure to high vapour levels may cause headache, dizziness, numbness, nausea, incoordination, or other central nervous system effects.

Hazardous Decomposition Products

Mists from heated solution may cause respiratory irritation. Can decompose at high temperatures and form toxic gases.

Physical Properties

Appearance: Amber to dark brown liquid.
Odour: Hydrocarbon.

Unusual Fire, Explosion and Reactivity Hazards

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

Potential Health Effects

Possible risk of harm to the unborn child.

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

SECTION – 4: FIRST AID MEASURES

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

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

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

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

INGESTION: If swallowed, immediately contact Syngenta, a poison control centre, doctor or nearest hospital for treatment advice. Do not induce vomiting unless directed by a physician or a poison control center. Do not give **any** liquid to the person. Call Syngenta, a poison control centre or doctor for treatment advice.

NOTES TO PHYSICIAN:

There is no specific antidote if this product is ingested. Treat symptomatically. Contains petroleum distillate - vomiting may cause aspiration pneumonia.

MEDICAL CONDITIONS KNOWN TO BE AGGRAVATED: None known.

SECTION – 5: FIRE FIGHTING MEASURES

Flash point and method: 45.6 °C (Setaflash Closed Cup).

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

Auto-ignition temperature: Not applicable.

Flammability: Combustible liquid (Class II).

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

Conditions under which flammability could occur: Keep fire exposed containers cool by spraying with water. Heavy vapours can flow along surfaces to distant ignition sources and flash back.

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 known.

Sensitivity to explosion by static discharge: Take precautionary measures against static discharges. Use spark-resistant tools and avoid "splash-filling" of containers.

SECTION – 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions: Make sure all personnel involved in the spill cleanup follow good industrial hygiene practices. A small spill can be handled routinely. Wear suitable protective clothing and eye protection to prevent skin and eye contact. 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: Warning - flammable vapours may be present. Eliminate sources of ignition and ventilate spill area. Use non-sparking clean-up equipment to prevent vapour ignition. Control the spill at its source. Contain the spill to prevent from spreading or contaminating soil or from entering sewage and drainage systems or any body of water. Clean up spills immediately, observing precautions outlined in Sections 7 and 8. Pump or scoop large amounts of liquid into a disposable container. Absorb remaining liquid or smaller spills with clay, sand or vermiculite. Scoop or sweep up material and place into a disposal 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. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Avoid breathing vapours or spray mist. Wear full protective clothing and equipment (see Section 8). After work, rinse gloves and remove protective equipment, and wash hands thoroughly with soap and water after handling, and before eating, tobacco use, drinking, applying cosmetics or using the toilet. Wash contaminated clothing before re-use and separate from household laundry. Keep containers closed when not in use. Protect product, wash or rinse water, and contaminated materials from uncontrolled release into the environment, or from access by animals, birds or unauthorized people.

Appropriate storage practices/requirements: Store 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: Class II

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 after handling and before eating, drinking, apply cosmetics or handling tobacco.

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

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

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

INHALATION: A respirator is not normally required when handling this substance. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below exposure limits. A NIOSH-certified combination air-purifying respirator with an N, P or R 95 or HE class filter and an organic vapor cartridge may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a pressure demand atmosphere-supplying respirator if there is any potential for uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

SECTION – 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Amber to dark brown liquid.

Formulation Type: Emulsifiable concentrate.

Odour: Petroleum / hydrocarbon solvent.

pH: 5.16 @ 23 °C (4% emulsion).

Vapour pressure and reference temperature: 4.5×10^{-7} mmHg @ 20 °C (Fluazifop-P-Butyl Technical).

Vapour density: Not available.

Boiling point: Not available.

Melting point: Not available.

Freezing point: < -25 °C.

Specific gravity or density: 0.97 g/mL @ 20 °C.

Evaporation Rate: Not available.

Water/oil partition coefficient: Log K_{ow} Fluazifop-P-Butyl Technical 4.5.

Odour threshold: Not available.

Viscosity: 6.9 cps.

Solubility in Water: 1.1 mg/L [Fluazifop-P-Butyl Technical].

SECTION – 10: STABILITY AND REACTIVITY

Chemical stability: Stable under normal use and storage conditions.

Conditions to avoid: Unstable under highly alkaline conditions. High temperatures, sparks, open flames. Keep away from sources of ignition.

Incompatibility with other materials: Strong oxidizing agents. Unstable under highly alkaline conditions.

Hazardous decomposition products: Mists from heated solution may cause respiratory irritation. Thermal decomposition

products are toxic and may include hydrocarbons, oxides of carbon, nitrogen and fluorine compounds.

Hazardous polymerization: Will not occur.

SECTION – 11: TOXICOLOGICAL INFORMATION

Acute toxicity/Irritation Studies (Finished Product):

| | | |
|---------------------|---|---------------------------|
| Ingestion: | <u>Low Acute Toxicity</u> Oral (LD50 Rat): | 2,451 mg/kg body weight |
| Dermal: | <u>Low Acute Toxicity</u> Dermal (LD50 Rabbit): | > 2,076 mg/kg body weight |
| Inhalation: | <u>Low Acute Toxicity</u> Inhalation (LC50 Rat): | > 5.24 mg/L air - 4 hours |
| Eye Contact: | <u>Minimally Irritating (Rabbit)</u> | |
| Skin Contact: | <u>Mildly Irritating (Rabbit)</u> | |
| Skin Sensitization: | <u>Not a Sensitizer (Guinea Pig)</u> | |

Reproductive/Developmental Effects

Fluazifop-P-Butyl Technical:

Embryo/foetotoxic effects reported in rats. Did not show teratogenic effects in animal studies.

Chronic/Subchronic Toxicity Studies

Fluazifop-P-Butyl Technical:

Effects on red cells, bone marrow, liver and spleen observed in long-term high dose feeding tests in dogs. No evidence of neurotoxicity was observed in acute, subchronic or chronic studies.

Carcinogenicity

Fluazifop-P-Butyl Technical:

Did not show mutagenic effects in testing. Did not show carcinogenic effects in animal experiments.

Other Toxicity Information:

In humans, fluazifop-p-butyl is rapidly metabolized to fluazifop (the acid product of metabolism) and eliminated in urine. Converted fluazifop does not accumulate in the body. It penetrates very slowly through human skin. Large doses of fluazifop-p-butyl may cause embryotoxic effects based on studies in laboratory animals. There is no evidence of mutagenic potential. It is our belief that, under conditions of normal occupational exposure, this product should not pose such a hazard to the worker.

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.

1,2,4-Trimethylbenzene ($\leq 1.1\%$)

Inhalation of 1,2,4-trimethylbenzene at high concentrations can cause central nervous system depression, respiratory tract irritation, asphyxiation, cardiac stress and coma. Effects of chronic exposure to this solvent can include blood disorders (anemia, leukopenia) and kidney or liver damage.

Isobutanol

High concentrations may result in dizziness, confusion and signs of intoxication. May cause irritation to eye, skin or mucous membranes.

Naphthalene ($\leq 5.8\%$)

Exposure to naphthalene can cause cataracts, liver damage, kidney failure, respiratory failure, hematuria, anemia, damage to red blood cells, leukocytosis, or coma.

Carcinogen Status:

NTP: Anticipated Carcinogen
IARC: Group 2B Possible Human Carcinogen

Petroleum Solvent

Inhalation of vapours at high concentrations can cause central nervous system effects (dizziness, headache), irritation to eyes or respiratory tract.

Polyethylene glycol octylphenyl ether

Exposure to polyethylene glycol octylphenyl ether may cause irritation to skin and respiratory tract, severe eye injury, and aspiration may cause lung damage.

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

Target Organs

Active Ingredient

Fluazifop-P-Butyl Technical: Liver, skin, kidney, eye, bone marrow, blood, reproductive system.

Inert Ingredients

1,2,4-Trimethylbenzene: CNS, liver, kidney, blood, respiratory tract, skin, eye.

Isobutanol: CNS, skin, eye.

Naphthalene: Eye, liver, kidney, respiratory tract, blood, CNS.

Petroleum Solvent: Respiratory tract, stomach, liver, thyroid, urinary bladder, CNS, skin.

Polyethylene glycol octylphenyl ether: Eye, skin

SECTION – 12: ECOLOGICAL INFORMATION

Summary of Effects

VENTURE is a post-emergence herbicide that is mixed with water and applied as a spray for the control of grasses in broadleaf crops. The active ingredient, Fluazifop-P-Butyl Technical, is practically non-toxic to insects (bees), but is slightly toxic to birds and highly toxic to fish and aquatic invertebrates (water flea).

Eco-Acute Toxicity

| | |
|---|--------------|
| Fluazifop-P-Butyl Technical: | |
| Green Algae 72-hr EC ₅₀ | 0.51 ppm |
| Bees LC ₅₀ /EC ₅₀ (Contact) | > 200 µg/bee |
| Invertebrate (Water Flea) LC ₅₀ /EC ₅₀ | 1.0 ppm |
| Fish (Trout) LC ₅₀ /EC ₅₀ (96 hr) | 1.41 ppm |
| Fish (Bluegill) LC ₅₀ /EC ₅₀ (96 hr) | 0.53 ppm |
| Birds (8-day dietary - Bobwhite Quail) LC ₅₀ /EC ₅₀ | > 4,659 ppm |
| Birds (8-day dietary - Mallard Duck) LC ₅₀ /EC ₅₀ | 4,321 ppm |

Eco-Chronic Toxicity

| | |
|--|---------|
| Fluazifop-P-Butyl Technical: | |
| Invertebrates (Water Flea) 21-Day NOEC | 250 ppb |
| Fish (Fathead) Early Life Stage NOEC | 77 ppb |

Environmental Fate

Fluazifop-p-butyl has a low bioaccumulation potential, and is non-persistence in soil and water. The main routes of dissipation are hydrolysis and biological degradation. The half-life is < 1 week in soil or water. The major byproduct fluazifop-p acid, is also not persistent. Fluazifop-p-butyl and fluazifop-p acid have low mobility in soils and do not leach downward in soil. Evaporation is not significant. Photodegradation occurs in water but not on soil.

For VENTURE, the bulk material water completely mixed with water (after 24 h).

SECTION – 13: DISPOSAL CONSIDERATIONS

Waste disposal information: Do not reuse empty containers unless they are specifically designed to be re-filled. Empty container retains product residue. Dispose of empty containers in accordance with local regulations. Consult provincial

environment ministry for advice on waste disposal. Industrial/commercial waste may be handled at licensed facilities only. Waste shipments must be securely packaged and properly labelled. Only licensed carriers may be used, and proper documents must accompany the shipment.

SECTION – 14 : TRANSPORT INFORMATION

Shipping information such as shipping classification:

TRANSPORTATION OF DANGEROUS GOODS CLASSIFICATION - ROAD/RAIL
Not Regulated.

SECTION – 15: REGULATORY INFORMATION

WHMIS classification for product: Exempt

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

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

Pest Control Products (PCP) Act Registration No.: 21209

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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