1. IDENTIFICATION

Product name: Outshine
Chemical name of active ingredient(s):
- **Florasulam**: N-(2,6-difluorophenyl)-8-fluoro-5-methoxy[1,2,4]triazolo[1,5-c]pyrimidine-2-sulfonamide
- **Fluroxypyr (present as 1-methylheptyl ester)**: [(4-amino-3,5-dichloro-6-fluoro-2-pyridinyl)oxy] acetic acid 1-methylheptyl ester

Manufacturer/Registrant: ADAMA Agricultural Solutions Canada Ltd.
302 – 179 McDermot Ave., Winnipeg MB R3B 0S1
Phone: 1-855-264-6262

For fire, spill, and/or leak emergencies, contact Infotrac: Phone: 1-800-535-5053
For medical emergencies and health and safety inquiries, contact Prostar: Phone: 1-877-250-9291

2. HAZARDS IDENTIFICATIONS

PHYSICAL PROPERTIES:
- Appearance: Off-white liquid
- Odor: Characteristic

EMERGENCY OVERVIEW: WARNING Eye and skin irritant. Potential skin sensitizer. Harmful if swallowed.

LIKELY ROUTES OF EXPOSURE: Ingestion, skin absorption, inhalation, and eye contact.

HARMFUL IF SWALLOWED. CAUSES EYE AND SKIN IRRITATION. Do not get in eyes, on skin or on clothing. At all times wear clean, body-covering coveralls. During mixing and loading, clean-up and repair wear goggles or face shield and chemical-resistant gloves. Wash thoroughly after handling. Wash contaminated clothing before reuse. Destroy contaminated shoes and leather articles.

PHYSICAL OR CHEMICAL HAZARDS COMBUSTIBLE. Do not use or store near heat or open flame.

OTHER HAZARDS: See Section 11 and 12.

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>CAS NO.</th>
<th>%</th>
<th>OSHA PEL</th>
<th>ACGIH TLV</th>
<th>OTHER</th>
<th>NTP/IARC/OSHA (Carcinogen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Florasulam</td>
<td>145701-23-1</td>
<td>0.25</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NA</td>
</tr>
<tr>
<td>Fluroxypyr (as 1-methylheptyl ester)</td>
<td>81406-37-3</td>
<td>10.05</td>
<td>NE</td>
<td>NE</td>
<td>NE</td>
<td>NA</td>
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<tr>
<td>Propylene glycol</td>
<td>57-55-6</td>
<td>&lt; 2.0</td>
<td>NE</td>
<td>NE</td>
<td>10 mg/m3 (TWA) (Aerosol)*</td>
<td>NA</td>
</tr>
<tr>
<td>Hydrocarbons (contains Naphthalene)</td>
<td>NA</td>
<td>30 - 40</td>
<td>10 ppm (TWA)</td>
<td>10 ppm (TWA)</td>
<td>NE</td>
<td>NTP – 2** IARC –2B***</td>
</tr>
</tbody>
</table>

NE: Not established; NA: Not applicable.

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4. FIRST AID MEASURES

FIRST AID:

IF SWALLOWED: Call a poison control centre or doctor immediately for treatment advice. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice.

IF INHALED: 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 centre or doctor for further treatment advice.

IF IN EYES: 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 centre or doctor for treatment advice.

Take the container label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: No specific antidote. Employ supportive care. Treatment should be based on the judgment of the physician in response to reactions of the patient. This product contains a PETROLEUM DISTILLATE. DO NOT INDUCE VOMITING. Vomiting may cause aspiration pneumonia. If burn is present, treat as any thermal burn after decontamination. If swallowed, aspiration may cause chemical pneumonia. When considering emptying the stomach, the danger of chemical pneumonia must be weighed against toxicity. If lavage is performed, a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

FLASHPOINT: 60.6°C
FLAMMABLE LIMITS (% in air): Not applicable
AUTOIGNITION TEMPERATURE: Not applicable
EXTINGUISHING MEDIA: Dry chemical, water spray or carbon dioxide. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

UNUSUAL FIRE AND EXPLOSION HAZARDS: This material will not burn until the water has evaporated. Residue can burn. Dangerous gases are evolved in the event of a fire.

FIRE-FIGHTING PROCEDURES: Keep people away. Isolate fire and deny unnecessary entry. Burning liquids may be extinguished by dilution with water. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the “Accidental Release Measures” and the “Ecological Information” sections of this SDS.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire-fighting clothing (includes fire-fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire-fighting operations. If contact is likely, change to full chemical resistant fire-fighting clothing with self-contained breathing apparatus. If this

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is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

### 6. ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTIONS:** Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Refer to Section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**ACTION TO TAKE FOR SPILLS:** Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

**ENVIRONMENTAL PRECAUTIONS:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

### 7. HANDLING AND STORAGE

**PRECAUTIONS TO BE TAKEN IN HANDLING:** Keep out of reach of children. Keep away from heat, sparks and flame. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Avoid breathing this product vapor or mist. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

**PRECAUTIONS TO BE TAKEN IN STORAGE:** Store in original containers in a secure, dry heated storage. If product is frozen, bring to room temperature and agitate before use. Do not allow contamination of seeds, plants, fertilizers or other pesticides. Do not contaminate food, feedstuffs or domestic water supplies. If containers are damaged or spill occurs, use the product immediately or contain the spill with absorbent materials and dispose of waste.

**STORAGE TEMPERATURE (MIN/MAX):** Normal ambient temperatures.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

**FOR COMMERCIAL APPLICATION AND ON-FARM APPLICATIONS, CONSULT THE PRODUCT LABEL.**

**EYE/FACE PROTECTION:** Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

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SKIN PROTECTION: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

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.

Follow manufacturer's instructions for cleaning/ maintaining personal protective equipment, PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

EXPOSURE GUIDELINES: Refer to Section 3.

ENGINEERING CONTROLS: Ventilation: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>PROPERTY</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPEARANCE</td>
<td>Off-white liquid</td>
</tr>
<tr>
<td>ODOR</td>
<td>Characteristic</td>
</tr>
<tr>
<td>FLASH POINT</td>
<td>60.6°C</td>
</tr>
<tr>
<td>pH</td>
<td>5.24</td>
</tr>
<tr>
<td>DENSITY</td>
<td>0.995 g/mL @ 20°C</td>
</tr>
<tr>
<td>VISCOSITY</td>
<td>192 mPa(s) @ 20°C</td>
</tr>
<tr>
<td>VAPOR PRESSURE</td>
<td>Not available</td>
</tr>
<tr>
<td>SOLUBILITY</td>
<td>Not available</td>
</tr>
<tr>
<td>PARTITION COEFFICIENT</td>
<td>Not available</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

STABILITY: This product is stable under normal conditions.
CONDITIONS TO AVOID: None known.
MATERIALS TO AVOID: Decomposes at elevated temperature.
HAZARDOUS REACTIONS: See materials to avoid.
HAZARDOUS DECOMPOSITION PRODUCTS: Decomposition products depend upon temperature, air supply and the presence of other materials.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY/IRRITATION STUDIES:
- Acute Oral LD₅₀ (Rat): > 5,000 mg/kg (F); 2,000 mg/kg (M)
- Acute Dermal LD₅₀ (Rabbit): > 5,000 mg/kg
- Acute Inhalation LC₅₀ (Rat): > 10 mg/L (4-h) (based on the components)
- Eye Irritation (Rabbit): May cause moderate eye irritation which may be slow to heal. May cause slight corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.
- Dermal Irritation (Rabbit): Brief contact may cause slight skin irritation with local redness. May cause drying and flaking of the skin.
- Dermal Sensitization (Guinea pig): Has demonstrated the potential for contact allergy in mice.

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ASPIRATION HAZARD: Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

REPRODUCTIVE/DEVELOPMENTAL TOXICITY:
Fluroxypyr did not interfere with reproduction in laboratory animal studies and did not cause birth defects. However, in laboratory animals, other toxic effects to the fetus have been seen at doses toxic to the mother.
Florasulam: Not considered to be toxic for the reproductive or developmental systems.

CARCINOGENICITY:
Fluroxypyr did not cause cancer in laboratory animals.
Florasulam is not carcinogenic.

GENOTOXICITY:
Fluroxypyr: In vitro genetic toxicity studies were negative.
Florasulam: Not mutagenic.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS:
Fluroxypyr: Effects have been reported on the following organs: bone marrow, kidney, liver, and respiratory tract.

OTHER TOXICITY:
Hydrocarbons solvent: Vapors may cause drowsiness and drowsiness and dissiness, due to acute CNS depression.
NAPHTHALENE: Exposure to high concentrations of naphthalene may cause destruction of red blood cells, anemia, and cataracts. Naphthalene caused cancer in laboratory animal studies, but the relevance of these findings to humans is uncertain.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS: This product contains a petroleum distillate which is moderately to highly toxic to aquatic organisms. Avoid contamination of aquatic systems during application. Do not contaminate these systems through direct application, disposal of waste or cleaning of equipment.

ECOTOXICITY INFORMATION:
Data based on Fluroxypyr:
Rainbow trout LC50 (96-h): >100 mg/L (Fluroxypyr).
>0.9 mg/L (Fluroxypyr-meptyl).
Daphnia magna EC50 (48-h): >100 mg/L (Fluroxypyr).
>0.9 mg/L (Fluroxypyr-meptyl).
Rainbow trout NOEC (21-d): 0.2 (Fluroxypyr-meptyl).
Daphnia magna NOEC (21-d): 0.1 mg/L (Fluroxypyr-meptyl).
Algae EC50 (96-h) : >100 mg/L (Fluroxypyr).
>0.9 (Fluroxypyr-meptyl).

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Bobwhite quail LD50: >2,000 mg/kg (Fluroxypyr-methyl+Fluroxypyr).
Mallard duck >2,000 mg/kg (Fluroxypyr-methyl+Fluroxypyr).
Bees LD50 [μg/Bee]: Oral>100 (Fluroxypyr-methyl).
   Contact>100 (Fluroxypyr-methyl).
   Contact>25 (Fluroxypyr).

PERSISTENCE AND DEGRADABILITY: Soil degradation is primarily via microorganisms and hydrolysis.
This product is not persistent. The product is poorly biodegradable. Moderate to low soil mobility.

Data Based on Florasulam:
Rainbow trout LC50 (semi-static test, 96-h): > 100 mg/l
Daphnia magna EC50 (immobilization, 48-h): > 100 mg/l
Duckweed EC50 (Growth inhibition, cell density reduction, 14-d): 0.0413 mg/l
Green algae EbC50 (static test, biomass growth inhibition, 72-h): 0.0611 mg/l
Mallard duck LD50 (oral): > 2,250 mg/kg bodyweight.
Bees LD50 (oral): > 70.25 µg/bee; LD50 (contact): > 100 µg/bee
Earthworms (LC50): > 1,033 mg/kg

EFATE INFORMATION:
Florasulam: Material is expected to biodegrade only very slowly (in the environment). Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Potential for mobility in soil is very high (Koc between 0 and 50).

Ecotoxicity Information of Other Components:

OTHER COMPONENTS:
Propylene glycol: Material is readily biodegradable. Bioconcentration potential is low (BCF < 100 or Log Pow < 3). Given its very low Henry’s constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process., Potential for mobility in soil is very high (Koc between 0 and 50).

13. DISPOSAL CONSIDERATIONS
Do not contaminate water, food, or feed by storage or disposal.

PESTICIDE 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 cleanup of spills.

CONTAINER DISPOSAL: Do not reuse this container for any purpose. Dispose of product containers, waste containers, and residues according to label instructions and municipal and provincial regulatory agency.

14. TRANSPORT INFORMATION

CANADIAN TDG CLASSIFICATION:
   Road/Rail: Not regulated
   Vessel only: UN 3082, Environmentally hazardous substances, liquid, n.o.s. (Fluroxypyr-methyl, Florasulam), 9, PG III, Marine Pollutant

US DOT CLASSIFICATION:
   Non-bulk: Not Regulated
   Bulk: NA 1993, Combustible Liquid (contains hydrocarbon solvent), PG III
15. REGULATORY INFORMATION

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

INGREDIENT DISCLOSURE LIST:
Naphthalene CAS #: 91-20-3 (<0.1%)

U.S. FEDERAL REGULATIONS:
SARA TITLE III CLASSIFICATION:
Section 302: Not applicable
Section 311/312: Acute health hazard (immediate)
Chronic health hazard (delayed)
Section 313: Naphthalene (<0.1%) CAS #: 91-20-3

CA PROPOSITION 65: Not applicable
CERCLA RQ: Naphthalene: 100 lbs.
RCRA CLASSIFICATION: Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.
TSCA STATUS: The ingredients of this product are listed on the TSCA inventory or are exempt.

16. OTHER INFORMATION

NFPA HAZARD RATINGS

<table>
<thead>
<tr>
<th>FLAMMABILITY:</th>
<th>0 MINIMAL</th>
<th>1 SLIGHT</th>
<th>2 MODERATE</th>
<th>3 HIGH</th>
<th>4 SEVERE</th>
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<tbody>
<tr>
<td>HEALTH:</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>INSTABILITY:</td>
<td>0</td>
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</table>

SDS DATE: 2-6-2015.

The information herein is given in good faith, but no warrant, express or implied, is made. Consult ADAMA Agricultural Solutions Canada Ltd. for further information.