1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Bison Herbicide**

EPA Reg. No.: 71368-28-1381

Product Type: Herbicide

Company Name: Winfield Solutions, LLC
P.O. Box 64589
St. Paul, MN 55164-0589

Telephone Numbers: For Chemical Emergency, Spill, Leak, Fire, Exposure, or Accident,
Call CHEMTREC Day or Night: 1-800-424-9300
For Medical Emergencies Only, Call 1-877-424-7452

This product is an EPA FIFRA registered pesticide. Some classifications on this SDS are not exactly the same as on the FIFRA label. Certain sections are superseded by federal law governed by EPA for a registered pesticide. Please see Section 15. REGULATORY INFORMATION for explanation.

2. HAZARDS IDENTIFICATION

PHYSICAL HAZARDS:

Not Hazardous

HEALTH HAZARDS:

Acute Toxicity (oral)	Category 4
Reproductive Toxicity	Category 2
Carcinogen	Category 2
Aspiration Toxicity	Category 1
Specific target organ toxicity – Repeated exposure	Category 2

ENVIRONMENTAL HAZARDS:

Hazardous to aquatic environment, acute	Category	1
Hazardous to aquatic environment, chronic	Category 1	

SIGNAL WORD:
DANGER

HAZARD STATEMENTS:
Harmful if swallowed. May be fatal if swallowed and enters airways. Suspected of causing cancer. Suspected of damaging the unborn child. May cause damage to organs (liver, kidneys) through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS
Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mists or spray. Wash hands thoroughly after handling. Do not eat, drink or

smoke when using this product. Avoid release to the environment. Wear protective gloves, protective clothing and eye protection.

IF SWALLOWED: Immediately call a POISON CENTER or doctor. Do NOT induce vomiting.
If exposed or concerned: Get medical advice. Collect spillage.

Store locked up. Dispose of contents and container in accordance with local, state and federal regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS NO.	% BY WEIGHT
2-methyl-4-chlorophenoxyacetic acid, isooctyl (2-ethylhexyl) ester	29450-45-1	33 – 35
Bromoxynil octanoate	1689-99-2	30.75 – 32.65
Solvent Naphtha (Petroleum), Heavy Aromatic	64742-94-5	22.8 – 24.2
1-Methylnaphthalene	90-12-0	<10
2-Methylnaphthalene	91-57-6	<10
Naphthalene	91-20-3	<0.3
Other Ingredients	Trade Secret	Trade Secret

Synonyms: Mixture of MCPA 2EHE and Bromoxynil

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

4. FIRST AID MEASURES

If Swallowed: Call a poison control center or doctor immediately for treatment advice. Do NOT induce vomiting. Do not give anything by mouth.
If in Eyes: Hold eye open and rinse slowly and gently with water for several minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention if irritation occurs.
If on Skin or Clothing: Take off contaminated clothing. Wash with soap and water. If irritation develops, get medical attention**.**
If Inhaled: Move person to fresh air. Get medical attention if symptoms develop.
Symptoms/effects, acute and delayed: Minimally irritating to the eye. Vapors and mist may cause irritation. Slightly irritating to the skin. Harmful or fatal if swallowed – Aspiration hazard. Suspected of causing cancer and adverse reproductive effects.
Indication of Immediate medical attention and special treatment if needed: Immediate medical attention is required for ingestion. For ingestion there is no specific antidote available. Treat symptomatically.
Note to Physician: May pose an aspiration pneumonia hazard. Contains petroleum distillates.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Recommended for large fires: foam or water spray. Recommended for small fires: dry chemical or carbon dioxide.
Special Fire Fighting Procedures: Firefighters should wear NIOSH approved self-contained breathing apparatus and full fire-fighting turn out gear. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.
Unusual Fire and Explosion Hazards: Containers will burst from internal pressure under extreme fire conditions. If water is used to fight fire or cool containers, dike to prevent runoff contamination of municipal sewers and waterways.
Hazardous Decomposition Materials (Under Fire Conditions): May produce gases such as hydrogen chloride, other chlorine compounds, hydrogen bromide gas, nitrogen oxides, and carbon oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective gear for the situation. See Personal Protection information in Section 8. Ventilate the area.

Environmental Precautions: Prevent material from entering public sewer systems or any waterways. Do not flush to drain. Large spills to soil or similar surfaces may necessitate removal of topsoil. The affected area should be removed and placed in an appropriate container for disposal.
Methods for Containment: Dike spill using absorbent or impervious materials such as earth, sand or clay. Collect and contain contaminated absorbent and dike material for disposal.
Methods for Clean-Up and Disposal: Pump any free liquid into an appropriate closed container. Collect washings for disposal. Clean up residual liquid with an inert absorbent material and place in an appropriate container. Decontaminate tools and equipment following cleanup. See Section 13: DISPOSAL CONSIDERATIONS for more information.
Other Information: Large spills may be reportable to the National Response Center (800-424-8802) and to state and/or local agencies.

7. HANDLING AND STORAGE

Handling:
Do not get in eyes, on skin, or on clothing. Avoid breathing vapors or spray mist. Keep product away from excessive heat and open flames. Use with adequate ventilation. Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing/Personal Protective Equipment (PPE) immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. If pesticide gets on skin, wash immediately with soap and water. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing. **Storage:**
Store at temperatures above 3ºF. If allowed to freeze, remix before using. Always store pesticides in a secured warehouse or storage building. Do not store near open containers of fertilizer, seed or other pesticides. Containers should be opened in well-ventilated areas. Keep container tightly sealed when not in use. Do not stack cardboard cases more than two pallets high. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:
Where engineering controls are indicated by specific use conditions or a potential for excessive exposure, use local exhaust ventilation at the point of generation. **Personal Protective Equipment:**
Eye/Face Protection: To avoid contact with eyes, wear chemical goggles or safety glasses with front, brow and temple protection.
Skin Protection: To avoid contact with skin, wear coveralls over short-sleeved shirt and short pants, chemical-resistant gloves and chemical-resistant footwear plus socks. For overhead exposure, wear chemical-resistant headgear. Wear a chemical-resistant apron when cleaning equipment, mixing, or loading. Washing facilities should be readily accessible to the work area.
Respiratory Protection: Not normally required. If vapors or mists exceed acceptable levels, wear NIOSH approved air-purifying respirator with cartridges/canisters approved for use against pesticides and organic vapors.
General Hygiene Considerations: Personal hygiene is an important work practice exposure control measure and the following general measures should be taken when working with or handling this material: 1) Do not store, use and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored. 2) Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics or using the toilet.

Exposure Guidelines:

	OSHA		ACGIH		
Component	TWA	STEL	TWA	STEL	Unit
MCPA 2EHE	NE	NE	NE	NE	
Bromoxynil Octanoate	NE	NE	NE	NE	
Solvent Naphtha (Petroleum), Heavy Aromatic*					

1-Methylnaphthalene	NE	NE	0.5 skin	NE	ppm
2-Methylnaphthalene	NE	NE	0.5 skin	NE	ppm
Naphthalene	10	NE	10 skin	NE	ppm
Other Ingredients	NE	NE	NE	NE	

NE = Not Established

*Manufacturer recommended limit 100 mg/m^3 total hydrocarbon vapor

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: transparent light amber liquid
Odor: aromatic hydrocarbon
Odor threshold: No data available **pH:** 3.57(1% w/w dispersion in DIW)
Melting point/freezing point: No data available
Initial boiling point and boiling range No data available
Flash point: 227º F (108.3º C) **Evaporation rate:** No data available
Flammability: No data available
Upper/lower flammability or explosive limits: No data available
Vapor pressure: No data available
Vapor density: No data available
Relative density: 1.136 g/mL @ 25º C; 1.121 g/mL @ 44º C
Solubility(ies): No data available
Partition coefficient: n-octanol/water: No data available
Autoignition temperature: No data available
Decomposition temperature: No data available
Viscosity: 21.7 cPs @ 25º C; 10.7 cPs @ 44º C

Note: Physical data are typical values, but may vary from sample to sample. A typical value should not be construed as a guaranteed analysis or as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not reactive.
Chemical Stability: This material is stable under normal handling and storage conditions.
Possibility of Hazardous Reaction: Hazardous polymerization will not occur. Reaction with oxidizers may cause fire.
Conditions to Avoid: Excessive heat. Do not store near heat or flame.
Incompatible Materials: Strong oxidizing agents: bases and acids.
Hazardous Decomposition Products: Under fire conditions, may produce gases such as hydrogen chloride, nitrogen oxides, hydrogen bromide gas, and carbon oxides.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Skin contact, Eye contact, Inhalation
Eye Contact: Minimally irritating based on toxicity studies. Vapors and mist may cause eye irritation.
Skin Contact: Slightly irritating based on toxicity studies. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Prolonged skin contact may cause skin dryness and cracking.
Ingestion: Harmful if swallowed. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation, weakness and central nervous system depression. The petroleum hydrocarbon component, if aspirated into the respiratory system during ingestion or vomiting may cause mild or severe pulmonary injury, possibly progressing to death.
Inhalation: Low inhalation toxicity. Inhalation may cause symptoms similar to those from ingestion Overexposure to petroleum hydrocarbon component may cause irritation to respiratory tract, headaches,

anesthesia, drowsiness, unconsciousness and other central nervous system effects, possibly including death.

Delayed, immediate and chronic effects of exposure: Repeated exposure may affect the liver and kidneys. Prolonged or frequent repeated skin contact may cause allergic reactions in some individuals

Toxicological Data:

Data from laboratory studies on this product are summarized below: **Oral:**

Rat LD_{50}: 760 mg/kg (female)

Dermal: Rabbit LD_{50}: > 5,050 mg/kg

Inhalation: Rat 4-hr LC_{50}: >2.34 mg/L (no mortality at highest dose tested))

Eye Irritation: Rabbit: Mildly irritating (Maximum Ave Irritation Score= 11.0)

Skin Irritation: Rabbit: Slightly irritating (PDII=0.4)

Skin Sensitization: Not a contact sensitizer in guinea pigs following repeated skin exposure.

Subchronic (Target Organ) Effects: Repeated overexposure to MCPA may cause effects to liver, kidneys, blood chemistry, testes and gross motor function. Rare cases of peripheral nerve damage have been reported, but extensive animal studies have failed to substantiate these observations, even at high doses of MCPA for prolonged periods. Repeated overexposure to bromoxynil may cause effects to liver, kidneys and central nervous system. **Carcinogenicity / Chronic Health Effects:**

Rat and mouse lifetime feeding studies did not show carcinogenic potential for MCPA. The U.S. EPA has classified bromoxynil as a Class C carcinogen (a possible human carcinogen), based on an increased incidence of liver tumors observed in mice.

Reproductive Toxicity: MCPA studies in laboratory animals have shown testicular effects and lower male fertility. There is no data available for 2-Ethylhexyl Ester of 2-Methyl-4-Chlorophenoxyacetic acid. Animal tests with bromoxynil have not demonstrated reproductive effects.

Developmental Toxicity: MCPA studies in laboratory animals have shown decreased fetal body weights and delayed development in the offspring at doses toxic to mother animals. There is no data available for 2-Ethylhexyl Ester of 2-Methyl-4-Chlorophenoxyacetic acid. Based upon the results of rat and rabbit teratogenicity studies, bromoxynil is considered to be a developmental toxicant. Women of childbearing age should be particularly careful when handling this product to avoid ingestion and skin contact.

Genotoxicity: There have been some positive and some negative studies, but the weight of evidence is that MCPA is not mutagenic. There have been some positive and negative studies, but the weight of evidence is that bromoxynil is not mutagenic. Neither *in vitro* nor *in vivo* tests on bromoxynil octanoate demonstrated mutagenic effects. Bromoxynil octanoate did not induce a genotoxic effect. **Assessment Carcinogenicity:**

This product contains substances that are considered to be probable or suspected human carcinogens as follows:

	Regulatory Agency Listing As Carcinogen			
Component	**ACGIH**	**IARC**	**NTP**	**OSHA**
Chlorophenoxy Herbicides (MCPA 2EHE)	No	2B	No	No
Bromoxynil	No	No	No	No
Solvent Naphtha (Petroleum), Heavy Aromatic	No	No	No	No
1-Methylnaphthalene	No	No	No	No
2-Methylnaphthalene	No	No	No	No
Naphthalene	A3	2B	Yes	No
Other Ingredients	No	No	No	No

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Data on MCPA 2EHE:

96-hour LC_{50} Bluegill:	3.9 mg/l	Bobwhite Quail Dietary LC_{50}:	>5,620 ppm
96-hour LC_{50} Rainbow Trout:	3.2 mg/l	Mallard Duck 8-day Dietary LC_{50}:	>5,620 ppm

48-hour EC_{50} Daphnia:	0.28 mg/l		
Data on Bromoxynil Octanoate:			
96-hour LC_{50} Bluegill:	0.06 mg/l	Bobwhite Quail Acute Oral LD_{50}:	148 mg/kg
96-hour LC_{50} Rainbow Trout:	0.041 mg/l	Mallard Duck Acute Oral LD_{50}:	2,050 mg/kg
48-hour EC_{50} Daphnia magna:	0.046 mg/l		
120-hour EC50 Algae :	0.043 mg/l (*Navicula*) 0.22 mg/l (*Selenastrum*)		

Environmental Fate:

MCPA 2EHE is rapidly de-esterfied to parent MCPA acid in the environment. In soil, MCPA is microbially degraded with a typical half-life of approximately 10 to 14 days.

Bromoxynil is mobile and non-persistent. The potential for ground water contamination from bromoxynil is low; it does not exhibit the mobility or persistence characteristics of pesticides that are normally found in ground water. Environmental fate studies indicate that bromoxynil should not persist in surface waters. The aerobic aquatic metabolism study shows rapid degradation with a half-life of <12 hours.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method:

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. If container is damaged or if pesticide has leaked, contain all spillage. Absorb and clean up all spilled material with granules or sand. Place in a closed, labeled container for proper disposal.

Container Handling and Disposal:

Nonrefillable Containers 5 Gallons or Less: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by State and local authorities. Plastic containers are also disposable by incineration, or, if allowed by State and local authorities, by burning. If burned stay out of smoke.

Nonrefillable containers larger than 5 gallons: Nonrefillable container. Do not reuse or refill this container. Offer for recycling if available. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

Refillable containers larger than 5 gallons: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. Agitate vigorously or recirculate water with the pump for two minutes. Pour or

pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

14. TRANSPORTATION INFORMATION

Follow the precautions indicated in Section 7: HANDLING AND STORAGE of this SDS.

DOT

119 gallons per complete package Non Regulated

≥ 119 gallons per complete package

UN 3082, Environmentally hazardous substance, liquid, n.o.s. (Bromoxynil octanoate), 9, III, Marine Pollutant

IMDG

UN 3082,Environmentally hazardous substance, liquid, n.o.s. (Bromoxynil octanoate), 9, III, Marine Pollutant

IATA

Non Regulated

15. REGULATORY INFORMATION

This chemical is a pesticide product registered by the United States 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 (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

CAUTION. Harmful if swallowed or absorbed through skin or inhaled. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Avoid breathing spray mist. **U.S.**

Federal Regulations:

TSCA Inventory: This product is exempted from TSCA because it is solely for FIFRA regulated use. **SARA**

Hazard Notification/Reporting:

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370): Acute Health, Chronic Health

Section 313 Toxic Chemical(s):

Bromoxynil octanoate (CAS No. 1689-99-2) 30.75 – 32.65% by weight. Naphthalene (CAS No 91-20-3) <0.3% by weight

Reportable Quantity (RQ) under U.S. CERCLA: Naphthalene

CAS No 91-20-3 100 lbs

RCRA Waste Code:

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.

State Information:

Other state regulations may apply. Check individual state requirements.

California Proposition 65:

WARNING. This product contains the chemicals Bromoxynil octanoate and naphthalene which are known to the State of California to cause cancer, birth defects or other reproductive harm.

16. OTHER INFORMATION

National Fire Protection Association (NFPA) Hazard Rating:
Rating for this product: Health: 1 **Flammability:** 1 **Reactivity:** 0
Hazards Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

This Safety Data Sheet (SDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE EPA-ACCEPTED PRODUCT LABELING (attached to and accompanying the product container). This SDS provides important health, safety and environmental information for employers, employees, emergency responders and others handling large quantities of the product in activities generally other than product use, while the labeling provides that information specifically for product use in the ordinary course.

Use, storage and disposal of pesticide products are regulated by the EPA under the authority of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) through the product labeling, and all necessary and appropriate precautionary, use, storage, and disposal information is set forth on that labeling. It is a violation of federal law to use a pesticide product in any manner not prescribed on the EPA-accepted label.
Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, Winfield Solutions, LLC makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Winfield Solutions, LLC be responsible for damages of any nature whatsoever resulting from the use or of reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

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Updates to Section(s): 3