SAFETY DATA SHEET

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

Product Name: BROMOXYNIL 240 EC

PCP Reg. No.: 32622

Product use: Herbicide

Supplier's name and address:
Albaugh, LLC
1525 NE 36th St.
Ankeny, IA 50021
1-800-247-8013

Emergency Telephone #:
1-800-424-9300 (CHEMTREC)

SECTION 2 — HAZARDS IDENTIFICATION

Physical Hazards: Flammable Liquid - Category 4

Health Hazards:

Serious eye damage –	Category 1
Skin Irritation –	Category 2
Skin Sensitizer –	Category 1A
Acute Toxicity (Oral) –	Category 4
Acute Toxicity (Inhalation) –	Category 4

Environmental Hazards: Hazardous to aquatic environment, acute - Category 1

Signal Word: DANGER

Hazard Statements: Combustible liquid. Causes serious eye damage. Causes skin irritation. May cause an allergic skin reaction. Harmful if swallowed. Harmful if inhaled. Very toxic to aquatic life.

Precautionary Statements: Keep away from flames and hot surfaces. Avoid contact with skin, eyes and clothing. Wear goggles or face shield during mixing/loading. Wear coveralls over a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. After use, wash hands and other exposed skin. Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product. Harmful if swallowed. This product contains an active ingredient and petroleum distillates which are toxic to aquatic organisms.

SECTION 3 — COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous Component	CAS No.	Percentage (%)
Bromoxynil (present as octanoate ester)	1689-99-2	30-35
Petroleum distillates (contains)*	64742-94-5	60-65
*Naphthalene	91-20-3	8-9

Content Listed on Product Label
Bromoxynil, present as octanoate ester ..... 240 g/L

SECTION 4 — FIRST AID MEASURES

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

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.

If on Skin or Clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center 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.

Take the container, label or product name and Pest Control Product Registration Number with you when calling a poison control center or doctor or going for treatment.

Do not induce vomiting. This product contains petroleum distillates. Vomiting may cause aspiration pneumonia. Treat symptomatically.

SECTION 5 — FIRE FIGHTING MEASURES

Extinguishing Media: Water fog, alcohol foam, carbon dioxide, dry chemical.

Special Firefighting Procedures: Firefighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires. Minimize and contain water runoff.
Flash Point: ..... > 98 °C
Conditions of Flammability: ..... May burn under fire conditions.
Hazardous Decomposition Products: ...Under fire conditions, may produce gases such as hydrogen bromide or other bromine compounds, hydrogen chloride, nitrogen oxides and carbon oxides.

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

SECTION 6 — ACCIDENTAL RELEASE MEASURES

Use safety equipment and procedures appropriate to the size of the spill. Keep unnecessary people away. Avoid runoff to natural waters and sewers. Surround and absorb spills with inert material such as perlite, sawdust, clay granules, vermiculite, sand or dirt. Contain all affected material in a closed, labeled container for proper disposal. Isolate from other waste materials. Clean contaminated area such as hard surfaces with detergent and water, collecting cleaning solution for proper disposal. Large spills to soil or similar surfaces may necessitate removal of top soil.

SECTION 7 — HANDLING AND STORAGE

Handling: Avoid contact with skin, eyes and clothing. Wear goggles or face shield during mixing/loading. Wear coveralls over a long-sleeved shirt, long pants, socks, shoes and chemical-resistant gloves. Rinse gloves before removal. After use, wash hands and other exposed skin. Remove and wash contaminated clothing before reuse. Avoid breathing spray mist. Do not eat, drink or smoke when using this product.

Storage: Store the container tightly closed away from seeds, fertilizer, plants and foodstuffs. May be stored at any temperature. Shake well before using.

SECTION 8 — EXPOSURE CONTROLS AND PERSONAL PROTECTION

Component	TWA*	STEL*	Note
Bromoxynil octanoate	0.21 mg/m3	N/E	Supplier recommendation
Petroleum distillates (contains)*	50 mg/m^3	N/E	Supplier recommendation
*Naphthalene	-	-	-

*Time Weighted Average, 8-hour unless otherwise noted
**Short Term Exposure Level
N/E – Not Established

Refer to approved product label for additional exposure control guidance.

Engineering Controls: Use only outdoors or in a well-ventilated area.

Personal Protective Equipment: All handlers must wear coveralls over a long-sleeved shirt and long pants. In addition, wear chemical-resistant gloves, socks, chemical resistant footwear and a chemical-resistant apron during mixing/loading activities. The field crew and the mixer/loaders must additional wear goggles or face shield during mixing/loading, cleanup and repair.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

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. If no value is determined for the formulation, the value listed is the most relevant value of the predominate ingredients(s).

Physical state and appearance: ..... Dark amber liquid
Odor: ..... Aromatic hydrocarbon like
Odor Threshold: ..... No data
pH: ..... 3.2 – 4.2
Melting Point: ..... No data
Freezing Point: ..... No data

Boiling Point: ..... No data
Flash Point: ..... >98°C (200°F)
Evaporation Rate: ..... No data
Flammability: ..... No data
Explosive Limits: ..... No data
Vapor Pressure: ..... <1 x 10^{-4} mPa (40°C) (bromoxynil octanoate)
Vapor Density: ..... No data
Density: ..... 1.10 – 1.13 g/mL (9.2-9.4 lb/gal)
Solubility: ..... Emulsifiers
Partition Coefficient: ..... log Pow = 5.4 (pH 7) (25°C) (bromoxynil octanoate)
Auto Ignition Temperature: ..... No data
Decomposition Temperature: ..... No data
Viscosity:..... 6.0 cSt (20°C)

SECTION 10 — STABILITY AND REACTIVITY

Reactivity: Not reactive

Chemical Stability: Stable under normal handling and storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Excessive heat. Do not store near heat or flame

Incompatible Materials: Avoid contact with strong acidic, basic or oxidizing agents.

Hazardous Decomposition Products: Under fire conditions, may produce gases such as hydrogen bromide or other bromine compounds, hydrogen chloride, nitrogen oxides and carbon oxides.

SECTION 11 — TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals. Data obtained on similar products and on components are summarized below.

Likely Routes of Exposure: Inhalation, ingestion, skin and eye contact.

Acute oral toxicity Rat, LD50: ..... > 700 mg/kg Acute

Acute dermal toxicity Rabbit, LD50: ..... > 5,050 mg/kg

Acute inhalation toxicity Rat, LD50: ..... > 1.1 mg/L (4-hr)

Skin irritation Rabbit: ..... Moderately irritating

Eye irritation Rabbit: ..... Severely irritating

Skin sensitization Guinea Pig: ..... Potential contact sensitizer

Mutagenicity: ..... The weight of evidence is that bromoxynil is not mutagenic. Products similar to the hydrocarbon component are not considered to be mutagenic.

Chronic effects/carcinogenicity: ..... Bromoxynil phenol has been classified by U.S. EPA in Group C, possible human carcinogen. Products similar to the hydrocarbon component are not considered to be mutagenic and are unlikely to cause tumors.

Toxicity to reproduction/fertility: ..... Animal reproduction studies with bromoxynil phenol and bromoxynil octanoate indicate there is no increased sensitivity of the young relative to maternal animals.

Developmental toxicity/teratogenicity: ..... No data

SECTION 12 — ECOLOGICAL INFORMATION

This section is intended for use by eco-toxicologists and other environmental specialists. Data obtained on similar products and on components are summarized below.

Ecotoxicity: (Technical)

Aquatic Toxicity:

Rainbow trout:	96-Hour LC_{50} (mg/L)	0.041
Bluegill sunfish:	96-Hour LC_{50} (mg/L)	0.006
Daphnia:	48-Hour EC_{50} (mg/L)	0.46
Algae: Selenastrum	120-Hpur EC_{50} (mg/L)	0.22
Algae: Navicula	120-Hpur EC_{50} (mg/L)	0.043

Avian toxicity

Bobwhite quail:	Oral LD_{50} (mg/kg) 170
	5-d Dietary LC_{50} (ppm) 1315
Mallard duck:	Oral LD_{50} (mg/kg) 2350
	5-d Dietary LC_{50} (ppm) 2150

Arthropod toxicity:

Honey bee:	LD_{50} >100 µg/bee (48 h contact)
	LD_{50}> 119.8 µg/bee (96 h oral)

Soil organism toxicity, invertebrates:

Earthworm:..... No data

Persistence and Degradability: Bromoxynil octanoate degrades readily to bromoxynil phenol by abiotic hydrolysis, photolytic degradation, and microbially-mediated metabolism, in both aerobic and anaerobic environments. Representative soil half-lives are 2 days for the octanoate and 14 days for the phenol.

Bioaccumulation Potential: Bromoxynil octanoate can bioaccumulate but will depurate.

Mobility in Soil: Moderate to high mobility potential, but rapidly degraded.

Other Adverse Effects: No data.

SECTION 13 — DISPOSAL CONSIDERATIONS

For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Disposal should be made in accordance with federal, provincial and local regulations.

Do not reuse container for any purpose. If applicable, return container in accordance with return program. If a recyclable container, dispose of at a container collection site. Contact local distributor, dealer or municipality for the location of the nearest collection site. Before taking the container to the collection site, triple or pressure rinse the empty container adding rinsing to spray tank, and make container unsuitable for further use. If there is no container collection site in your area, dispose of the container in accordance with provincial requirements.

SECTION 14 — TRANSPORTATION INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly

classify your shipment for transportation.

CANADA:
TDG Classification – Road/Rail:
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (bromoxynil), Class 9, PG III
Marine Pollutant.

Section 1.45.1 of the TDG Regulations provides an exemption from documentation and safety marks only for this product and only when transported by a road or railway vehicle.

UNITED STATES:
DOT Classification – Ground:

Containers ≤ 134 gallons –	Not regulated
Containers > 134 gallons –	UN3082, Environmentally Hazardous Substances, Liquid, N.O.S., 9, PG III, RQ (naphthalene)

IMDG Water Transportation:
UN3082, Environmentally hazardous substance, liquid, n.o.s., (Bromoxynil octanoate), 9, III, Marine Pollutant

IATA:
UN3082, Environmentally hazardous substance, liquid, n.o.s., (Bromoxynil octanoate), 9, III, Marine Pollutant

SECTION 15 — REGULATORY INFORMATION

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. 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 product label:

WARNING POISON
WARNING: EYE AND SKIN IRRITANT

SECTION 16 — OTHER INFORMATION

This Safety Data Sheet (SDS) is designed to comply with the Globally Harmonized System (GHS) of chemical hazard classification. he information given here is not necessarily exhaustive but is representative of relevant, reliable data. Follow all local/regional/national/international regulations.

HMIS Rating: 2 Health; 2 Flammability; 0 Reactivity

0 = Minimal hazard, 1 = Slight hazard, 2 = Moderate hazard, 3 = Severe hazard, 4 = Extreme hazard

This Material Safety Data Sheet (MSDS) serves different purposes than and DOES NOT REPLACE OR MODIFY THE Pest Management Regulatory (PMRA)- APPROVED PRODUCT LABELING (attached to and accompanying the product container). This MSDS 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 product labeling and provincial legislation, 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

PMRA-approved label.

Prepared by: Albaugh, LLC

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Revised For: Modified section 3 and 8 to include solvent amount.