



## SAFETY DATA SHEET

# EnviroMax Bromoxynil-MCPA Selective Herbicide

Section 1: Identification	
<b>Product identifier:</b>	EnviroMax Bromoxynil-MCPA Selective Herbicide.
<b>Other means of identification:</b>	Bromoxynil-MCPA emulsifiable concentrate herbicide
<b>Recommended use of the chemical and restrictions on use</b>	For the control of various weeds of turf situations as specified on the product label
<b>Details of manufacturer</b>	EnviroMax Technologies Pty Ltd Level 3, 549 Queen St., Brisbane, Queensland 4000, Australia
<b>Emergency phone number</b>	61- (0) 4099 26561
Section 2: Hazard Identification	
<b>Hazard Classification:</b>	Hazardous substance
<b>Signal Word:</b>	POISON / WARNING
<b>Hazard statements:</b>	Toxic. R63 - Possible risk of harm to the unborn child. R23 - Toxic by inhalation. R20/21/22 - Harmful by inhalation, in contact with skin and if swallowed. R43 - May cause sensitisation by skin contact.  Dangerous for the Environment; R50-53 - Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.
<b>Precautionary statements:</b>	<p><b>Prevention:</b> Do not swallow. Avoid contact with spray. Wash hands, arms and face after use with soap and water.</p> <p><b>Response:</b> If swallowed: Move affected person to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.</p> <p><b>Storage:</b> Store in a well-ventilated place. Keep container tightly closed. Store locked up.</p> <p><b>Disposal:</b> Dispose of contents/container in accordance with container label instructions as per local State and Council requirements.</p>

### Symbols:



Skull and crossbones



Acute aquatic hazard

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## Section 3: Composition / Information On Ingredients

### Chemical Identity of Ingredients

Common Name	CAS Number	Concentration
Bromoxynil octanoate	1689-99-2	28.4%
MCPA 2-Ethyl Hexyl Ester	26544-20-7	30.8%
Aromatic hydrocarbon (contains 3-8% naphthalene)	64742-94-5 (91-20-3)	32.0%
Other non-hazardous ingredients	-	8.8%

## Section 4: First Aid Measures

### General Advice:

For advice, contact the Drug and Poison Information Centre (phone Singapore 6423-9119) or a doctor (at once). Have this MSDS with you when you call.

### Description of necessary first aid measures

#### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek medical attention if symptoms persist.

#### Skin Contact:

Remove contaminated clothing and wash affected areas with soap and water. Seek medical attention if symptoms persist. Wash clothing before reuse.

#### Eye Contact:

In case of eye contact, check for and remove any contact lenses. Immediately irrigate eyes with plenty of running water for at least 15 minutes, keeping eyelids open. Seek medical attention if symptoms persist.

#### Ingestion:

If swallowed, do not induce vomiting. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. Can cause chemical pneumonitis and pulmonary oedema. Symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.. Seek immediate medical attention.

### Symptoms caused by exposure

Local: the product causes irritation of eyes, skin and mucous membranes, sensitisation;

Systemic: tiredness, thirst, sweating, anxiety, hyperventilation, tachycardia, muscle rigidity, hyperthermia, vomiting, abdominal pain, ataxia, anorexia, liver damage, acidosis, hypotension, circulatory collapse, cough, shortness of breath, nausea, diarrhoea, rhabdomyolysis, somnolence, coma, convulsions.

### Medical attention and special treatment

Initial treatment: symptomatic.

Monitor: respiratory and cardiac functions.

Forced alkaline diuresis and haemodialysis may be considered. Carefully monitor the liver and kidney functions. In case of ingestion gastric lavage should be considered in cases of significant ingestions only within the first 2 hours. However, the application of activated charcoal and sodium sulphate is always advisable. In case of hyperthermia physical cooling is advisable; in case of muscle rigidity muscle relaxants and mechanical ventilation may support in counteracting hyperthermia. Watch for pulmonary oedema, which may develop in serious cases of poisoning even after 24-48 hours. At first sign of pulmonary oedema, the patient should be placed in an oxygen tent and treated symptomatically. There is no specific antidote.

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<b>Section 5: Fire Fighting Measures</b>	
<b>Suitable extinguishing equipment:</b>	Use water spray*, alcohol-resistant foam, dry chemical or carbon dioxide. * Do not use extinguisher type which may spread fire (eg solid water stream or high volume water jet).
<b>Specific hazards arising from the chemical</b>	Dangerous gases are evolved in the event of a fire.
<b>Special protective equipment and precautions for fire fighters</b>	In the event of fire and/or explosion do not breathe fumes. In the event of fire, wear self-contained breathing apparatus. Remove product from areas of fire, or otherwise cool containers with water in order to avoid pressure being built up due to heat. Whenever possible, contain fire-fighting water by diking area with sand or earth.
<b>Section 6: Accidental Release Measures</b>	
<b>Personal precautions, protective equipment and emergency procedures</b>	Keep people away from and upwind of spill/leak. Avoid contact with spilled product or contaminated surfaces. When dealing with a spillage do not eat, drink or smoke.
<b>Environmental precautions</b>	In the event of a spill, prevent spillage from entering drains or water courses with absorbent material and call emergency services.
<b>Methods and materials for containment and cleaning up</b>	Contain product spill as appropriate. Contain spill of diluted mix by absorbing with clay, sand, soil or proprietary absorbent (such as vermiculite). Cover drains if possible. Collect spilled material and waste in sealable open-top type containers for disposal.
<b>Section 7: Handling And Storage</b>	
<b>Precautions for safe handling</b>	Read container label before use. Use only in accordance with the instructions provided on the container label, including the Precaution and Protection sections and the Safety Directions.
<b>Conditions for safe storage</b>	Store in the closed, original container in a dry, well ventilated area, as cool as possible.
<b>Section 8: Exposure Controls / Personal Protection</b>	
<b>Exposure control measures</b>	<u>Naphthalene:</u> Time Weighted Average (parts per million) 10 ppm Time Weighted Average (mg/m <sup>3</sup> ) 52 mg/m <sup>3</sup> Short Term Exposure Limit (parts per million) 15 ppm Short Term Exposure Limit (mg/m <sup>3</sup> ) 79 mg/m <sup>3</sup> <u>No other ingredients require controls</u>
<b>Biological monitoring</b>	No biological limit allocated for the product or any of its ingredients. No biological monitoring is required.
<b>Control Banding</b>	No control banding level allocated.
<b>Engineering controls</b>	Use only in a well ventilated area.
<b>Individual protection measures</b>	Avoid contact with eyes and skin. DO NOT inhale spray mist. When preparing the spray and using the prepared spray wear cotton overalls buttoned to the neck and wrist, a washable hat and elbow-length PVC gloves and face shield or goggles. If product In eyes, wash It out immediately with water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, face shield or goggles and contaminated clothing.
<b>Section 9: Physical and Chemical Properties</b>	
<b>Appearance:</b>	clear brown to dark brown liquid
<b>Odour:</b>	aromatic
<b>pH:</b>	3-5 (1% w/v dilution)
<b>Melting point/freezing point:</b>	No data available for formulation. Hydrocarbon liquid = -20°C

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<b>Initial boiling point:</b>	No data available for formulation. Hydrocarbon liquid = 179°C
<b>Flash point:</b>	No data available for formulation. Hydrocarbon liquid = 62°C
<b>Evaporation rate (NBAC = 1):</b>	No data available for formulation. Hydrocarbon liquid = 0.09
<b>Upper/lower flammability:</b>	No data available for formulation. Upper (in air): 0.6 % (v/v); Lower (in air): 7.0 % (v/v)
<b>Vapour pressure:</b>	0.083 kPa @ 20°C (hydrocarbon liquid) 0.0001 mPa @ 25°C (bromoxynil octanoate) 0.4 mPa @ 25 °C (MCPA)
<b>Vapour density (air=1):</b>	No data available for formulation. Hydrocarbon liquid - 4.7
<b>Specific Gravity</b>	1.07 kg/L
<b>Solubility (water)</b>	0.03 mg/L (bromoxynil octanoate) 29390 mg/L (MCPA) EnviroMax Halosulfuron-methyl 750WG Herbicide is an emulsifiable concentrate and so not soluble in water
<b>Octanol-Water Partition Coefficient (K<sub>ow</sub>):</b>	P= 7.94 X 10 <sup>05</sup> @ pH 7 & 20°C (bromoxynil octanoate) P= 1.55 X 10 <sup>-01</sup> @ pH 7 & 20°C (MCPA)
<b>Henry's constant:</b>	5.52 X 10 <sup>-07</sup> @ 20°C (dimensionless)(bromoxynil octanoate) 1.10 X 10 <sup>-08</sup> @ 20°C (dimensionless) (MCPA)
<b>Ignition temperature:</b>	No data available for formulation. Hydrocarbon liquid - 480 °C
<b>Viscosity:</b>	No data available for formulation. Hydrocarbon liquid - 1.19 centipoise (cP) @ 25 °C
<b>Section 10: Stability And Reactivity</b>	
<b>Reactivity:</b>	Stable under normal storage conditions and use
<b>Chemical stability:</b>	Stable under normal storage conditions and use.
<b>Possibility of hazardous reactions:</b>	None when stored and used as directed. Hazardous polymerisation is not possible.
<b>Conditions to avoid:</b>	Exposure to excessive heat, open flames and sparks.
<b>Incompatible materials:</b>	No particular incompatibilities. Store and use as directed. Avoid contact with strong oxidizing agents
<b>Hazardous decomposition products</b>	Carbon dioxide and carbon monoxide may form when heated to decomposition.
<b>Section 11: Toxicological Information</b>	
<b>Acute Oral (LD<sub>50</sub>):</b>	612 mg/kg (rat, calculated from ingredients) Category 3
<b>Acute Dermal (LD<sub>50</sub>):</b>	2740 mg/kg (rat, calculated from ingredients) Category 4
<b>Acute Inhalation (LC<sub>50</sub>):</b>	No data for the product. Bromoxynil octanoate 4-hour LC50 is 0.72 mg/L in rats. MCPA 4-hour LC50 is >6.36 mg/L in rats. Hydrocarbon liquid - rat, LC50 104 ppm /4 Hours.
<b>Skin irritation:</b>	No data for product. Bromoxynil octanoate 4 is a skin irritant. MCPA is not a skin irritant. Hydrocarbon liquid is a slight irritant
<b>Eye irritation:</b>	No data for the product. Bromoxynil octanoate is not an eye irritant. MCPA is not a skin irritant. Hydrocarbon liquid is a slight irritant
<b>Skin sensitisation:</b>	Not a skin sensitiser
<b>Genotoxicity (mutagenicity)</b>	No data for the product. Bromoxynil octanoate and MCPA are not considered to be genotoxic via in-vitro and in-vivo studies.
<b>Carcinogenicity:</b>	No data for the product. Bromoxynil octanoate and MCPA are not considered to be carcinogenic (24 month rat study). Naphthalene, an impurity in the hydrocarbon liquid
<b>Reproductive toxicity:</b>	No data for the product. Bromoxynil octanoate did not cause reproductive toxicity in a two-generation study in rats. MCPA did not cause reproductive toxicity in a two-generation study in rats.
<b>Developmental toxicity:</b>	No data for the product. Bromoxynil octanoate caused a delayed foetal growth, an increased incidence of nonspecific malformations.

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	Bromoxynil octanoate caused developmental toxicity only at dose levels toxic to the dams. MCPA caused developmental toxicity only at dose levels toxic to the dams. MCPA caused a delayed foetal growth..
<b>Specific Target Organ: Toxicity – single exposure:</b>	No data for the product. For Bromoxynil octanoate and MCPA no primary target organ for toxicity was identified from acute dose studies in mice, rats, rabbits and guinea pigs.
<b>Specific Target Organ Toxicity – repeat exposure:</b>	No data for the product. Bromoxynil octanoate caused specific target organ toxicity in experimental animal studies in the following organ(s): liver. The observed effects do not appear to be relevant for humans. MCPA did not cause specific target organ toxicity in experimental animal studies.
<b>Aspiration hazard:</b>	No data for the product. See Acute Inhalation above for individual ingredients

### Inhalation

Product is poisonous if inhaled. DO NOT inhale spray mist.

### Skin Contact

Product will irritate the skin.

### Eye Contact

Product will damage the eyes.

### Ingestion

Product is poisonous if inhaled.

### Early onset symptoms relate d to exposure

The product causes irritation of eyes, skin and mucous membranes, sensitisation;

### Delayed health effects from exposure

The following health effects are possible: tiredness, thirst, sweating, anxiety, hyperventilation, tachycardia, muscle rigidity, hyperthermia, vomiting, abdominal pain, ataxia, anorexia, liver damage, acidosis, hypotension, circulatory collapse, cough, shortness of breath, nausea, diarrhoea, rhabdomyolysis, somnolence, coma, convulsions.

### Exposure levels and health effects

No information for the product. MCPA has a No Observable Effect Level of 60 mg/kg bw/day from rats in a short-term dietary. See Section 8 above for safe exposure levels for naphthalene in hydrocarbon liquids.

## Section 12: Ecological Information

### ENVIRONMENTAL TOXICITY

<b>Ecotoxicity:</b>	<b>Information on Bromoxynil octanoate, the primary environmental toxicants in EnviroMax Bromoxynil-MCPA Selective Herbicide.</b>
Fish:	LC50 (96 h) 0.041mg/L, <i>Oncorhynchus mykiss</i> NOEC (21 d) 0.0034 mg/l, <i>Oncorhynchus mykiss</i>
Aquatic invertebrates:	EC50 (48 h) 0.046 mg/l, <i>Daphnia magna</i> NOEC (21 d) 0.0025 mg/l, <i>Daphnia magna</i> EC50 (96 h) 0.065 mg/L Mysid shrimp ( <i>Americamysis bahia</i> ) NOEC (28 d) 0.1 mg/kg sediment <i>Chironomus riparius</i>
Aquatic plants:	EC50 (7 day) 0.073 mg/l (biomass), <i>Lemna gibba</i> EC50 (72 h) 0.043 mg/l (growth), <i>Navicula pelliculosa</i>

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Birds:	Acute oral LD50 170 mg/kg <i>Colinus virginianus</i> (bobwhite quail) Short-term dietary LC50 1315 mg/kg feed <i>Colinus virginianus</i> (bobwhite quail)
Honeybees:	Acute 48 hour LD50 - >100 µg bee <sup>-1</sup>
<b>Persistence and degradability</b>	Half-life of Bromoxynil octanoate is 1 day in aerobic soils (non- persistent). Half-life of MCPA is 24 days in aerobic soils (non- persistent).  No evidence of volatility  Bromoxynil octanoate has hydrolysis half life at pH 7 of 11 days (non-persistent). MCPA is stable to hydrolysis at pH 7 and is not pH sensitive.
<b>Bioaccumulative potential</b>	MCPA bioaccumulation potential is considered to be low. Bromoxynil octanoate: <i>Lepomis macrochirus</i> (Bluegill sunfish): Bioconcentration factor (BCF): 230. The value mentioned relates to the combination of bromoxynil phenol and the active ingredient bromoxynil octanoate.
<b>Mobility in soil</b>	Bromoxynil octanoate is slightly to moderately mobile. MCPA is mobile.  Bromoxynil octanoate: Kf = 7.0 (Freundlich) Kfoc = 639 MCPA: Kf = 0.94 (Freundlich) Kfoc = 74

### Section 13: Disposal Considerations

#### Product Disposal:

Product Disposal: On site disposal of the concentrated product is not acceptable. Ideally, the product should be used for its intended purpose. If there is a need to dispose of the product, approach local authorities who hold periodic collections of unwanted chemicals.

#### Container Disposal

Do not use this container for any other purpose. Triple or preferably pressure rinse empty containers before disposal or recycling. Add rinsings to spray tank. Contact licensed industrial waste collector for proper disposal.

### Section 14: Transport Information

<b>UN Number:</b>	3082 (Bromoxynil octanoate)
<b>UN Proper Shipping Name:</b>	For bulk shipments as Class 9, use UN 3082, HazChem code 3Z.
<b>Transport hazard class</b>	9 (bulk shipments)
<b>Packing Group:</b>	III.
<b>Environmental hazards for Transport Purposes</b>	Marine Pollutant, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,N.O.S.
<b>Special precautions for user:</b>	None
<b>Hazchem</b>	3Z (bulk shipments)

#### ADG Code:

According to AU01, Environmentally Hazardous Substances in packaging, IBC or any other receptacle not exceeding 500 kg or 500 L are not subject to the ADG Code.

### Section 15: Regulatory Information

**POISON Schedule:** 6 – POISON

Registered according to the Agricultural and Veterinary Chemicals Code Act 1994

Australian Pesticides and Veterinary Medicines Authority registration number: 69397.

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## Section 16: Other Information

### References:

1. IUPAC Agrochemical Information <http://sitem.herts.ac.uk/aeru/iupac/746.htm>
2. IUPAC Agrochemical Information <http://sitem.herts.ac.uk/aeru/iupac/427.htm>
3. Hazardous Substances Data Bank (HSDB) - Bromoxynil octanoate <http://toxnet.nlm.nih.gov/cgi-bin/sis/search/r?dbs+hsdb:@term+@rn+@rel+1689-99-2>

### Acronyms

LD50 or LC50 – Estimated lethal dose / concentration to kill 50% of the population/sample.

### Distributed by;

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