



Interprovincial Cooperative Limited

LOGIC M

MATERIAL SAFETY DATA SHEET

1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Logic M*
 Product Use: Phenoxy (Broadleaf) Herbicide
 Product Number: 28109

Manufacturer /Supplier: INTERPROVINCIAL COOPERATIVE LTD.
 945 Marion St.
 Winnipeg, Manitoba
 R2J 0K7 www.ipco.ca

Effective Date: January 01/2012

This product is regulated under authority of the Pest Control Products Act

2: HAZARD IDENTIFICATION

Effects of Overexposure:

Route of Exposure: Inhalation, eye contact, skin contact, ingestion.
 Inhalation: May cause headaches, nausea, and lack of coordination. May be harmful if inhaled...
 Eye Contact: Mildly irritating.
 Skin Contact: Warning Skin irritant. Potential skin sensitizer.
 Ingestion: May be harmful if swallowed. Aspiration can be a hazard if this material is swallowed. Will cause vomiting, nausea, diarrhea

3: COMPOSITION AND INFORMATION ON INGREDIENTS

COMPONENT	CAS NUMBER	% (W/W)
(4-Chloro-2-methylphenoxy) acetic acid, 2-ethylhexyl ester	94-74-6	31.90 – 33.88
Bromoxynil Octanoate	1689-99-2	30.78- 32.68
Hydrotreated light petroleum distillates	64742-47-8	27.33 – 29.03
Other ingredients		6.84 – 7.56
Naphthalene	91-20-3	
1, 2, 4-Trimethylbenzene	95-63-6	

Ingredients not listed are proprietary or non-hazardous

4: FIRST AID MEASURES

In case of poisoning, call a physician or poison control centre IMMEDIATELY.

Inhalation: 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.

Ingestion: 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

Skin: Flush skin with running water, and then continue flushing with running water for 5 - 10 minutes. Start flushing while removing contaminated clothing. If irritation persists, repeat flushing. Obtain medical attention IMMEDIATELY.

In case of emergency call CANUTEC at 613-885-6666
 Interprovincial Cooperative Ltd.; Information Phone: 204-233-3461
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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 container, label or product name and Pest Control Product Registration Number with you when seeking medical attention
Emergency Medical Care:	No specific antidote. Treatment of any systemic intoxication should be primarily symptomatic and supportive. Contains petroleum distillates. Vomiting may cause aspiration pneumonia. Do not induce vomiting. This product may cause mild irritation to the eyes. Overexposure to MCPA may cause coughing, burning, dizziness or temporary loss of muscle co-ordination. Other possible effects of overexposure include fatigue, muscle weakness or nausea.

5: FIRE-FIGHTING MEASURES

Unusual Fire & Explosion Hazards:	Toxic fumes under high temperature conditions. Contain water from fire fighting to prevent entry into water supplies...
Extinguishing Media:	Carbon Dioxide, Foam, Water Fog, and Dry Chemical
Special Oxidizing Material Hazards:	Not Established
Hazardous Combustion Products:	Noxious fumes under fire conditions.
Special Fire Fighting Procedures:	Use water spray to cool fires exposed containers or structures. Use water spray to disperse vapours; re-ignition is possible. Use self-contained breathing apparatus and protective clothing.

6: ACCIDENTAL RELEASE MEASURES

In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations.

7: HANDLING AND STORAGE

Store in a cool, well-ventilated area. Keep away from heat, sparks and filling of containers. Keep away from children; prevent contact with eyes, skin, and clothing. Do not store near fertilizers, foodstuffs, seed, insecticides or fungicides.

Do not contaminate irrigation ditches or domestic water supplies. If this happens notify police and local authorities.

8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:

(4-Chloro-2-methylphenox) acetic acid, 2-ethylhexyl ester

LD50-ORAL:	700 mg/kg Rat
LD50-DERMAL:	> 4000 mg/kg Rabbit
T.L.V. (ACGIH):	Not Established
LC50:	> 6.36 mg/L (4 hrs) Rat
Bromoxynil Octanoate	
LD50-ORAL:	333 mg/kg Rat
LD50-DERMAL:	> 2000 mg/kg Rabbit
T.L.V. (ACGIH):	Not Established
LC50:	> 4.36 mg/L (4 hrs) Rat

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Solvent Naphtha (Petroleum), Heavy Aromatic	
LD50-ORAL:	> 3, 000 mg/kg Rat
LD50-DERMAL:	> 3160 mg/kg Rabbit
T.L.V. (ACGIH):	Total Hydrocarbons: 100 mg/m ³
LC50:	Not Established
Special Engineering Controls:	Local exhaust ventilation required.
Eye Protection:	CSA approved safety glasses with side shields or goggles.
Respiratory Protection:	A NIOSH/MSHA approved air-purifying respirator equipped with organic vapor cartridges near or below TLV. Air supplied respirator above TLV or unknown concentrations.
Hand and Arm:	PVC or rubber gloves.
Feet:	Rubber boots.
Body:	Coveralls.
Other Personal Protection:	Recommendations listed above indicate the type of equipment which will provide protection against overexposure to this product. Conditions of use, adequacy of engineering or other control measures, and actual exposures will dictate the need for specific protective devices at your workplace.

9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance & Odour:	Brown, Colour "Solvent" odour
Specific Gravity:	(@ 20 ^o c): 1.1200
Vapour density:	Solvent Naphtha (Petroleum), Heavy Aromatic: > 4.6 (Air =1)
Solubility in water:	Emulsifies
Solubility in liquids:	Not established
Freezing point:	< 0 ^o c
% volatile by volume:	Not applicable
Boiling point:	Solvent Naphtha (Petroleum), Heavy Aromatic: 184 - 205 ^o C
Odour threshold (ppm):	Not established
Coefficient of water/oil distribution:	Not applicable
Vapour pressure:	Solvent Naphtha (Petroleum), Heavy Aromatic: 0.40 Kpa @ 20 ^o C
Evaporation rate:	Solvent Naphtha (Petroleum), Heavy Aromatic: < 0.06 (n-butyl acetate = 1)
pH: (1% Sol'n):	4.5
Viscosity:	14 cps at 20 ^o C
Flash Point & Method:	(^o C): 65 (Tag Closed Cup)
Flammable Limits (% in air):	Lower: 1.8 Solvent Naphtha (Petroleum), Heavy Aromatic Upper: 11.4 Solvent Naphtha (Petroleum), Heavy Aromatic
Autoignition Temperature	Solvent Naphtha (Petroleum), Heavy Aromatic: 433 ^o C

10: STABILITY AND REACTIVITY

Decomposition Temp:	Not Established
Stability:	Stable under normal conditions.
Materials to Avoid:	Acidic, basic or oxidizing agents
Hazardous Decomposition Products:	Hydrogen Chloride, Carbon Dioxide, Carbon Monoxide, and other chloride compounds
Hazardous Polymerization or Condensation:	Will not occur.
Conditions to Avoid:	High temperatures, sparks, open flames, and all other sources of ignition.

11: TOXICOLOGICAL INFORMATION

Skin Absorption:	Acute dermal LD50 (Rat)	3172 mg/kg.
Ingestion:	Acute oral LD50 (rat)	726 mg/kg.
Inhalation:	LC50	7.66 mg/L (4 hr, nose-only exposure) Rat

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T.W.A. (ACGIH):	Total Hydrocarbons: 100 mg/m ³
Chronic Health Hazards:	Prolonged or repeated exposure may lead to kidney or central nervous system symptoms.
Mutagenicity Data:	There have been some positive and some negative studies, but the weight of evidence is that bromoxynil and MCPA are not mutagenic..
Carcinogenicity Data:	Bromoxynil phenol has been classified by U.S. EPA in Group C, limited evidence of carcinogenicity in animals. The International Agency for Research on Cancer (IARC) lists exposure to chlorophenoxy herbicides as a class 2B carcinogen, the category for limited evidence for carcinogenicity in humans. Newer MCPA lifetime feeding studies in rats and mice did not show carcinogenic potential. A minor ingredient in this product, naphthalene, has been reported by the U.S. National Toxicology Program to be associated with increased nose/lung tumors in laboratory animals via inhalation exposure
Teratogenicity Data:	Based on the results of studies in laboratory animals, bromoxynil phenol is considered to be a developmental toxicant. Women of childbearing age should avoid excessive exposure. MCPA studies in laboratory animals have shown decreased fetal body weights and delayed development in the offspring at doses toxic to mother animals
Reproductive Effects:	Animal studies on bromoxynil phenol did not indicate a pattern of reproductive toxicity, but a study on bromoxynil octanoate indicated possible mild male reproductive toxicity at high doses. For MCPA, testicular effects and lower male fertility have been noted in animal studies.

12: ECOLOGICAL INFORMATION

Data on MCPA 2-EHE or EC formulation:

96-Hour LC50 (mg/L): > 5.8 (Rainbow Trout)

96-Hour LC50 (mg/L): > 6.6 (Bluegill)

48-Hour EC50 (mg/L): 0.30 (Daphnia)

Oral LD50 (mg/kg): > 5620 (Bobwhite Quail)

Dietary LC50 (ppm): > 5620 (Mallard Duck)

Data on Bromoxynil Octanoate:

96-Hour LC50 (mg/L): 0.1 (Rainbow Trout)

96-Hour LC50 (mg/L): 0.053 (Bluegill)

48-Hour EC50 (mg/L): 0.096 (Daphnia)

Oral LD50 (mg/kg): 1150 (Bobwhite Quail)

Dietary LC50 (ppm): 1880 (Mallard Duck)

Chemical Fate Information: Bromoxynil octanoate ester degrades readily to bromoxynil phenol in the environment. Representative soil half-lives are 2 days for the octanoate and 14 days for the phenol. MCPA 2EHE rapidly hydrolyzes to parent MCPA acid. In soil, MCPA is microbially degraded with typical half-life of approximately 10 to 14 days.

13: DISPOSAL CONSIDERATIONS

Dispose of waste materials in an approved incinerator or waste treatment/disposal facility in accordance with applicable regulations. Do not dispose of wastes in local sewer or with normal waste

14: TRANSPORT INFORMATION

This product is Not Regulated under regulations of the Transport of Dangerous Goods Act.

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15: REGULATORY INFORMATION

Pest Control Products Act
Registration Number: 28109
For Information Phone: 204-233-3461
MSDS Status/
Revised Sections:
Replaces MSDS Dated: September 01, 2009

16: OTHER INFORMATION

WHMIS Ratings: B3, D2B
Notice: The enclosed information is supplied as a customer service and is provided in good faith. Although it has been based on data drawn from sources deemed to be reliable, IPCO cannot guarantee its accuracy and assumes no responsibility for conditions resulting from its use.