

MATERIAL SAFETY DATA SHEET

BADGE II

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1. IDENTIFICATION

Product name: **BADGE II (PCP REG. NO. 30370)**
Chemical name of active ingredient(s): Bromoxynil : 2,6,-Dibromo-4-cyanophenyl octanoate
MCPA : 4-chloro-2-methylphenoxyacetic acid
Manufacturer/Registrant: Makhteshim Agan of North America, Inc.
3120 Highwoods Boulevard, Suite 100
Raleigh, NC 27604
Phone: 1-919-256-9300
For fire, spill, and/or leak emergencies, contact Infotrac: Phone: 1-800-535-5053
For medical emergencies and health and safety inquiries, contact Prosar: Phone: 1-877-250-9291

2. COMPOSITION/INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NO.	%	OSHA PEL	ACGIH TLV	OTHER	NTP/IARC/OSHA (CARCINOGEN)
Bromoxynil (present as octanoate ester)	1689-99-2	30-35	NA	NA	NA	NA
MCPA (present as 2-ethylhexyl ester)	29450-45-1	30-35	NA	NA	NA	NA
Heavy aromatic petroleum hydrocarbons:	64742-94-5	25-30	525 mg/m ³ (TWA)	NE	NE	NA
Contains Naphthalene (% of total)	91-20-3	< 1	10 ppm 50 mg/m ³	10 ppm 52 mg/m ³	15 ppm 75 mg/m ³ (STEL)	NTP – 2* IARC –2B**
Emulsifiers and other proprietary ingredients		5-10	NA	NA	NA	NA

* Substances, which may reasonably be anticipated to be carcinogens.

** Substance is possibly carcinogenic to humans.

NA: Not applicable; NE: Not established.

3. HAZARDS IDENTIFICATIONS

PHYSICAL PROPERTIES:

Appearance: Amber to brown liquid

Odor: Characteristic phenolic and hydrocarbon

EMERGENCY OVERVIEW: KEEP OUT OF REACH OF CHILDREN. DANGER POISON. WARNING - SKIN IRRITANT. POTENTIAL SKIN SENSITIZER. Do not get into eyes, on skin or on clothing

IMMEDIATE EFFECTS:

INGESTION: Harmful if swallowed. May cause headache, dizziness, nausea, vomiting, gastrointestinal irritation, weakness, central nervous system depression, unconsciousness, respiratory failure, or in extreme cases, death. Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.

SKIN CONTACT: Causes moderate skin irritation. Harmful if absorbed through the skin. Overexposure by skin absorption may cause symptoms similar to those for ingestion. May cause allergic reactions in sensitive individuals.

INHALATION: Low to moderate inhalation toxicity based on laboratory animal testing of a similar formulation as a mist. Inhalation toxicity by vapour is unlikely under normal conditions, however, high concentrations of vapours from undiluted product may cause headache, dizziness, respiratory tract irritation and symptoms similar to those from ingestion.

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EYE CONTACT: May cause severe eye irritation.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin exposure may aggravate preexisting skin conditions. Inhalation of spray mist may aggravate preexisting respiratory conditions.

PRIMARY ROUTES OF EXPOSURE: Eye contact, skin absorption, inhalation and ingestion.

4. FIRST AID

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

TOXICOLOGICAL INFORMATION: This product contains PETROLEUM DISTILLATES. Vomiting may cause aspiration pneumonia. High concentrations of MCPA may cause severe irritation to the eyes. Symptoms of overexposure to MCPA could include slurred speech, twitching, jerking and spasms, drooling, low-blood pressure and unconsciousness. Treat symptomatically.

5. FIRE FIGHTING MEASURES

FLASH POINT: >100°C

FLAMMABLE LIMITS: LFL: NA. Approximately 11-13 for hydrocarbon component.

UFL: NA. Approximately 1.5-2.1 for hydrocarbon component.

EXTINGUISHING MEDIA: Water fog, alcohol foam, carbon dioxide, dry chemical.

HAZARDOUS DECOMPOSITION PRODUCTS : Hydrogen bromide, other bromine compounds, hydrogen chloride, other chlorine compounds, carbon dioxide, carbon monoxide, oxides of nitrogen, oxides of sulfur and other potentially toxic combustion products may be present.

FIRE AND EXPLOSION HAZARDS: When heated above the flash point, this material emits vapours which, when mixed with air, can burn or be explosive. Heavier than air vapours may travel to an ignition source.

SPECIAL FIRE-FIGHTING PROCEDURES: Firefighters should wear NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Keep unnecessary people away, isolate hazard area and deny entry. Evacuate residents who are downwind of fire. Dike area to prevent runoff and contamination of water sources. Dispose of fire control water later.

Persons who may have been exposed to contaminated smoke should be immediately examined by a physician and checked for symptoms of poisoning. The symptoms should not be mistaken for heat exhaustion or smoke inhalation. Cool containers exposed to fire with water.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS/LEAKS: Use safety equipment and procedures appropriate to the size of the spill. Keep potential ignition sources and unnecessary people away. Avoid runoff to natural waters and sewers. Surround and absorb spills with inert material such as perlite, clay granules, vermiculite, sand or dirt. Contain all affected material in a closed, labeled container for proper disposal. Isolate from other waste materials. Clean

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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.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING: Store the container tightly closed away from seeds, fertilizer, plants and foodstuffs. Wash concentrate from skin or eyes immediately. Do not inhale spray mist. After use wash hands and other exposed skin. Avoid contamination of ponds, streams, rivers and other water sources. Goggles or a face shield should be worn when handling/mixing and loading operations.

PRECAUTIONS TO BE TAKEN IN STORAGE: BADGE II will solidify at minus 20⁰ Celsius. It will become usable at temperatures above 0⁰C. Insecticides and fungicides should be segregated from herbicides so as to prevent the possibility of cross-contamination.

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, PACKAGING AND USE OF THIS PRODUCT.

FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.

RESPIRATORY PROTECTION EQUIPMENT: Use an approved pesticide respirator if ventilation is not adequate or exposure to sprays, mists or concentrated vapours is likely.

PROTECTIVE GLOVES: Chemical-resistant gloves such as nitrile.

EYE AND FACE PROTECTION: Goggles or face shield when handling concentrate.

OTHER PROTECTIVE EQUIPMENT: Long sleeved shirt, long pants, socks and shoes suggested as minimum work clothing. Generally, a second layer such as coveralls suggested for handling concentrate. Use other equipment appropriate to specific situation.

VENTILATION: Use only in well ventilated area.

ENGINEERING CONTROLS: Use in a well ventilated area. General ventilation with a good source of make-up air recommended as minimum for indoor situations. Ventilation should be adequate to maintain air concentrations below flammable limits.

ADDITIONAL PROTECTIVE MEASURES: Discarded clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

USER SAFETY RECOMMENDATIONS:

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately after handling this product. Wash outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

EXPOSURE GUIDELINES: Refer to Section 2.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Amber to brown liquid

ODOR: Characteristic phenolic and hydrocarbon

FLASH POINT: > 100°C

pH: 7-8 (1% aqueous)

DENSITY: 1.127@25°C

BOILING POINT: NA. Hydrocarbon solvent 235°C - 278°C.

VAPOR PRESSURE: NA. Hydrocarbon solvent < 0.1 kPa @ 20°C.

VAPOR DENSITY (air = 1): NA. Hydrocarbon solvent > 5.

FREEZING POINT: Approximately -20°C.

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MELTING POINT: Approximately 0°C.

SOLUBILITY IN WATER (20°C): Product is emulsifiable in water.

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal use and storage conditions.

CONDITIONS TO AVOID: None known

MATERIALS TO AVOID: Avoid contact with strong acidic, basic or oxidizing agents.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION PRODUCTS: : Hydrogen bromide, other bromine compounds, hydrogen chloride, other chlorine compounds, carbon dioxide, carbon monoxide, oxides of nitrogen, oxides of sulfur and other potentially toxic combustion products may be present.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY/IRRITATION STUDIES:

Acute Oral LD50 (Rat):	> 700 mg/kg
Acute Dermal LD50 (Rabbit):	> 5,050 mg/kg
Acute Inhalation LC50 (Rat):	2.34 mg/L (4-hr)
Eye Irritation (Rabbit):	Moderately irritating
Dermal Irritation (Rabbit):	Slightly irritating
Dermal Sensitization (Guinea Pig):	Not a skin contact sensitizer

SUBCHRONIC (TARGET ORGAN) EFFECTS: (An adverse effect with symptoms that develop slowly over a long period of time): Repeated overexposure 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 may also cause chronic dermatitis and developmental effects.

CHRONIC EFFECTS/CARCINOGENICITY: 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.

REPRODUCTIVE TOXICITY: 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.

DEVELOPMENTAL TOXICITY: 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.

GENOTOXICITY: There have been some positive and some negative studies, but the weight of evidence is that bromoxynil and MCPA are not mutagenic.

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS: Toxic to aquatic organisms and non-target terrestrial plants. 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 equipment.

ECOLOGICAL TOXICITY:

Data on bromoxynil octanoate:

96-HOUR LC ₅₀ (mg/L):	0.1 (Rainbow Trout)
96-HOUR LC ₅₀ (mg/L):	0.053 (Bluegill)
48-HOUR EC ₅₀ (mg/L):	0.096 (Daphnia)

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DIETARY LC₅₀ (ppm): 1150 (Bobwhite Quail)
DIETARY LC₅₀ (ppm): 1880 (Mallard Duck)

Data on MCPA 2EHE emulsifiable concentrate formulation unless noted:

96-HOUR LC₅₀ (mg/L): > 5.8 (Rainbow Trout)
96-HOUR LC₅₀ (mg/L): > 6.6 (Bluegill)
48-HOUR EC₅₀ (mg/L): 0.3 (Daphnia)
DIETARY LC₅₀ (ppm): >5620 (Bobwhite Quail) (Data on MCPA 2EHE)
DIETARY LC₅₀ (ppm): >5620 (Mallard Duck) (Data on MCPA 2EHE)

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

END USERS MUST DISPOSE OF ANY UNUSED PRODUCT AS PER THE LABEL RECOMMENDATIONS.

PRODUCT 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: Emptied container retains vapor and product residue. Observe all labeled safeguards until container is cleaned, reconditioned or destroyed. 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 rinsings 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.

14. TRANSPORT INFORMATION

CANADIAN TDG DESCRIPTION (Road & Rail): Contact manufacturer for updates to transport information.

Refer to carton markings.

2012 and earlier production: UN 2902, PESTICIDE, LIQUID, TOXIC, N.O.S. (BROMOXYNIL), 6.1, PG III.

2013 and later production: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bromoxynil), Class 9, PG III

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.

15. REGULATORY INFORMATION

CANADIAN REGULATIONS:

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the CPR.

INGREDIENT DISCLOSURE LIST:

Naphthalene CAS #:91-20-3 (< 1%)

DOMESTIC SUBSTANCES LIST:

Heavy aromatic petroleum hydrocarbons CAS #: 64742-94-5 (30%-35%)

NON-DOMESTIC SUBSTANCES LIST:

Bromoxynil (present as octanoate ester) CAS #:1689-99-2 (30%-35%)

U.S. FEDERAL REGULATIONS:

REGULATIONS UNDER FIFRA: All pesticides are governed under FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act). Therefore, the regulations presented below are pertinent only when handled outside of the normal use and applications of pesticides. This includes waste streams resulting from manufacturing/formulation

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facilities, spills or misuse of products, and storage of large quantities of products containing hazardous or extremely hazardous substances.

SARA TITLE III CLASSIFICATION:

Section 302: Not applicable.

Section 311/312: Acute health hazard (immediate)

Delayed health hazard (chronic)

Section 313: Bromoxynil (present as octanoate ester) CAS #:1689-99-2 (30%-35%)

CERCLA RQ: Naphthalene RQ=100 lbs

CA Prop 65: This material contains a substance (Bromoxynil Octanoate Technical) known to the State of California to cause development toxicity.

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

HAZARD RATINGS	NFPA	HMIS	
HEALTH:	2	2	0 MINIMAL
FLAMMABILITY:	1	1	1 SLIGHT
REACTIVITY:	0	0	2 MODERATE
			3 HIGH
			4 SEVERE

MSDS DATE: 11-20-13. Changes made to Section 14.

The information contained herein is given in good faith and is believed to be correct, but no warrant, express or implied, is made. Consult Makhteshim Agan of North America, Inc. for further information.