

SAFETY DATA SHEET



Page 1 of Total 7
Date of Issue: January 2014
MSDS No. FMC/BRO200/1

SECTION 1 IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: FMC BROMOXYNIL 200 EC HERBICIDE

Other Names: Bromoxynil present as the n-octanoyl ester, Nitrile herbicide.
Use: A liquid broadleaf agricultural herbicide.
Company: FMC Australasia Pty Ltd.
Address: 5 Palmer Place, Murarrie, Qld 4172
Telephone Number: 07 3908 9208 **Fax Number:** 07 3908 9221
Emergency Telephone Number: 1800 033 111 (All hours - Australia wide).

SECTION 2 HAZARDS IDENTIFICATION

**Classified as hazardous according to criteria of Safe Work Australia.
Not classified as a Dangerous Good according to the ADG Code.
Combustible Liquid (C1).**

GHS Classification:

Toxic to Reproduction: Category 2.
Acute Toxicity - Oral: Category 4.
Acute Toxicity - Inhalation: Category 3.
STOT Single Exposure Category 3.
Sensitization – Skin: Category 1, 1A, 1B.
Aspiration Hazard – Category 1.

Signal Word: DANGER.

Hazard Statements:

H302 Harmful if swallowed.
H331 Toxic if inhaled.
H317 May cause an allergic skin reaction.
H361 Suspected of damaging fertility or the unborn child.
H304 May be fatal if swallowed and enters airways.
H336 May cause drowsiness or dizziness.

Precautionary statements:

Prevention:

P264 Wash hands, arms and face thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/protective clothing/eye protection/face protection
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P281 Use personal protective equipment as required.

Response:

P301+P312 IF SWALLOWED: Call a POISON CENTRE or doctor/physician if feel unwell.
P330 Rinse mouth.

SECTION 2 HAZARDS IDENTIFICATION (Continued)

- P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P311 Call a POISON CENTRE or doctor/physician.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P321 Specific treatment (see ... on this label).
P363 Wash contaminated clothing before reuse.
P308+P313 IF exposed or concerned: Get medical advice/ attention:
P301+P310 IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.
P331 Do NOT induce vomiting.
P312 Call a POISON CENTRE or doctor/physician if you feel unwell.

Storage and Disposal:

- P403+P233 Store in a well-ventilated place. keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/container in accordance with national regulations.

SECTION 2 HAZARDS IDENTIFICATION (Continued)

- P342+ P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.
P233 Store in a well ventilated place.
P501 Dispose of container as per section 13.

Pictograms:



SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients:

CHEMICAL	CAS NUMBER	PROPORTION
Bromoxynil present as the n-octanoyl ester	1689-99-2	200 g/L
Hydrocarbon liquid	64742-95-6	616 g/L
Other ingredients (including water) determined not to be hazardous		Balance

SECTION 4 FIRST AID MEASURES

FIRST AID

- Swallowed:** If swallowed do NOT induce vomiting. Wash mouth with water. If poisoning occurs, contact a Doctor or Poisons Information Centre and show this MSDS or container label. Phone 131 126. If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.
- Eye:** Immediately hold eyes open and flood gently with clean water. Ensure irrigation under eyelids by occasionally lifting them. Do not try to remove contact lenses unless trained. If irritation persists, seek medical advice.
- Skin:** Remove contaminated clothing. Wash skin with soap and water to remove chemical. If skin is irritated, seek medical advice.
- Inhaled:** Remove to fresh air and observe until recovered. If effects persist, seek medical advice. In severe case, symptoms of pulmonary oedema can be delayed up to 48 hours after exposure.

Advice to Doctors: The formulation contains liquid hydrocarbons that can cause severe pneumonitis or fatal pulmonary oedema if aspirated. Consideration should be given to gastric lavage with an endotracheal tube in place. Treat Symptomatically.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Product is a combustible liquid. Flash point > 62°C.

Extinguishing media: Extinguish fire using carbon dioxide, foam or dry agent. If not available, use waterfog or fine water spray but ensure all runoff is contained. Contain all runoff.

Hazards from combustion products: Sealed, overheated containers may present an explosion hazard. Thermal decomposition and burning will produce toxic by-products. Fire-fighters to wear self-contained breathing apparatus and suitable protective clothing if risk to of exposure to vapour or smoke.

Precautions for fire-fighters and special protective equipment: Isolate fire area. Evacuate downwind. Wear full protective clothing and self-contained breathing apparatus. Do not breathe or contact smoke, gases or vapours generated.

SECTION 6 ACCIDENTIAL RELEASE MEASURES

Emergency procedures: Isolate and post spill area. Keep out unprotected persons and animals. Wear elbow-length PVC gloves and face-shield. Large spills should be dyked or covered to prevent dispersal. Vacuum shovel or pump spilled material into an approved container and dispose of as listed in section 13 or according to the Australian Standard 2507 - Storage and Handling of Pesticides.

After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. Thoroughly launder protective clothing before storage or re-use.

Material and methods for containment and cleanup procedures: To clean spill area, tools and equipment, wash with a solution of soap, water and acetic acid/vinegar. Follow this with a neutralisation step of washing the area with a bleach or caustic soda ash solution. Finally, wash with a strong soap and water solution. Absorb, as above, any excess liquid and add both solutions to the drums of waste already collected.

Do NOT allow spilled product or wash solution to enter sewers, drains, dams, creeks or any other waterways.

SECTION 7 HANDLING AND STORAGE

Precautions for Safe Handling: Ensure containers are kept closed until using product. No smoking, eating or drinking should be allowed where material is used or stored. Product is poisonous if inhaled or swallowed. May irritate the eyes and skin. Avoid contact with eyes and skin. Do not inhale spray mist. When preparing spray wear elbow-length PVC gloves and face-shield. 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 and face shield or goggles and contaminated clothing.

Conditions for Safe Storage: DO NOT store near (or allow to contact) fertilizers, fungicides or pesticides. Store in closed original containers, in a cool, well ventilated area away from children, animals, food and feedstuffs. Do not store for prolonged periods in direct sunlight. Do not store near sources of ignition or naked flames. This product is classified as a C1 (Combustible Liquid) for the purpose of storage and handling, in accordance with the requirements of AS 1940. Refer to state regulations for storage and transport requirements.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

National Exposure Standards:

Exposure guidelines have not been established for this product by Safe Work Australia. However the following standard may apply:

Atmospheric Contaminant	Exposure Standard (TWA)	STEL (mg/m ³)
Aromatic hydrocarbons	100 ppm	Not set

TWA = Time-weight Average STEL = Short Term Exposure Level

Biological Limit Values:

No biological limit allocated.



SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION (Continued)

Engineering controls:

Use in well ventilated areas adequate to keep exposure below the TWA. Ventilate all transport vehicles prior to unloading. Keep containers close when not in use. Generally natural ventilation is sufficient.

Personal Protective equipment (PPE):

General: When preparing spray wear elbow-length PVC gloves and face-shield. After each use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use wash gloves and face shield. 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 and face shield or goggles and contaminated clothing.

Personal Hygiene: Clean water should be available for washing in case of eye or skin contamination. Wash skin before eating, drinking or smoking. Shower at the end of the workday.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Amber coloured liquid.
Odour:	Mild hydrocarbon odour.
Boiling point:	No data available.
Freezing point:	No data available.
Specific Gravity:	Approximately 1.03 g/mL.
pH:	No data available.
Solubility in Water:	Product emulsifies in water.
Flammability:	Combustible liquid (C1).
Flashpoint (°C):	> 62°C.
Flammability Limits (%):	Not established.
Poisons Schedule:	Product is a schedule 5 poison.
Formulation type:	Emulsifiable Concentrate (EC)

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: Product is considered stable in ambient conditions for a period of at least 2 years after manufacture.

Conditions to avoid: Do not store for prolonged periods in direct sunlight. Store away from sources of ignition. Avoid alkaline materials.

Incompatible materials: Strong oxidising agents - may react violently.

Hazardous decomposition products: On burning will emit toxic fumes of carbon monoxide, carbon dioxide, hydrogen chloride, chlorine, fluorine and hydrogen fluoride etc.

Hazardous reactions: Hazardous polymerisation will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Potential Health Effects:

No specific data is available for this product as no toxicity tests have been conducted on this product. Information presented is our best judgement based on similar products and/or individual components. As with all products for which limited data is available, caution must be exercised through the use of protective equipment and handling procedures to minimise exposure.

Acute

Swallowed: Harmful if swallowed. Acute oral LD₅₀ for bromoxynil 238 mg/kg. Possible symptoms of poisoning with bromoxynil include headache, nausea, dizziness, muscle weakness, slowed heart rate, shortness of breath, central nervous system effects, benzoic acid in the urine, incontinence, cyanosis and exhaustion following repeated muscle spasms. Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result.

Eye: This product is an eye irritant. Prolonged contact with the concentrate may cause damage to the eye.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

Skin: May irritate the skin especially with prolonged or repeated exposure. May produce skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Avoid skin contact. Acute dermal LD₅₀ > 2000 mg/kg (bromoxynil).

Inhaled: Acute inhalation LD₅₀ > 0.72 mg/L/4hrs (bromoxynil). Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination. Avoid breathing vapour or spray mist.

Chronic: In one documented case of chronic exposure (about 1 year) of humans to Bromoxynil, workers showed symptoms of weight loss, fever, vomiting, headache, and urinary problems. Studies have shown that Bromoxynil has no effect on rats given dietary doses of 15 and 50 mg/kg/day for 90 days. Doses up to 5 mg/kg/day for 2 years had no impact on blood chemistry or urine.

Reproductive effects: No changes in reproduction were noted in female rats fed 15 mg/kg/day of Bromoxynil over three generations. This suggests that Bromoxynil does not cause reproductive effects.

Teratogenic effects: Bromoxynil is a suspected teratogen. Bromoxynil produced birth defects in rats at oral doses above 35 mg/kg. Toxic effects included abnormal rib formation and reduced foetal weight. Newborn rabbits had birth defects when Bromoxynil was administered to pregnant mothers at doses above 30 mg/kg. In the rabbit, birth defects included changes in bone formation in the skull and hydrocephaly.

Mutagenic effects: Bromoxynil is not mutagenic.

Carcinogenic effects: Rats fed Bromoxynil at low levels of 5 mg/kg and below did not develop any cancer related effects.

Organ toxicity: No data were available regarding the target organs affected by Bromoxynil.

Fate in humans and animals: No Bromoxynil was present in the milk or faeces of cows 9 days after exposure to low doses of the herbicide. Less than 20% of the compound was excreted in urine as the parent compound

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: Bromoxynil is highly toxic to pheasants (LD₅₀ = 50 mg/kg) and is moderately toxic to hens (LD₅₀ = 240 mg/kg), quail (LD₅₀ of 100 mg/kg), and mallard ducks (LD₅₀ = 200 mg/kg). Bromoxynil is very highly toxic to moderately toxic to freshwater fish; the potassium salt of Bromoxynil has an LC₅₀ = 5 mg/L in harlequin fish, 0.46 mg/L in goldfish, and 0.063 mg/L in catfish. Bromoxynil has an LC₅₀ of 0.05 mg/L in rainbow trout. Bromoxynil is not toxic to bees.

Environmental Properties: Bromoxynil has a low persistence in soil. In sandy soil, the half-life is about 10 days. Degradation in clay was slower, with half of the Bromoxynil degraded to its metabolites in about a 2-week period at 25°C. The persistence of the compound is also slightly longer in peat field soils than in the sandy soils. The evidence suggests that, while Bromoxynil is broken down by some soil bacteria, it may inhibit the action of other bacteria that promote the formation of nitrite by a process called nitrification. The herbicidal mode of action of Bromoxynil is by disrupting the plants ability to produce energy for cell-related activities. It is not readily translocated throughout the plant once it has been absorbed.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills & Disposal: In the case of spillage, contain and absorb spilled material with absorbent material such as sand, clay or cat litter and dispose of waste as indicated below or according to the Australian Standard 2507 - Storage and Handling of Pesticides. Wear prescribed protective clothing and equipment. Keep out animals and unprotected persons. Keep material out of streams and sewers. Dispose of drummed wastes, including decontamination solution, in accordance with the requirements of Local or State Waste Management Authorities.

Dangerous to Fish: Do NOT allow spilled product or wash solution to enter sewers, drains, dams, creeks or any other waterways.

SECTION 13 DISPOSAL CONSIDERATIONS (Continued)

Disposal of empty, non-returnable containers: Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on-site. If recycling, replace cap and return containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the container below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. Empty containers and product should not be burnt.

SECTION 14 TRANSPORT INFORMATION

Road & Rail Transport: This product is not classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail in containers less than 3000 litres. Bulk shipments should use UN 3082, as per below.

Marine and Air Transport: FMC Bromoxynil 200 is a Marine Pollutant according to International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA). If transporting by sea or air the following Dangerous Goods Classification applies:-
UN 3082, Class 9 (Miscellaneous Dangerous Goods), Packing Group III, Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains 10% Bromoxynil).
Hazchem •3Z. Hazard Identification Number (HIN) 90.

SECTION 15 REGULATORY INFORMATION

Classified as a hazardous substance according to criteria of Safe Work Australia. (T, Xi, Xn).
Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a schedule 6 poison.
This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 69150.
Product is not classified as a Dangerous Good according to the ADG Code (7th Ed) in containers less than 3000 litres.
Product is classified as a Dangerous Good according to International Maritime Dangerous Goods (IMDG) Code and the International Air Transport Association (IATA).
Requirements concerning special training:
Check State or Territory regulations that require people who use pesticides in their job or business to have training in the application of the materials.

SECTION 16 OTHER INFORMATION

Issue Date: 17 January 2014. Valid for 5 years. (First issue).

Key to abbreviations and acronyms used in this SDS:

ADG Code: Australian Dangerous Goods Code (for the transport of dangerous goods by Road and Rail).
Carcinogen: An agent which is responsible for the formation of a cancer.
Genotoxic: Capable of causing damage to genetic material, such as DNA.
Haematopoietic: Pertaining to the formation of blood or blood cells.
Lavage: The irrigation or washing out of an organ, as of the stomach or bowel.
Mutagen: An agent capable of producing a mutation.
Oedema: Accumulation of fluid in tissues.
PPE: Personal protective equipment.
Teratogen: An agent capable of causing abnormalities in a developing foetus.
Safe Work Australia: Formally known as Australian Safety & Compensation Council (ASCC) which was formally known as the National Occupational Health & Safety Commission (NOHSC).

SECTION 16 OTHER INFORMATION (Continued)

References

1. "Search Hazardous Substances". Safe Work Australia website. (2014).
2. "Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.
3. Globally Harmonized System of Classification and Labelling of Chemicals (GHS). United Nations, 2009.

This SDS summarises our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this SDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

End SDS