

BROMOXYNIL 225EC

HERBICIDE

A selective post-emergence contact herbicide for the control of certain broadleaf weeds, as listed, in wheat, barley, oats and maize.

COMPOSITION:

Bromoxynil (as the octanoate).....225g/l
Inert ingredients 775g/l

Chemical Group: Nitrile

5Litres Net



VERY DANGEROUS POISON
INHALATION OF SPRAY VERY HARMFUL
HARMFUL BY SKIN ABSORPTION

KEEP OUT OF REACH OF CHILDREN

Reg. No.:



Registration held by:

MAGCHEM (PVT) LIMITED
2274 TILBURY ROAD,
WORKINGTON, HARARE,
ZIMBABWE

DIRECTIONS FOR USE:

Use only as directed.
Do not spray when weeds have been subjected to drought or other stress. Apply only during moist conditions which enhance active weed growth. Since **BROMOXYNIL 225EC** is a contact herbicide, thorough wetting of the weed foliage is essential. Only weeds present at the time of spraying will be controlled and not those germinating later. The weeds should not have passed the 6-leaf stage at the time of spraying. Leaf scorching of grain crops may occur after application, but yield will not be affected.

Do not apply a wetting agent when spraying maize or sorghum.

Important Notes:

1. Do not apply **BROMOXYNIL 225EC** when the weeds are older than specified, as this will result in poor weed control.
2. The use of wetting agents in combination with **BROMOXYNIL 225EC** is not recommended as this may lead to crop damage.
3. Avoid application when weeds are covered with heavy dew or when the wind is blowing strongly.
4. Ensure thorough coverage of weeds.
5. Weeds which have not germinated at the time of application, will not be controlled.
6. Apply only during favourable climatic conditions when the weeds are actively growing.
7. Under certain climatic conditions **BROMOXYNIL 225EC** may cause some leaf scorch to grain crops. Yields will, however, not be affected.
8. When **BROMOXYNIL 225EC** is mixed with any other product, the instructions on the label of that product must be followed.
9. **WAITING PERIOD** when **BROMOXYNIL 225EC** is mixed with Atrazine 500SC, the following waiting periods must be adhered to before atrazine-sensitive crops can be planted:
 - Six months when atrazine is used at 1 l/ha
 - Nine months when atrazine is used at 2 l/ha
 - Consult the Atrazine 500SC label for more information.

Application rates:

CROP	RATE/HECTARE	REMARKS
Wheat, barley, oats	1.5-2.0 L	The cereal seedlings should be between the 3-leaf and the end of stooing stage. Do not spray before the 3-leaf stage and from the beginning of the piping stage onwards. The younger the weeds, the more actively they are growing, the lower the dosage. When the weeds are reaching the 6-leaf stage and when growth is slowed down by drought, the higher rate should be used.
Maize	1.5-2.0 L 1.0 L+12 L Atrazine 500SC	Apply when the weeds are fully emerged but not later than the 6-leaf stage (3-leaf stage for problem weeds see list). Do not apply to maize younger than the 4-leaf stage. Apply at the same stages of the weeds and the crop as above. The atrazine rate should be in accordance with the degree of persistence desired. Do not use under irrigation as the atrazine may damage atrazine-sensitive follow-up crops.

WEEDS CONTROLLED

Please contact supplier for list of weeds controlled.

WARNINGS:

- ALLOW A MINIMUM OF 40 DAYS BETWEEN APPLICATION AND GRAZING OF TREATED WHEAT FIELDS.
- Handle with care. Poisonous if swallowed, inhaled or absorbed through the skin.
- Toxic to fish, bees and wildlife.
- Store away from food and feeds in a cool place.
- Keep out of reach of children, uninformed persons and animals.
- **FLAMMABLE** do not store near open flame.

PRECAUTIONS:

Do not inhale spray mist or fumes. Wear protective clothing when handling the concentrate. Do not eat, drink or smoke while mixing, applying or before washing hands and face. Wash contaminated clothing at the end of a day's work. Prevent contamination of food, feeds, drinking water and eating utensils. Wash with soap and cold water after use or accidental skin contact. In case of eye contact, immediately flush with plenty of water for at least 15 minutes. In case of ingestion, do not induce vomiting. Avoid spray drift onto other crops, grazing, rivers, dams and areas not under treatment. Clean applicator thoroughly after use and dispose of wash water where it will not contaminate crops, grazing, rivers or dams. Rinse the empty container three times with a volume of clean water equal to a minimum of 10% of the container. Add the rinsate to the content of the spray tank before destroying the container in the prescribed manner. Destroy empty container by perforation and do not use for any other purpose.

SAFETY PRECAUTIONS

Empty container disposal: invert the empty container over the spray tank or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a minimum of 10% of the container. Add the rinsings to the contents of the spray tank. Destroy the empty container by perforation and flattening. Return to supplier for recycling. DO NOT use for any other purpose. Dispose of the wash water at a site for the disposal of pesticides.

Decontamination of sprayer: Clean applicator thoroughly after use and ensure that all traces of **BROMOXYNIL 225EC** are removed. Make use of the following method:
(a) Drain and rinse tank, spray boom and hoses with clean water for at least 10 minutes (b) Fill tank with clean water and add it to 1 litre household bleach (5% or 1.5 Litres of household bleach (3.5% per 200 Litres of water. Rinse hoses and spray boom and leave in tank for 15 minutes whilst agitating. Drain through nozzle outlets. (c) Repeat step (b) and thereafter, rinse thoroughly with clean water and dispose of the wash water at a site designated for the disposal of pesticides.

WARRANTY

Provided that the recommendations for usage of this product are strictly followed it should give excellent results, but since the performance of crop protection chemicals and pesticides can be influenced by factors outside the manufacturer's control, the manufacturer and seller give no guarantee or warranty, either express or implied, concerning the use and/or storage of this product, and accept no responsibility or liability of any nature whatsoever for any damage, injury or financial loss of any nature from the use thereof.

TO CAUSE A HAZARD IN THE USE, STORAGE OR DISPOSAL OF THIS SUBSTANCE IS AN OFFENCE.

THIS PRODUCT WHEN STORED IN ITS UNOPENED, ORIGINAL CONTAINER AWAY FROM DIRECT SUNLIGHT AND IN A COOL, DRY PLACE WILL BE FIT FOR USE FOR AT LEAST 24 MONTHS.

Date of Manufacture: 05 Jun. 2019

Manufactured by:

NOVA AGRO (HK) LTD
6TH FLOOR, WYNDHAM PLACE,
44 WYNDHAM STREET,
CENTRAL HONG KONG

Batch No.: 20190605

Registration held by:

MAGCHEM (PVT) LIMITED
2274 TILBURY ROAD,
WORKINGTON, HARARE,
ZIMBABWE



1. Triple rinse clean container after use
2. Punctures holes in bottom
3. Return to Maguire's Recycling Facilitator / Return to nearest recycling facility



MATERIAL SAFETY DATA SHEET

PRODUCT : BROMOXYNIL 225EC

EFFECTIVE DATE : March 2021

REVISION NO : 3

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SUPPLIER: NOVA AGRO (HK) LTD
(Reg. No. 1023146)
6th Floor Wyndham Place
44 Wyndham Street
CENTRAL HONG KONG.
TEL No.: +852 3586 2521

EMERGENCY TELEPHONE NUMBERS

POISONINGS:

Poison Info Centre (27) 21-9386084 (office hours)
(South Africa) (27) 21-9316129 (after hours).

1. IDENTIFICATION OF THE SUBSTANCE

Trade name: BROMOXYNIL 225EC
Active ingredient: Bromoxynil octanoate
Chemical Name: 2,6-dibromo-4-cyanophenyl octanoate (IUPAC)
CAS No. 1689-99-2
Chemical Family: hydroxybenzoxazole
Chemical Formula: C₁₅H₁₇Br₂NO₂ (Mol. wt: 403.0)
Use: Selective contact herbicide with some systemic activity.
NIOSH/RTECS No. DI3325000
UN no. 2903
HAZCHEM class 6.1 Subsidiary 3

2. COMPOSITION / INFORMATION ON INGREDIENTS

EEC number 216-885-3
SYMBOLS X_n
RISK-PHASE(S) R 8, R 21/22, R 63, Repr. Cat. 3

3. HAZARD IDENTIFICATION

Toxicity class: WHO II; EPA II. A moderate toxicity herbicide.
Likely routes of exposure: Ingestion, inhalation and skin contact.
Eye contact: May cause moderate eye irritation.
Skin contact: Minimally toxic. May cause mild skin irritation.

Ingestion: Highly toxic by ingestion.
Inhalation: Moderately toxic by inhalation.

4. FIRST AID MEASURES AND PRECAUTIONS

There are no known signs and symptoms of bromoxynil poisoning. In view of the toxicity induced in experimental animals on repeated exposure, proper care should be taken during occupational use to avoid ingestion of fumes or spray particles, and to prevent accidental contamination of food products and water.

Inhalation:

Remove source of contamination or move victim to fresh air. If breathing has stopped, perform artificial respiration and administer oxygen. Keep person warm and at rest. Treat symptomatically and supportively as and when required. Obtain medical advice if necessary.

Skin contact:

Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical attention if necessary.

Eye contact:

Immediately flush the eyes with gently flowing lukewarm water or saline solution for 20 minutes, holding the eyelid(s) open. Seek medical attention if necessary.

Ingestion:

Have victim rinse mouth thoroughly with water. Remove by gastric lavage and catharsis and give oxygen if respiration is depressed. Do not perform gastric lavage of patient is unconscious. Administration of gastric lavage or oxygen should be performed by qualified medical personnel. Seek medical advice immediately.

Advice to physician:

No signs and symptoms of bromoxynil poisoning are known in humans. There is no known antidote. Treat symptomatically and supportively as and when required. Gastric lavage or the administration of activated charcoal with water may be indicated. Do not perform gastric lavage if patient is unconscious.



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5. FIRE FIGHTING MEASURES

Fire and explosion hazard:

The product is flammable. Vapour air mixtures may be explosive.

Extinguishing agents:

Extinguish small fires with carbon dioxide, dry powder, halon or alcohol-resistant foam. Water spray or fog can be used for larger fires or cooling of unaffected stock, but avoid the accumulation of polluted run-off from the site.

Firefighting:

Fight fire from maximum distance. For massive fire, use unmanned hose holder or monitor nozzles. Remove container from fire area if possible. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers. Avoid inhaling hazardous vapours. Keep upwind.

Personal protective equipment:

Fire may produce irritating or poisonous vapours (toxic oxides of nitrogen and corrosive bromine), mists or other products of combustion. Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions:

Remove all sources of flame and sparks. Avoid contact with skin and eyes. Do not inhale fumes. For personal protection see Section 8.

Environmental precautions:

Do not allow to enter drains or water courses. When the product contaminates public waters, inform appropriate authorities in accordance with local regulations.

Occupational spill:

Remove all sources of ignition. For small liquid spills, soak up with sand or other suitable noncombustible absorbent material, and place into containers for subsequent disposal. For large spills, contain liquid far ahead of spill. Contain spillage and contaminated water for subsequent disposal. Do not flush spilled material into drains. Keep spectators away.

7. HANDLING AND STORAGE REQUIREMENTS

Handling:

Do not operate near sources of ignition. Harmful by inhalation or if swallowed. Avoid contact with eyes, prolonged contact with skin, and inhalation of fumes. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking, or using the toilet. Remove clothing immediately if the herbicide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

Storage:

Store in its original labelled container in shaded, well ventilated area, away from heat, sparks and other sources of ignition. Not to be stored next to foodstuffs and water supplies. Keep out of reach of children and animals. Local regulations should be complied with.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire, and other applicable regulations.

PERSONAL PROTECTIVE EQUIPMENT:

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

Respirator:

An approved respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.



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Clothing:

Employee must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance.

Gloves:

Employee must wear appropriate synthetic protective gloves to prevent contact with this substance.

Eye protection:

The use of safety goggles is recommended.

Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Brown liquid.
Odour:	Estery odour.
Flammability:	Flammable.
Oxidising properties:	The product has oxidising properties.
pH:	4.48 (1% aqueous solution).
Viscosity:	3.43 - 3.46 cP at 25 ^o C. 2.22 - 2.25 cP at 45 ^o C.
Surface tension:	The product is a surface active substance. 35.3 mN/m.
Relative density:	1.0334 ± 0.0001 at 20 ^o C
Persistent foaming:	After 10 seconds of inversion: 17% foam (after 1 minute). 12.5% foam (after 3 minutes). 7% foam (after 12 minutes).
Dilution stability:	Stable
Storage stability:	Stable for up to 2 years under normal storage conditions. The product was found to be stable at 0 ^o C (± 1 ^o C) and 54 ^o C (± 2 ^o C) - accelerated storage test.
Suspensibility:	Not applicable.
Solubility in organic solvents:	(All solubility figures for technical material in g/l at 20 – 25 ^o C) chloroform: 800; xylene: 700; dimethylformamide: 700; ethyl acetate: 620; cyclohexanone: 550; carbon tetrachloride: 500 n-propanol: 120; acetone: 100; ethanol: 100.

Partition-coefficient in n-octanol / water:

(data for technical material)

K_{ow} (log P): 5.4

Flash point:

37^oC (Pensky Martins closed cup).

Melting point:

No data available.

10. STABILITY AND REACTIVITY

Stability:

Stable in neutral and weakly acidic media.

Incompatibility:

Spray solutions containing this product should be mixed, stored or applied using stainless steel, aluminium, fibreglass or plastic-lined containers and equipment. Product is relatively stable in neutral and weakly acidic media, but rapidly hydrolysed in strong acids and alkalis. The product is compatible with many herbicides when used at normal rates.

However, a compatibility test is required before using with other products. Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

Thermal decomposition:

Toxic oxides of nitrogen and corrosive bromine are released when the product decomposes on heating.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀:	941 mg/kg in rats
Acute dermal LD₅₀:	> 5000 mg/kg in rats
Acute inhalation LC₅₀:	1.39 mg/l in rats
Acute skin irritation:	The product may cause mild skin irritation (rabbits).
Acute eye irritation:	The product may cause moderate eye irritation (rabbits).
Dermal sensitisation:	The product is considered to be a strong dermal sensitiser.
Carcinogenicity:	Long-term animal studies did not detect carcinogenic activity. No human information is available.
Teratogenicity:	Results in appropriate animal studies provide sufficient evidence to cause a strong suspicion of

impaired fertility in the absence of toxic effects, or evidence of impaired fertility occurring at around the same dose levels as other toxic effects, but which is not a secondary non-specific consequence of the other toxic effects. There is also a strong suspicion of developmental toxicity in the absence of signs of marked maternal toxicity, or at around the same dose levels as other toxic effects but which are not a secondary non-specific consequence of the other toxic effects.

Mutagenicity: Studies did not detect mutagenic activity. No human information available.

12. ECOLOGICAL INFORMATION

Degradability: Bromoxynil octanoate is rapidly converted to its main degradate bromoxynil. DT₅₀ for this process was < 1 day. Degradation of the main metabolite bromoxynil was slower: DT₅₀ was between 7 and 14 days. Disappearance for bromoxynil from soil was between 70 and 107 days.

Mobility: Koc was estimated to be 1.55 x 10³, but product is assumed to be immobile in soils.

Accumulation: The product shows little or no tendency to bioaccumulate.

GERMAN WGK: Not listed.

ECOTOXICOLOGY:

Birds:

Low toxicity.

LD₅₀ (oral): 641.3 mg/kg (bobwhite quail).

Fish:

(data for technical material)

Toxic to fish.

LC₅₀ (96 hr): 13.8 mg/l (flathead minnow).

LC₅₀ (48 hr): 0.15 mg/l (rainbow trout).

0.46 mg/l. (goldfish).

0.063 mg/l (catfish).

Bees:

Not toxic to bees.

LD₅₀ (oral): > 163.3 µg/bee.

LD₅₀ (contact): > 200 µg/bee.

Daphnia:

(data for technical material)

May pose a hazard to *Daphnia magna*.

EC₅₀ (48 h): 57 - 161 µg/l.

Algae: (data for technical material)

Acute toxicity for *Selenastrum capricornutum*.

EC₅₀ (96 h): 2.9 mg/l (flask assay); 3.4 mg/l (microplate assay).

Beneficial insects:

Low toxicity to the Ground beetle (*Peocilus cupreus*).

May pose a hazard to the Predacious mite (*Typhlodromus pyri*).

Earthworms:

LC₅₀ (14 d): 163.6 mg product/kg soil (*Eisenia foetida*).

Soil micro-organisms:

Low risk to soil micro-organisms.

13. DISPOSAL

Pesticide disposal:

Contaminated absorbents, surplus product, etc., should be burnt at > 1000⁰C in an incinerator, preferably designed for pesticide disposal, or diluted and buried in designated landfill.

Comply with any local legislation applying to waste disposal.

Package product wastes:

Emptied containers retain vapour and product residues.

Observe all labelled safeguards until container is cleaned, reconditioned, or destroyed. Combustible containers should be disposed of in pesticide incinerators. Containers that are in good condition may be triple rinsed with water and returned to the manufacturer or formulator, or to a drum re-conditioner for reuse with the same type of pesticide product. Containers that are not to be reused should be punctured and transported to a scrap metal facility for recycling or disposal in approved landfill site. Comply with any local legislation applying to disposal.

14. TRANSPORT INFORMATION

UN NUMBER: 2903

ADR/IRD:

Substance ID no. 2903

Hazard ID no. 63

Label: 6.1 + 3

IMDG/IMO

Packaging group: II

Label of class: 6.1 **MARINE POLLUTANT**

Subsidiary risk: 3



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Shipping name: Pesticide, liquid, toxic, flammable, n.o.s (Bromoxynil)

AIR/IATA

Shipping name: Pesticide, liquid, toxic, flammable, n.o.s (Bromoxynil)

Class: 6.1

Subsidiary Risk: 3

Hazard Label: Toxic & Flammable liquid

Packaging Group: II

Passenger Aircraft 609 (max 5L)

Y609 (max 1 L)

Cargo Aircraft 611 (max 60L)

UK classification Not available.

DOT classification For DOT regulatory information, if required, consult transportation regulations, product shipping papers, or contact your representative.

Tremcard number TEC(R)-61G43b

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the PRODUCT AS SUCH. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons in receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produces formulations(s) containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

REFERENCES

- Applicable own physical and chemical, toxicity and ecotoxicity research studies.
- *The Pesticide Manual*; 13th Edition; Editor Clive Tomlin; Crop Protection Publications, 2003.
- *Pestline*; Material Safety Data Sheets for Pesticides and Related Chemicals; Volume II; Occupational Health Services Inc., 1991.
- *MICROMEDEX, INC.*, Volume 34.

15. REGULATORY INFORMATION

Symbol: X_n

Indication of danger: Harmful

Risk phrases:

R 8 Contact with combustible material may cause fire.

R 21/22 Harmful by inhalation and if swallowed.

R 63 Possible risk of harm to the unborn child.

Repr. Cat. 3 Substance which causes concern for human fertility.

Safety phrases:

S 2 Keep out of reach children.

S 17 Keep away from combustible material.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

National legislation: In accordance with 91/155/EEC Directive and with French standard T 01-102 and the South African Occupational Health and Safety Act, 1993 (act. No. 85 of 1993).

16. OTHER INFORMATION