Arysta LifeScience

BROMOXYNIL 225

Reg. No.: L 6212 Act /Wet No. 36 of/van 1947

Emulsifiable concentrate. A herbicide for the selective control of certain broadleaf weeds in wheat, barley, oats, lucerne, maize and grain sorghum.

Emulgeerbare konsentraat. Onkruiddoder vir die selektiewe beheer van sekere breëblaaronkruide in koring, gars, hawer, lusern, mielies en graansorghum.

HRAC HERBICIDE GROUP CODE:	C3	HRAC ONKRUIDDODERGROEP KODE:

ACTIVE INGREDIENT/AKTIEWE BESTANDDEEL:
Bromoxynil (nitrile) (octanoate) / bromoksinil (nitriel) (oktanoaat) ..... 225 g/ℓ

Registration holder / Registrasiehouer:
Tsunami Plant Protection (Pty) Ltd trading as
ARYSTA LifeScience South Africa (Pty) Ltd
Co. Reg. No./Mpy. Reg. Nr.: 2009/019713/07
7 Sunbury Office Park,
Off Douglas Saunders Drive, La Lucia Ridge,
South Africa, 4019
Tel: 031 514 5600

Contents/Inhoud
(ℓ)

Batch No. / Lot Nr.:	
Date of manufacture: / Datum van vervaardiging:	

U.N. No. 2903

READ THE LABEL IN DETAIL BEFORE OPENING THE CONTAINER. / LEES DIE ETIKET VOLLEDIG VOORDAT DIE HOUER OOPGEMAAK WORD.
For full particulars, see enclosed leaflet. / Vir volledige besonderhede, sien ingeslote pamflet.

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WARNINGS:

- Allow the following withholding periods between application and grazing or feeding:

Barley, Oats, Lucerne & Wheat:	40 days
Maize & Grain sorghum:	14 days

- Handle with extreme care.
- Toxic if swallowed and by skin contact.
- Harmful if inhaled.
- Moderate irritant to eyes and skin.
- Toxic to fish and wildlife.
- **EXTREMELY FLAMMABLE** - do not store near open flame.
- Store under lock and key in a cool, dry place, away from food, feeds and seed.
- Keep out of reach of children, uninformed persons and animals.
- **In case of poisoning call a doctor and make the label available to him/her.**
- Re-entry: Do not enter treated area within 2 days after treatment unless wearing protective clothing.

Aerial Application:

Notify all inhabitants of the immediate area to be sprayed and issue the necessary warnings. Do not spray over or allow drift to contaminate water and adjacent areas.

Although this remedy has been extensively tested under a large variety of conditions the registration holder does not warrant that it will be efficacious under all conditions because the action and effect thereof may be affected by factors such as abnormal soil, climatic and storage conditions; quality of dilution water, incompatibility with other substances not indicated on the label and the occurrence of resistance of the weeds to the remedy concerned as well as by the method, time and accuracy of application. The registration holder further does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal or for lack of performance of the remedy concerned due to failure of the user to follow the label instructions or to the occurrence of conditions which could not have been foreseen in terms of the registration. Consult the supplier in event of any uncertainty.

PRECAUTIONS:

- Do not inhale fumes or spray mist.
- Avoid skin and eye contact.
- Wear protective clothing, suitable mask, rubber gloves and rubber boots when handling and mixing the product and whilst applying the spray mixture.
- Wash with soap and water after use and accidental skin contact.
- Wash contaminated clothing after use.
- Do not eat, drink or smoke while mixing or applying the product or before washing hands and face and changing clothing.
- Avoid drift of spray onto other crops, grazing, rivers, dams and areas not under treatment.
- Clean application equipment after use. Dispose of wash water where it will not contaminate crops, grazing, rivers, dams and boreholes.
- Triple rinse empty containers in the following manner: Invert the empty container over the spray 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 that of the container. Add the rinsings to the contents of the spray tank before destroying the container in the described manner.
- Destroy the empty container by perforation and flattening and dispose of it in a safe manner.
- **Never** re-use the empty container for any other purpose.
- Prevent contamination of food, feeds, drinking water and eating utensils.

SYMPTOMS OF HUMAN POISONING:

If swallowed and aspirated into the lungs, chemical pneumonia can occur.
Swallowing may cause sweating, raised temperature, rapid breathing, and muscle rigidity. Breathing vapours may cause listlessness, raspy breathing, and lung injury. High concentrations may have an anaesthetic effect.

FIRST AID TREATMENT:

The airway should be kept clear to maintain respiration. First aid treatment should be performed by qualified medical personnel and should include, if necessary, mouth-to-nose respiration and cardiac massage.
Inhalation: Immediately remove source of contamination or move the patient to fresh air. Keep the patient warm and at rest. If necessary, perform mouth-to-nose respiration and administer oxygen. **Obtain medical advice immediately.**
Skin contact: Remove contaminated clothing, shoes and leather goods immediately. Wash skin gently and thoroughly with clean water and non-abrasive soap until no evidence of chemical remains. **Obtain medical advice immediately.**
Eye contact: Flush eyes immediately with large amounts of gently flowing cold water, occasionally lifting upper and lower lids, for at least 15 to 20 minutes until no evidence of chemical remains. Obtain medical advice.
Ingestion: Do not induce vomiting, due to aromatic solvent present in product. **Obtain medial advice immediately** and make the container, or label or Data Sheet available.
Never give anything by mouth to a semi-conscious or unconscious person. If vomiting occurs, take care to prevent vomit from being inhaled. Establish and maintain airway. Treat respiratory difficulty with artificial respiration and oxygen.

ADVICE TO PHYSICIAN:

If product is aspirated into the lungs during ingestion or vomiting, mild to severe chemical pneumonia may be caused. 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.

RESISTANCE WARNING:
BROMOXYNIL 225 is a group code **C3** herbicide. Any weed population may contain individuals naturally resistant to **BROMOXYNIL 225** and other group code **C3** herbicides. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds may not be controlled by **BROMOXYNIL 225** or any other group code **C3** herbicide.
To delay herbicide resistance:

- Avoid exclusive repeated use of herbicides from the same herbicide group code. Alternate or tank mix with products from different herbicide group codes,
- Integrate other control methods (chemical, cultural, biological) into weed control programmes.

For specific information on resistance management contact the registration holder of this product.

DIRECTIONS FOR USE: **Use only as directed.**

COMPATIBILITY:

- **BROMOXYNIL 225** is compatible with atrazine SC, MCPA and alachlor 384 EC. However, since it is not possible for Arysta Lifescience South Africa to test all possible combinations, the onus lies with the user to carry out a compatibility test, if tank mixtures are considered.
- The warnings, precautions, restrictions, recommendations, instructions and directions for use on the labels of the products that are mixed should be strictly adhered to.

MIXING INSTRUCTIONS:

- Half fill the spray tank with clean water.
- Measure out the required quantity of **BROMOXYNIL 225** and add to the spray tank while agitating.
- Fill the spray tank with water to the required volume, while maintaining agitation to ensure thorough mixing.
- When mixing **BROMOXYNIL 225** with other registered herbicides use the following procedure: fill the spray tank approximately half the required volume of water in the spray tank and add the complementary herbicide agitating continuously. Add the **BROMOXYNIL 225** just before the tank is filled to full capacity.
- Maintain agitation during spraying.
- Use the prepared mixture immediately.
- Do not allow to stand overnight.

METHOD OF APPLICATION:
Ground Application:

- For application by means of tractor-mounted sprayer, the use of a conventional spray boom fitted with flat fan nozzles is recommended. Use a low spray pressure (100 to 300 kPa) so that **BROMOXYNIL 225** is applied as a course droplet spray.
- DO NOT APPLY AT HIGH PRESSURE.
- Ensure thorough coverage of the weeds by applying at least 300 litres of spray mixture per hectare.

Aerial Application:
Aerial application of **BROMOXYNIL 225** may only be done by a registered Aerial Application Operator using a correctly calibrated, registered aircraft according to the instructions of SANS Code 10118 (Aerial Application of Agricultural Pesticides). Ensure that the spray mixture is distributed evenly over the target area and that the loss of spray material during application is restricted to a minimum. It is therefore essential that the following criteria be met:

- Volume: A spray mixture volume of 30 to 40 litre per hectare is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy, or be held responsible for any adverse effects if this product is applied aerially at a lower volume rate than recommended above.
- Droplet coverage: 35 to 45 droplets per cm^2 must be recovered at the target area:
- Droplet size: A droplet spectra with a VMD of 350 to 400 microns is recommended. Limit the production of fine droplets less than 150 microns (high drift and evaporation potential) to a minimum.
- Flying height: Maintain the height of the spray boom at 3 to 4 metres above the target. Do not spray when aircraft dives, is in a climb or when banking.
- Use suitable atomising equipment that will produce the desired droplet size and coverage, but which will ensure the minimum loss of product. The spraying system must produce a droplet spectrum with the lowest possible Relative Span.
- Position all the atomisers within the inner 60 to 75 % of the wingspan to prevent droplets from entering the wingtip vortices.
- The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8°C.
- Stop spraying if the wind speed exceeds 15 km/h.
- Stop spraying under turbulent, unstable and dry conditions during the heat of the day.
- Spraying under temperature inversion conditions (spraying in or above the inversion layer) and/or high humidity conditions (relative humidity 80 % and above) may lead to the following:
  - reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage),
  - damage to other sensitive crops and/or non-target areas through drifting of the suspended spray cloud away from the target field.
- Ensure that the Aerial Spray Operator knows exactly which fields to spray.
- Obtain an assurance from the Aerial Spray Operator that the above requirements will be met and that relevant data will be compiled in a logbook and kept for future reference.

IMPORTANT NOTES:

1. Do not apply **BROMOXYNIL 225** when weeds are older than specified, as this will result in poor weed control.
2. Apply only during moist conditions, when the weeds are actively growing. Poor weed control may result if **BROMOXYNIL 225** is applied when the weeds have been subjected to moisture stress or other stress.
3. Avoid application when the wind speed exceeds 8 km/h.
4. Ensure thorough coverage of weeds.
5. Since **BROMOXYNIL 225** is a contact herbicide weeds which have not emerged at the time of application will not be controlled by **BROMOXYNIL 225** alone.
6. Consult your **BROMOXYNIL 225** representative before mixing **BROMOXYNIL 225** with other chemicals.
7. When MCPA is added, application to wheat must be made between growth stages 7 and 13 according to the list of growth stages issued by the Small Grain Institute, Bethlehem. Apply to barley when the plants are in the 5 to 7-leaf stages and to oats in the 5-leaf stage.
8. In the winter rainfall area, when MCPA is added at 0,5 litre per hectare, the mixture may be applied in small grains from the 3-leaf stage of the **crop**. Apply **BROMOXYNIL 225**/MCPA mixtures between emergence and the 6-leaf stage of the **weeds**.
9. Under certain conditions **BROMOXYNIL 225** may cause some leaf scorch or yellowing in lucerne or grain crops. This is a transitory effect and yield will not be affected.
10. Do not apply wetting agent when spraying maize, sorghum or lucerne.
11. **When BROMOXYNIL 225 is mixed with any other product, the information on the label of that product must also be carefully read and its instructions followed.**

12. **WAITING PERIODS:**
When **BROMOXYNIL 225** is mixed with atrazine SC, the following waiting periods must be adheared to, before atrazine sensitive crops can be planted:

- 6 months when atrazine is used at 1 litre per hectare and
- 9 months when atrazine is used at 2 litres per hectare.
- For more information consult the atrazine SC labels.

CROP:	DOSAGE RATE:	REMARKS:
WHEAT, BARLEY & OATS	1,5 - 2,0 ℓ/ha	The cereal seedlings should be between the 3-leaf and the end of the stooling stage. Do not spray before the 3-leaf stage and from the beginning of the tillering stage onwards. Apply when the **weeds** are fully emerged but not older than the 6-leaf stage (3-leaf stage for problem weeds listed below). Use the higher rate for aerial application.
	1,5 ℓ plus 0,5 - 1,0 ℓ MPCA (potassium salt)/ha	Refer to NOTE 7 and 8 for time of application. Use the higher rate of MCPA in the Eastern Free State when *Polygonum aviculare* is a problem. Use the higher rate of **BROMOXYNIL 225** for aerial application.
UNDERSOWN LUCERNE IN GRAIN CROPS	1,5 - 2,0 ℓ/ha	Apply when the **weeds** are fully emerged but not older than the 6-leaf stage (3-leaf stage for problem weeds listed below). Do not apply to lucerne younger than the second trifoliate leaf stage, or where clovers have been undersown. Use the higher rate for aerial application. Do not apply mixture with MCPA.
ESTABLISHED LUCERNE	2,0 - 3,0 ℓ/ha	Apply after cutting the lucerne and after the **weeds** are fully emerged but not older than the 6-leaf stage (3-leaf stage for problem weeds listed below). Use the higher rate for aerial application, or for ground application when the weed stand is very dense. Refer to NOTE 9 concerning possible yellowing of the lucerne.
MAIZE	1,5 - 2,0 ℓ/ha	Apply as ground or aerial spray (see above) when the **weeds** are fully emerged but not older than the 6-leaf stage (3-leaf stage for problem weeds listed below). Use the higher rate for aerial application. Do not apply to maize younger than the 4-leaf stage.
	1,0 ℓ plus 1,0 - 2,0 ℓ atrazine SC/ha	Apply as ground or aerial spray when the weeds are fully emerged but not older than the 6-leaf stage (3-leaf stage for problem weeds listed below). The atrazine dose rate should be in accordance with the degree of persistence desired. Do not apply to maize younger than the 4-leaf stage. Do not use under irrigation as the atrazine may damage atrazine-sensitive follow-up crops.
	1,5 ℓ plus 1,0 ℓ MCPA (potassium salt)/ha	Apply as ground or aerial spray when weeds are fully emerged but not older than the 6-leaf stage. Can be applied at any stage of the crop from the emergence to flowering. If the crop is taller than 40 cm directed spraying is recommended so that between wetting of weeds is obtained. Do not apply under cold, wet conditions, as this may

		result in damage to the crop.

CROP	DOSAGE RATE:	REMARKS
MAIZE Conservation tillage	1,5 ℓ plus 4,0 - 5,0 ℓ alachlor 384 EC/ha	Apply prior to, or within 2 days of planting the crop to control broadleaf weeds (as listed below) which are not older than the 6-leaf stage (3-leaf stage for problem weeds listed below). This treatment will also have a pre-emergence herbicidal action. Alachlor should be applied according to supplier's label recommendations.
GRAIN SORGHUM	1,0 ℓ plus 1,0 - 2,0 ℓ atrazine SC/ha	Follow the instructions for application of **BROMOXYNIL 225** plus atrazine in maize but do not apply by air.
	1,5 ℓ plus 1,0 ℓ MCPA (potassium salt)/ha	Follow the instructions for application of **BROMOXYNIL 225** plus MCPA in maize, but do not apply by air.

WEEDS CONTROLLED BY BROMOXYNIL 225:

NOTE: This product controls some annual broadleaf weeds. Other broadleaf weeds that were not present during the development trails with the product, may possibly also be controlled to a certain degree. The registration holder does not accept any responsibility for unlisted weeds.

Acanthospermum hispidum	Upright starbur
Amaranthus hybridus	Common pigweed
Amaranthus spinosus	Thorny pigweed
Amaranthus thunbergii	Red pigweed
Amsinckia calycina	Fiddle neck
Anthemis cotula	Stinking mayweed
Arctotheca calendula	Cape marigold
Argemone subfusiformis	White-flowered Mexican poppy
Bidens formosa	Cosmos
Bidens pilosa	Common Blackjack
Bilderdykia convolvulus	Climbing knotweed
Capsella bursa-pastoris	Shepherd's Purse
Chenopodium album	White goosefoot
Chenopodium ambrosioides	Wormseed goosefoot
Chenopodium carinatum	Green goosefoot
Chenopodium multifidum	Stinking goosefoot
Chenopodium murale	Nettle-leaved goosefoot
Chenopodium schraderianum	Schrader goosefoot
Citrullus lanatus	Wild watermelon
Cleome gynandra	Spider-wisp
Cucumis myriocarpus	Striped wild cucumber
Datura ferox	Large thorn apple
Datura stramonium	Thorn apple
Flaveria bidentis	Smelter's bush
Galinsoga parviflora	Gallant Soldier
Gisekia pharnacioides	Gisekia
Helianthus annuus	Sunflower (erratic control)
Hibiscus trionum	Bladder weed
Ipomoea coscinosperma	-
Ipomoea purpurea	Common morning glory
Lepidium bonariense	Pepperweed
Melilotus indica	Annual yellow sweet clover
Nicandra physalodes	Apple of Peru
Pentzia grandiflora	Stinkweed
Physalis angulata	Wild gooseberry
Richardia brasiliensis	Tropical Richardia
Ricinus communis	Castor-oil plant
Schkuhria pinnata	Dwarf marigold
Senecio burchellii	Molteno disease senecio
Sesamum triphyllum	Wild sesame
Sida cordifolia	Heartleaf Sida
Solanum nigrum	Black nightshade
Sonchus oleraceus	Sowthistle
Tagetes minuta	Khakiweed
Vicia hirsute	Tiny purple vetch
Vicia sativa	Broad-leaved purple vetch
Xanthium spinosum	Spiny cocklebur
Xanthium strumarium	Cocklebur

PROBLEM WEEDS:

These weeds will only be controlled by **BROMOXYNIL 225** if sprayed between emergence and the 3-leaf stage.
Spray *Tribulus terrestris* when the plantlets are no bigger than 25 mm in diameter.

Amaranthus deflexus	Perennial pigweed
Cleome monophylla	Spindlepod
Emex australis	Spiny Emex
Polygonum aviculare	Prostrate knotweed
Raphanus raphanistrum	Wild radish
Sisymbrium thellungii	Common wild mustard
Tribulus terrestris	Dubbeltjie

WEEDS CONTROLLED BY BROMOXYNIL 225 / ATRAZINE SC MIXTURES:

In addition to the weeds controlled by **BROMOXYNIL 225**, the following weeds are controlled by mixtures of **BROMOXYNIL 225** and atrazine SC as recommended for use in maize and grain sorghum:

Commelina benghalensis	Benghal wandering Jew
Portulaca oleracea	Purslane