




LINAGAN[®] SC

Reg. no. L6294 Act/Wet 36 of/van 1947
N-AR 0492, W1031279

READ THE LABEL BEFORE USE
KEEP OUT OF REACH OF CHILDREN AND ANIMALS

GROUP	C2	HERBICIDE
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<p>A suspension concentrate: root- and foliar-absorbed herbicide for the control of the weeds mentioned in the crops listed.</p>	<p>'n Suspensiekonsentraat: wortel- en blaar-opneembare onkruidodder vir die beheer van die onkruid vermeld in die genoemde gewasse.</p>
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 <p>DANGER</p>	<p>Hazard statements Suspected of causing cancer. May damage fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.</p> <p>Precautionary statements Wear protective gloves, protective clothing, eye protection and face protection. Avoid release to the environment.</p>
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ACTIVE INGREDIENT/AKTIEWE BESTANDDEEL

linuron (urea) 500 g/L linuron (ureum)

NET VOLUME/NETTO VOLUME

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REGISTRATION HOLDER/REGISTRASIEHOUER

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UN no.:3082

EMERGENCY NUMBERS:

Griffon Poison Information Centre: +27 82 446 8946
Tygerberg Poison Information Centre: +27 861 555 777

Batch number	Lotnommer
Date of manufacture	Datum van vervaardiging
Expiry date	Vervaldatum

WARNINGS

- Suspected of causing cancer.
 - May damage fertility or the unborn child.
 - May cause damage to organs through prolonged or repeated exposure.
 - Very toxic to aquatic life with long lasting effects.
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- Do not graze treated areas.
 - May be poisonous if swallowed.
 - May irritate eyes, nose, throat and skin.
 - Store in a cool place away from fertilizers, food and feeds.
 - Although **LINAGAN® SC** has been tested on most important cultivars and no significant effect has been recorded, this does not mean that a more susceptible cultivar cannot be commercialized in the future. Where new cultivars are encountered large areas should not be sprayed without prior testing of **LINAGAN® SC** on that cultivar.
 - Aerial application: Notify all inhabitants in the immediate vicinity to be sprayed and issue the necessary warnings. Do not spray over or allow drift to contaminate water or adjacent areas.
 - Re-entry: Do not enter treated area until spray deposit has dried, unless wearing protective clothing.

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, compatibility 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 furthermore does not accept responsibility for damage to crops, vegetation, and 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 the event of any uncertainty.

PRECAUTIONS

- Keep out of reach of children.
- Obtain, read and follow all safety instructions before reuse.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Avoid release to the environment.
- Wear protective gloves, protective clothing, eye protection and face protection.
- If exposed or concerned get medical advice.
- Get medical help if you feel unwell.

- Collect spillage.
- Store locked up.
- Dispose of contents/container to an approved waste disposal plant.

- Wash immediately after accidental skin contact with soap and cold water.
- PREVENT DRIFT ONTO OTHER EDIBLE CROPS, GRAZING, RIVERS, DAMS AND AREAS NOT UNDER TREATMENT.
- Clean applicator/aircraft thoroughly before re-using with other materials. Invert the empty container over the spray – or mixing tank for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse the empty container three times with a volume of water equal to a minimum of 10% of that of the container and add the rinsing to the contents of the spray tank before disposing of the container in the prescribed manner.
- Destroy empty container by perforation and flattening and never use for another purpose.
- Dispose of wash water where it will not contaminate grazing, food or water.
- Ensure that the spray does not drift over grazing, crops not under treatment or water sources
- Keep animals and children away from stacked and spilt material.
- No worker should be engaged in handling or marking operations while suffering from any major complaint or from certain minor complaints such as bronchitis or stomach trouble.

RELEVANT SUBSTANCES

Chemical name	w/w %	CAS no.
Linuron	30–60%	330-55-2
Monoethylene glycol	<10%	107-21-1

FIRST AID

In case of accident or unwellness, seek medical advice immediately. Provide this label and SDS to medical personnel for treatment. Emergency personnel should wear protective clothing appropriate to the type and degree of contamination.

Immediately remove contaminated clothing and remove the affected person from the contamination area. Keep the person warm, calm and covered up. First Aid personnel should pay attention to their own safety.

Take the container label or product name with you when seeking medical attention.

Eye contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

Skin contact: Remove all contaminated clothing and shoes. Wash the skin immediately with plenty of water for 15 to 20 minutes under the safety shower. Consult a physician if necessary.

Inhalation: Immediately remove the affected victim from exposure to an area with fresh air. If breathing is difficult have qualified personnel administer oxygen. If breathing has stopped, administer



artificial respiration. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician.

Ingestion: Call a poison control center or medical practitioner immediately for treatment advice. If conscious, rinse mouth thoroughly with water. Drink plenty of water. Never give anything by mouth to an unconscious or convulsing person. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomit, rinse mouth and administer more water. Get medical attention immediately if symptoms occur.

TOXICOLOGICAL INFORMATION

Antidotes

None known. Treat symptomatically.

Symptoms of human poisoning

None known.

NOTICE TO THE USER: This agricultural remedy is to be used only according to the directions of this label. It is an offense under the Act to use this product inconsistent with the directions on the label.

RESISTANCE WARNING

For the purpose of resistance management **LINAGAN® SC** is classified as a group code C2 herbicide. Any weed population may contain individuals naturally resistant to **LINAGAN® SC** and other group code C herbicides. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds may not be controlled by **LINAGAN® SC** or any other group code C herbicides. To delay herbicide resistance:

- Avoid exclusive repeated use of herbicides of the same herbicide group code. Alternate or tank mix with products from different herbicide group codes.
- Integrate control methods (chemical and cultural) into weed control programs or specific information on resistance management contact the registration holder of this product.

MODE OF ACTION

C2: Inhibition of photosynthesis at PSII – Serine264 binders.

DIRECTIONS FOR USE

Use only as directed.

APPLICATION RATES

CROP AND TARGET	APPLICATION AND SOIL TYPE	DOSAGE/HA
Carrots, parsley and parsnips	Pre emergence of seed Loamy sand 11–15 % clay Sandy loam 16–20 % clay Sandy clay loam 21–35 % clay	1.0 L in 300 L water 1.5 L in 300 L water 2.0 L in 300 L water
	Post emergence of seed	1–1.5 L in 300–500 L water. Dosage depends upon growth stage of the weeds
Maize (under irrigation)	Post emergence 11–35 % clay 21–35 % clay 11–35 % clay 21–35 % clay	Overall treatment as a directed spray to weeds 1.5 L in 300 L water for weeds up to 50 mm in height 2.5 L in 500 L water only when weeds exceed 50 mm height but are not taller than 75 mm. 50 cm band treatment after early cultivation: 8.5 ml in 3 L water/100 m row for weeds up to 50 mm in height 14 ml in 5 L water/100 m row only when weeds exceeds 50 mm but are not taller than 75 mm. ADD A WETTER.
Potatoes (under irrigation)	Pre emergence (of crop) Loamy sand 11–15 % clay Sandy loam 16–20 % clay Sandy clay loam 21–35 % clay	2.0 L in 300–500 L water 2.5 L in 300–500 L water 3.0 L in 300–500 L water
Sweet potato transplants (Cuttings)	Pre emergence (of weeds): Loamy sand 11–15 % clay Sandy loam 16–20 % clay Sandy clay loam 21–35 % clay	1.5 L in 300 L water 1.75 L in 300 L water 2.0 L in 300 L water
Gladioli	Post emergence (of weeds):	1.5–2 L in 300–500 L water. Dosage depends upon growth stage of the weeds.

CROP AND TARGET	APPLICATION AND SOIL TYPE	DOSAGE/HA
Roses	<p>Pre budburst; pre-emergence</p> <p>Loamy sand 11–15 % clay Sandy loam 16–20 % clay Sandy clay loam 21–35 % clay</p> <p>Post budburst</p> <p>Directed post emergence</p>	<p>2.0 L in 300 L water 2.5 L in 300 L water 3.0 L in 300 L water</p> <p>3–4 L in 300–500 L water Dosage depends upon growth stage of the weeds.</p>

APPLICATION

CROPS

Carrots, parsley and parsnips

Pre emergence: Seed should be sown no less than 1.25 cm deep in a fine seedbed. (See General.)

Post emergence: When spraying do not apply before the carrots have reached the 4-leaf stage. The best time to spray is when the weeds are in the 2- to 3-leaf stage and do not exceed 50 mm in height. Use 300 L spray mixture/ha. Use 500 L mixture/ha on weeds which are in the 3- to 5-leaf stage, but are not taller than 75 mm. Do not apply when temperature exceeds 30 °C. Do not exceed 3 bars pressure as crop injury may result. The addition of full concentration wetter/spreader can result in crop injury.

Respraying: Respraying is permissible for both pre-and post-emergence applications as long as the total dosage is not more than 2 x the prescribed dosage for the situation for which it has been recommended and should in no instance exceed 4 L/ha. ADAMA South Africa (Pty.) Ltd. is not in a position to continuously test **LINAGAN® SC** on all new cultivars. If phytotoxic symptoms such as leaf tip burn should be noticed on any cultivar after a spray it would not be advisable to use this chemical for a second time on that cultivar during the same growing season.

Irrigated maize

Overall application: Make a single application, as a directed spray after maize is at least 350–500 mm high (measured to the highest leaf on freestanding plants). Do not spray over the top of maize. Apply only when there is sufficient differential between height of maize and weeds so that the directed spray (drop arms) thoroughly cover all weed foliage without contact of upper leaves or whorl of maize by spray or drift. Such contact may cause injury. Early cultivation (rolling tine cultivator or other suitable equipment) can aid in achieving proper differential between height of maize and weeds. Where early cultivation has taken place only a band treatment will be necessary. Weeds should be growing vigorously and not be wilted and suffering from drought stress when the spray is applied.

Band treatment: Apply by means of a tractor-mounted power sprayer properly calibrated to a constant speed and rate of delivery. The use of drop arms is recommended.

For a 50 cm (25 + 25 cm) band:

Dose in 3 L water per 100 m row = 8.5 ml (weeds up to 50 mm high)

Dose in 5 L water per 100 m row = 14 ml (weeds up to 75 mm high)

Replanting: Fields with soil containing in excess of 10 % clay which have been treated with **ALANEX[®]** pre-emergence, followed by **LINAGAN[®] SC** post emergence, may immediately be replanted to maize and soybeans if initial seeding fails to produce a satisfactory stand. Thirty days should elapse after treatment before dry or green beans, or sunflowers can be planted. Thoroughly rework soil before replanting. Sorghum should not be replanted into **ALANEX[®]-/LINAGAN[®] SC**-treated soil and a waiting period of six months is recommended in this case. By thoroughly reworking the soil prior to replanting the **ALANEX[®]** will be diluted to such an extent that weed control will be ineffectual. Do not re-treat fields with a second application during the same crop year.

NOTE: Do not plant **LINAGAN[®] SC** susceptible crops within 4 months of treatment.

LINAGAN[®] SC in conjunction with ALANEX[®] for pre- and post-emergence weed control in irrigated maize:

General: Read the **ALANEX[®]** labels before use and apply according to the manufacturer's recommendations. The application of **LINAGAN[®] SC** as a post-emergence spray for the selective control of seedling annual broadleaf weeds in maize is recommended after a pre-emergence spray of **ALANEX[®]** for grass control.

How to use: Make a single application of **ALANEX[®]** as a broadcast or band spray after planting but before maize emerges. Follow up with a post emergence treatment of **LINAGAN[®] SC** as described above.

Winter follow up crops: When **ALANEX[®]/LINAGAN[®] SC** is used in the fashion described above no difficulties can be expected with winter follow up crops planted outside the 4-month safety period. (See point 7 of General.)

Irrigated potatoes

May be sprayed after planting until prior to emergence of first leaves of crop. Seed should be planted at least 5 cm deep and seedbed should be free of clods. Where no weed growth is yet present, or when weeds are in the 2- to 3-leaf stage, and do not exceed 50 mm in height and the potatoes have not yet emerged, use 300 L mixture/ha. Where potatoes have not yet emerged, but weeds are in the 2- to 5- leaf stage but not taller than 75 mm, use 500 L mixture/ha. Grasses should not be allowed to exceed 50 mm in height. Where a band treatment is used proportionally fewer chemicals than for the overall treatment must be used. If weeds have already germinated, it is advisable to ADD A WETTER.

Sweet potatoes

Apply immediately after transplanting before active growth starts. Give light sprinkle irrigation after application to wash herbicide off the leaves of the cuttings. Alternatively, spray first and transplant directly thereafter, ensuring that soil is not unduly disturbed, and that the minimum amount of trampling takes place. The first option is the better one.

ORNAMENTALS

Gladioli

Do not spray later than 2 days before crop emergence. Use 300 L mixture/ha on weeds in the 2- to 3-leaf stage which do not exceed 50 mm in height and 500 L mixture on weeds in the 2- to 5-leaf stage which are not taller than 75 mm. Use lower dose in 300 L water and higher dose in 500 L water/ha.

Roses

Pre bud burst: Apply in spring before roses commence budburst. Use 20–30 ml in 3 L water/100 m² (i.e., 2–3 L/ha dependent on soil type). 1 ha = 10 000 m².

Post bud burst, post emergence: For directed post emergence sprays ensure that growing roses are well shielded. Use 3 L in 300 L water/ha for weeds in 2- to 5-leaf stages which do not exceed 50 mm in height and 4 L in 500 L water/ha for weeds in the 5- to 7-leaf stage which do not exceed 75 mm in height.

EQUIPMENT

For field crops: Use a tractor-mounted fixed-boom power sprayer properly calibrated to a constant speed and rate of delivery. Openings in filters should be equal to or larger than 50 mesh. Continuous agitation in the spray tank is required to keep the material in suspension. Agitate by mechanical or hydraulic means. If a by-pass or return line is used, it should terminate at the bottom of the tank to minimize foaming. Do not use air agitation. Avoid over-lapping and shut off booms while starting, turning, slowing or stopping, or injury to the crop may result. 8004 flat fan nozzles for both pre-and post-emergence sprays on crops other than maize are recommended and a spray pressure of 2.5–3 bars in the case of the former, while using 1.5–2 bars in the case of the latter application method. For post-emergence weed control in maize a 6504 flat fan nozzle operating at 1.5–2 bars to spray a 250 mm band on each side of the row is recommended.

For horticultural crops: A knapsack sprayer operated at constant speed using the same nozzle as described above is suitable.

APPLICATION

GENERAL: Do not use **LINAGAN** on calcific or newly limed soils.

Pre-emergence sprays

- Sprays should be applied either to a moist soil surface or a light irrigation to activate the herbicide should follow shortly after application.
- A good seedbed must be prepared before application of **LINAGAN**[®] **SC**. Crop injury may result if application is made to ground, which is cloddy, or compacted resulting in improperly planted seed. Plant seed at depth specified.
- Surface of the soil should not be cultivated or disturbed after application of **LINAGAN**[®] **SC** and before emergence of the crop as weed control may be reduced and crop injury may be possible. If soil moisture is insufficient to activate the herbicide, a shallow cultivation should be made after emergence of row crops while weeds are small enough to be controlled by mechanical means.
- Do not use **LINAGAN**[®] **SC** pre-emergence where water logging may occur.
- Do not use **LINAGAN**[®] **SC** pre-emergence on gravelly soils or exposed subsoil.
- Certain weeds which are able to germinate from lower soil depths, such as *Datura*, (thorn apple) and cosmos are not always effectively controlled by pre-emergence applications of.
- It is recommended that soil treated with **LINAGAN**[®] **SC** should not be sown or planted with **LINAGAN**[®] **SC** sensitive crops within 4 months of initial treatment. Lettuce is particularly sensitive and problems may be encountered if it is sown during the same season that the initial treatment with **LINAGAN**[®] **SC** took place.
- The pre-emergence control of deep and/or late germinating weeds may sometimes be erratic.

Post-emergence sprays

Optimum results are obtained with post-emergence application under conditions of high humidity and temperatures of 16–25 °C when weeds are growing vigorously.

Aerial application

Aerial application of **LINAGAN® SC** may only be done by a registered Aerial Application Operator using a correctly calibrated, registered aircraft according to the instructions of SABS 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 litres 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: 20 to 30 droplets per cm² must be recovered at the target area.
- Droplet size: A droplet spectrum 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:
 - a) Reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage).
 - b) 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.

BROADLEAF WEEDS CONTROLLED BY LINAGAN® SC

Botanical name	Common name
<i>Acanthospermum hispidum</i>	upright starbur
<i>Amaranthus deflexus</i>	perennial pigweed
<i>A. spinosus</i>	thorny pigweed
<i>A. hybridus</i>	common pigweed
<i>Amsinckia calycina</i>	fiddleneck
<i>Arctotheca calendula</i>	Cape marigold
<i>Bidens bipinnata</i>	Spanish blackjack
<i>Bidens pilosa</i>	common blackjack
<i>Bilderdykia convolvulus</i>	wild buckwheat
<i>Capsella bursa-pastoris</i>	sheperd's purse
<i>Cenia turbinata</i>	Mayweed
<i>Chenopodium album</i>	white goosefoot
<i>Cosmos bipinnatus</i>	cosmos
<i>Datura spp.</i>	thorn apple
<i>Emex australis</i>	spiny emex
<i>Euphorbia hirta</i>	red euphorbia
<i>Galingsoga parviflora</i>	small flowered quick weed
<i>Lactuca serriola</i>	wild lettuce
<i>Lepidum africanum</i>	pepper weed
<i>Physalis angulata</i>	wild gooseberry
<i>Polygonum aviculare</i>	prostrate knotweed
<i>Portulaca oleracea</i>	common purslane
<i>Raphanus raphanistrum</i>	wild radish
<i>Schkuhria pinnata</i>	dwarf marigold
<i>Scleranthus annuus</i>	annual scleranthus

Botanical name	Common name
<i>Sisymbrium thellungii</i>	wild mustard
<i>Sonchus oleraceus</i>	common sowthistle
<i>Spergula arvensis</i>	corn spurry
<i>Stellaria media</i>	chickweed
<i>Tagetes minuta</i>	tall khakiweed
<i>Veronica persica</i>	ironweed
<i>Vicia sativa</i>	common vetch

GRAS WEEDS CONTROLLED BY LINAGAN® SC

Botanical name	Common name
<i>Chloris pycnothrix</i>	spiderweb chloris
<i>Echinochloa crusgalli</i>	barnyard grass
<i>Eleusine indica</i>	goosegrass
* <i>Lolium multiflorum</i>	Italian ryegrass
* <i>Lolium temulentum</i>	darnel
<i>Panicum schinzii</i>	vlei panicum
<i>Phalaris canariensis</i>	canary-seed grass
<i>Poa annua</i>	annual bluegrass
<i>Setaria pallide-fusca</i>	garden bristle-grass
<i>Tragus berteronianus</i>	spike carrot-seed grass
<i>Tragus racemosus</i>	carrot-seed grass

NOTE

- **Post emergence:** *Cyperus esculentus* – yellow nutsedge – control in carrots is variable, but can be enhanced by allowing an acceptable leaf area to develop and then adding a wetter at 50% the recommended concentration. Slight scorching of the carrot leaves may occur, but this disappears with time. *Digitaria sanguinalis* – crab fingergrass –, is only controlled by **LINAGAN® SC** under very favourable conditions.

*Variable results are sometimes obtained on *Lolium spp.* – ryegrass and darnel. *Medicago polymorpha* – burr-clover – is not controlled by **LINAGAN® SC**.



ALANEX® SC (Reg. no. L 4752) contains alachlor and is the registered trademark of a company the ADAMA GROUP.