Read the label before opening the container. For full particulars, see enclosed leaflet.

KEEP OUT OF REACH OF CHILDREN AND ANIMALS

S-MOC 960

South Africa Reg. No: L11270 Act No. 36 of 1947

HRAC HERBICIDE GROUP CODE: K3

An emulsifiable concentrate herbicide for pre-emergence control of annual grasses and Yellow nutsedge under certain conditions in maize, dry beans, groundnuts, sunflower, green beans, cotton, lupins and sugarcane as well as soybeans in the summer rainfall region.

ACTIVE INGREDIENT:

S-metolachlor (chloro-acetanilide).....960g/ℓ

Product Information: 072 678 8226
In case of poisoning: 082 446 8946



HAZARD STATEMENTS

- Combustile liquid.
- Harmful if swallowed or inhaled.
- Causes skin irritation
- May cause an allergic skin reaction.
- Causes serious eye damage
- Very toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS

- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Wear protective gloves/protective clothing/eye protection/face protection.
- Avoid release to the environment.
- Collect spillage.

enviro™ bio-chem

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Expiry Date:
Batch No:
Date of Manufacture:

UN No. 3082

WARNINGS:

- Combustile liquid.
- Harmful if swallowed or inhaled.
- Causes skin irritation
- May cause an allergic skin reaction.
- Causes serious eye damage
- Very toxic to aquatic life with long lasting effects.
- Handle with care.
- Harmful if swallowed.
- May cause sensitisation by skin contact.
- Toxic to fish and aquatic organisms.
- Store in a cool place.
- Store away from food and feeds.
- Keep out of reach of children, uninformed persons and animals.
- **Re-entry:** Do not enter treated area within 1 day after treatment unless wearing protective clothing.
- **In case of poisoning call a doctor and show this label to him/her.**

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

Although this herbicide 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 effected 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 pest against the remedy concerned as well as by the method, time and accuracy of the application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal or for lack of performance of the herbicide 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 handle until all safety precautions have been read and understood.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Wash hands, forearms and face thoroughly after handling.
- Use only outdoors or in a well-ventilated area.
- Contaminated work clothing should not be allowed out of the workplace.
- Avoid release to the environment.
- Wear protective gloves/protective clothing/eye protection/face protection.
- IF ON SKIN: Wash with plenty of water.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Call a POISON CENTRE or doctor if you feel unwell.
- If skin irritation or rash occurs: Get medical advice/attention.
- Take off contaminated clothing and wash it before reuse.
- In case of fire: Use media other than water to extinguish.
- Collect spillage.
- Store locked up.
- Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

- Avoid drift of spray onto other crops, grazing, rivers, dams, boreholes and areas not under
- treatment.
- Thoroughly clean spraying equipment directly after use and dispose of wash water where it will not contaminate food, grazing, boreholes, rivers or dams.
- TRIPLE RINSE empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow draining 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 rinsing to the contents of the spray tank before destroying the container in the prescribed manner.
- Destroy the empty container by perforation and flattening and dispose of it in a safe way.
- Never re-use the empty container for any other purpose.
- Prevent contamination of food, feed, drinking water and eating utensil.

RELEVANT SUBSTANCES:

S-MOC 960 contains:
S-metolachlor (>80)%
Light aromatic solvent (2.5-10)%
Tristrylphenol ethoxylate (2.5-5)%
Phenyl sulphonate salt (2.5-5)%

SYMPTOMS OF HUMAN POISONING:

No case of human poisoning is known. Under laboratory conditions the poisoning symptoms were: sedation, dyspnoea, exophthalmus, curved posture and ruffled fur.

FIRST AID TREATMENT:

- If poisoning is suspected take the patient immediately to the nearest physician and show him this label.
- Remove the patient from the source of poisoning to a well-ventilated area and keep him calm and assured.
- Remove contaminated clothing and rinse contaminated body areas with soap and water. Do not rub the skin.
- Rinse contaminated eyes with running water for at least 15 minutes.
- If the product was ingested, do not induce vomiting. Administer medicinal charcoal repeatedly with plenty of water.
- Never give anything by mouth to an unconscious person.
- If the substance has been swallowed promptly administer a large quantity of milk, egg whites, gelatine solution or, if these are not available large quantities of water. Do not induce vomiting or give anything by mouth to an unconscious person.

NOTE TO PHYSICIAN:

No specific antidote is known. If ingested, induce emesis or lavage stomach. Administration of aqueous slurry of activated charcoal may be considered. Treat symptomatically.

RESISTANCE MANAGEMENT:

S-MOC 960 is a **group code K3** herbicide. Any weed population may contain individuals naturally resistant to **S-MOC 960** and other **group code K3** herbicides. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly and exclusively in programs. S-**MOC 960** or any other **group code K3** herbicides may not control these resistant weeds.

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

USE RESITRICTIONS: IMPORTANT

- DO NOT APPLY S-MOC 960 AS A PRE-EMERGENCE TREATMENT ON MAIZE.
- Do not use S-MOC 960 on inbred parent lines of maize hybrids or experimental or newly released cultivars without first consulting your supplier or the seed company concerned.
- Do not use S-MOC 960 on poorly drained soils or soils with a compaction layer, as under these conditions water logging can occur and the herbicide may cause crop injury.
- Do not apply S-MOC 960 to sandy soils that are susceptible to wind erosion. Flood irrigation can reduce weed control performance.
- S-MOC 960 may damage dry beans in hot, dry conditions especially in the presence of a compaction layer in the soil. Under these conditions beans might also be susceptible to wind damage.
- S-MOC 960 may damage dry beans on waterlogged, shallow, sandy soils of <100 cm depth with an impermeable clay sub soil.

IMPORTANT:

Where other herbicides are used in combination with S-MOC 960 the use restrictions as given on the labels of the herbicides concerned, must be adhered to.

WEEDS CONTROLLED	
The following weed species are normally controlled by a pre-emergenceapplication of **S-MOC 960** at the dosage rates indicated in this label:	
BOTANICAL NAME	COMMON NAME
Brachiaria eruciformis	Sweet signal grass
Chloris virgate	Feather top Chloris
Chenopodium murale	Nettle-leaved goosefoot
Dactyloctenium aegyptium	Crowfoot
Digitaria sanguinalis	Crab finger-grass
Echinochloa crusgalli	Barnyard grass
Eleusine Africana	Goose grass
Eleusine coracana	African goosegrass
Panicum maximum	Common buffalo grass
Panicum schinzii	Sweet buffalo grass
Setaria pallide-fusca	Red bristle grass
Tragus berteroniamus	Small carrotseed grass
Tragus racemosus	Large carrotseed grass
Urochloa mosambicensis	Bushveld herringbone grass
Urochloa panicoides	Herringbone grass
Richardia brasiliensis	Mexican richardia

CONTROL OF THE FOLLOWING WEEDS IS VARIABLE	
BOTANICAL NAME	COMMON NAME
Amaranthus hybridus	Cape pigweed
Amaranthus spinosus	Thorny pigweed
Amaranthus thunbergii	Red pigweed
Chenopodium carinatum	Green goosefoot
Cleome monophylla	Spindle pod
Commelina benghalensis	Benghal wandering Jew
Cyperus esculentus	Yellow nutsedge
Datura ferox	Large thorn apple
Datura stramonium	Thorn apple
Galinsoga parviflora	Gallant soldier
Nicandra physaloides	Apple of Peru
Portulaca oleracea	Purslane
Schkuhria pinnata	Dwarf Marigold

IMPORTANT

• **Yellow nutsedge** *(Cyperus esculentus)*

Improved control of C. esculentus can be achieved when the following conditions are met:

- Planting should take place immediately after thorough ploughing with a mouldbord plough...
- A relatively fine, even and firm seedbed is prepared.
- Herbicide application is followed by at least 10 to 20 mm of soft penetrating rain (or irrigation) to leach the herbicide into the soil prior to the emergence of C. esculentus (normally 7 to10 days after ploughing). These conditions are more likely to occur during the latter half of the planting season (November). More rain is required on heavier soils to obtain good results. This is the reason for the very poor control sometimes obtained on turf soils.
- Rainfall following herbicide application but before emergence of C. esculentus is necessary for optimum C. esculentus control. For this reason application of **S-MOC 960** should be performed at or immediately after planting into moist soil.
- When planting into dry soil (insufficient moisture for C. esculentus germination) **application of S-MOC 960 should be timed as close as possible to, but definitely before the first rains.**

Grass control

- Grasskillers belonging to the chloroacetamide group of herbicides (that includes **S-MOC 960**) are absorbed via the coleoptile of grass weeds. Therefore, for good grass control the herbicide needs to be present at lethal concentrations in the top ± 50 mm of the soil profile. The adsorptive capacity of a soil for these herbicides, as well as the amount of water that moves through the soil profile with rain/irrigation, determine the resultant concentration of these herbicides in the top layers of the soil profile. As a result of the low adsorption capacity of sandy soils (0 to 15 % clay, < 1 % organic matter) the amount of these herbicides can be reduced to sub-lethal concentrations in the top ± 50 mm after the occurrence of permeating rain (25 mm and more within one day). Persistent rain (50 mm and more distributed over 3 to 7 days) will have the same result. It can therefore happen that grasses germinate if such conditions prevail. Split applications are recommended if S-MOC 960 is used on such soils. Permeating and / or persistent rain after the split application will have the same result.

DIRECTIONS FOR USE: Use only as directed.

Compatibility:

- The compatibility of **S-MOC 960** with other products may be influenced by the formulation of the products involved as well as the quality of the water. Since the formulation of other products may change without the knowledge of Enviro Bio-Chem (Pty) Ltd and the quality of water may vary from farm to farm, a physical compatibility test should always be carried out prior to application.

Mixing Instructions:

- Replace cap after use.
- Half-fill the spray tank with water, then pour the required amount of **S-MOC 960** into the spray tank, while the water is being stirred. Top up with water to the final volume required.

Application Techniques:

Post plant pre-emergence

- When planting into moist soil, **S-MOC 960** must be applied within three days of
- planting (but preferably at planting) on a fine, even, firm and freshly prepared weed free seedbed.
- To obtain good results it is necessary that rain or irrigation follows application, before the weeds emerge.
- If rainfall does not occur in time and weeds begin to emerge and develop, a shallow cultivation must be carried out to destroy these weeds and to mix the herbicide with the top 10 to 20 mm of soil.
- When planting into dry soil (insufficient moisture for germination), **S-MOC 960** must be applied as close to, but definitely before the first rain. Emerged weeds at the time of application will NOT be controlled.

Post-emergence (maize)

- **S-MOC 960** has very limited post-emergence effect. It may however be applied post- emergence to the crop immediately after cultivation i.e. when no weeds are present.
- Weeds that are present after the cultivation will not be controlled.

Ground application:

- **S-MOC 960** may be applied with any medium or high volume sprayer, properly calibrated, and which is equipped with an efficient agitation mechanism.
- All spray applications must be made with suitable spraying equipment in good working order and correctly calibrated to deliver the desired coverage of the target area for the recommended method of application
- Apply in at least 200 ℓ water / ha to ensure an even distribution and good recovery of the prepared spray mixture onto the target area.

Aerial application:

Aerial application of this product 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 Remedies). It is important to 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 minimum 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 the product is applied aerially at a lower volume rate than recommended above.
- Droplet coverage: Droplet coverage of 30 to 40 droplets per cm^2 must be recovered at the target.
- Droplet size: A droplet spectrum with a VMD of 250 to 280 micron is recommended. Ensure that the production of fine droplets (less than 150 micron - high drift & evaporation potential) is restricted to a minimum.
- Flying height: The height of the spray boom should be maintained at 3 to 4 metres above the target. Do not spray when aircraft is in a climb, at the top or during a dive, or when banking.
- Equipment: Use suitable atomising equipment (hydraulic nozzles or rotary atomisers) that will produce the desired droplet size and coverage, but which will ensure the minimum loss of product either through endodrift (within target field) or exodrift (outside target field). The operator must use a setup that will produce a droplet spectrum with the lowest possible relative span.

All nozzles / atomisers should be positioned within the inner 60 % to 75 % of the wingspan to prevent droplets from entering the wingtip vortices.

- Meteorological conditions: The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8°C. The addition of a suitable anti-evaporant is recommended if the VMD of the droplets is less than 200 to 250 micron.
- Stop spraying if the wind speed exceeds 15 km per hour.
- Aerial application of this product must not be done under turbulent, unstable conditions during the heat of the day when rising thermals and downdraughts occur. Also note that the application of this product under temperature inversion conditions (spraying in or above the inversion layer) 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 the movement of the suspended spray cloud away from the target field.
- Ensure that fields are accurately marked and that the aerial spray operator knows exactly which fields to spray.

Pre-emergence application

- A minimum spray volume of 30 litres per hectare.
- A minimum of 20 to 30 droplets per square centimetre must be recovered on the target area.
- Employ a droplet spectrum with a VMD of 350 to 400 micron.

IT IS ESSENTIAL TO OBTAIN AN ASSURANCE FROM THE AERIAL SPRAY OPERATOR THAT THE ABOVE REQUIREMENTS ARE MET.

Centre pivot irrigation application:

- **S-MOC 960** may be applied in irrigation water pre-emergence (after planting but before weeds or crop emerge) at rates recommended on this label.
- Use only centre pivot systems that apply water uniformly. Prepare a mixture with a minimum of one part of water to one part herbicide and inject this mixture into the centre pivot system using a positive displacement pump.
- Injecting a larger volume of a more dilute mixture per hour will usually provide more accurate calibration of metering equipment.
- Maintain sufficient agitation to keep the herbicide in suspension.
- Apply in 12.5 to 25 mm of water.
- Use the lower water volume (12.5 mm) on coarser textured soils and the higher volume (25 mm) on finer textured soils. More than 25 mm of water at application may reduce weed control by moving the herbicide below the effective zone in the soil.

Precautions for centre pivot applications

- Apply only through irrigation systems containing anti-siphon and check valves to prevent contamination of the well during shutdown and overflow of solution tank.
- Inject ahead of any right angle turn in the main line, to insure adequate mixing.
- Chemical injection pumps and water pumps must have interlocking controls to insure simultaneous shut- off.
- Application when drift may occur, such as from windy conditions, or when system joints and connections are leaking, or when nozzles are not providing uniform distribution, may cause crop injury.
- Where sprinkler distribution patterns do not overlap sufficiently this may result in poor weed control.
- Where sprinkler distribution patterns overlap excessively, crop injury or unacceptable residues may result.

RECOMMENDATIONS AND APPLICATION RATES
A. DRY BEANS, SOYBEANS, SUNFLOWER, GROUNDNUTS, GREEN BEANS, COTTON AND LUPINS.

Table 1. The following application rates of **S-MOC 960** are recommended for the different crops on various soil types and for the control of certain weeds.

Clay %	S-MOC 960
0 -10%	0.6-0.8ℓ/ha
11-20%	
21-30%	0.8 -1.0ℓ/ha
>30%	1.0 - 1.3ℓ/ha

Use the higher application rate of **S-MOC 960** for improved control of Yellow nutsedge (C. esculentus) or where heavy infestations of Crab finger grass (D. sanguinalis) exist or where the organic matter in the soil exceeds 1%.

B. MAIZE
- Residual grass control after a pre-emergence application of S-MOC 915 & VISION® 570 WG may be prolonged with a post-emergence application of S-MOC 960 & VISION® 570 WG. This application must be performed after a thorough cultivation, as emerged grass weeds will not be controlled.

Table 2. **S-MOC 960** applied post-emergence on maize

Clay %	VISION® 570 WG plus	S-MOC 960 plus	Wet-All
0 -10%	200g/ha	0.35ℓ/ha	0.05%
11-20%	250g/ha	0.30ℓ/ha	
21-30%		0.35ℓ/ha	
>30%		0.35 - 0.5ℓ/ha	

COMMENTS
- The higher dosage rate of **S-MOC 960** may be used if grass weeds have started to emerge at the time of the post-emergence application.

C. SUGARCANE

Pre-emergence application:
- Apply 1.0 to 1.6 litres per hectare **S-MOC 960** on all soil types as a pre-emergence treatment.
- The higher rate is recommended on soils with more than 35 % clay and on all soil types where *P. maximum* is a problem and/or for improved control of C. esculentus and/or for longer residual control.
- Apply **S-MOC 960** at 2 litres per hectare if the soil organic matter content exceeds 1 % and the clay content exceeds 35 %.