

GLYFOS® SUPREME

Herbicide



HERBICIDE - For the control of most annual and perennial grasses and broad-leaved weeds.

A soluble concentrate containing 450 g/l glyphosate present as 607 g/l (50.9% w/w) of the isopropylamine salt.

FOR PROFESSIONAL USE ONLY AS AN AGRICULTURAL/HORTICULTURAL/INDUSTRIAL/FORESTRY HERBICIDE.

CONDITIONS FOR USE

Crops	Maximum dose rate litres per hectare	Maximum number of treatments	Pre-harvest interval or latest time of application
Winter and spring wheat, barley, oats, combining peas, field beans, linseed	3.2	1 per crop	7 days before harvest
Oilseed rape	3.2	1 per crop	14 days before harvest
All edible crops (stubbles)	3.2	1 per situation	-
All non-edible crops (stubbles)			
Grassland	4.8	1 per year	-
Natural surfaces not intended to bear vegetation, permeable surfaces overlying soil, hard surfaces	4.8	-	-
Land prior to cultivation, all edible crops (before planting), all non- edible crops (before planting)	4.8	-	-
Green cover on land not being used for crop production	3.2	-	-
Apple and pear orchards	4.0	1 per year	After harvest (post leaf fall) but before green cluster
Cherry, damson and plum orchards	4.0	1 per year	After harvest (post leaf fall) but before white bud
Forestry			
(a) Weed control	8.0	-	-
(b) Chemical thinning	1.6 ml product per cut per 10 an diameter	-	-
Forest (stump)	See 'Other specific restrictions'		

PCS 02832

OTHER SPECIFIC RESTRICTIONS

When applying through rotary atomisers, the spray droplet spectrum must be of a minimum Volume Median Diameter (VMD) of 200 microns.

For stump applications, the maximum concentration must not exceed 200 ml of product made up to a total volume of 1 litre with water (i.e. a 20 % solution).

For weedwiper applications do not exceed the following maximum concentrations: Weedwiper Mini: 0.7:2 dilution with water. Other wipers: 0.7:1 dilution with water.



RISK AND SAFETY INFORMATION

Product identifier: Glyphosate 450 g/l SL

WARNING

Very toxic to aquatic life.

Toxic to aquatic life with long lasting effects

Avoid release to the environment.

Collect spillage.

Dispose of contents/container to a licensed hazardous waste disposal contractor or collection site except for triple rinsed empty containers which can be disposed of as non-hazardous waste.

To avoid risks to human health and the environment, comply with the instructions of use.

Made in Denmark

PROTECT FROM FROST

Batch No: See neck of bottle

Authorisation Holder:

 **CHEMINOVA**

CheminoVA A/S, DK-7620 Lemvig, Denmark
Tel. 0045 9690 9690, www.cheminova.com



Headland Agrochemicals Ltd.

Rectors Lane, Pentre, Deeside, Flintshire CH5 2DH

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www.headland-ag.co.uk



10042691

Net Contents: **15 Litres**

General Information

Glyfos Supreme is an effective herbicide when used as directed against most annual and perennial grasses and broad-leaved weeds.

Glyfos Supreme is translocated from the treated leaves throughout the plant and to underground roots, rhizomes and stolons. Symptoms such as gradual wilting and yellowing of foliage are rapidly visible in grass weeds but are slower to appear in broad-leaved weeds.

Cultivation and drilling can take place 6 hours after application to control annual broad-leaved weeds, 24 hours after spraying annual grasses and 5 days after spraying perennial weeds. If direct drilling is practised 6 hours after application, only small annual weeds should be present. Allow minimum 7 days if weather conditions are not favourable and before planting of trees, ornamentals, vegetables etc.

Restrictions

Weather Conditions

For best results a rain-free period of 6 hours (and preferably 24 hours) is required after application of Glyfos Supreme.

Extreme care should be taken to avoid spray drift as this can severely damage or destroy neighbouring crops or plants.

Action of Glyfos Supreme will be slower in cooler weather. It should not be used under frosty conditions while weed growth is reduced by natural senescence.

Treating weeds which are suffering from drought stress may result in reduced efficacy.

Associated farming practices

Lime, fertilisers or other pesticides should not be applied for at least 5 days before or after the application of Glyfos Supreme

Following Crops

Glyfos Supreme is inactivated on contact with soil by binding to soil particles. All crops may be planted or sown at the intervals specified in 'Conditions of Use' following treatment.

A slight growth retardation following germination may be seen if seeds are sown by direct drilling amongst decaying vegetation, roots, rhizomes or stolons.

Mixing and Application

DO NOT STORE, MIX OR APPLY THIS PRODUCT FROM AN UNLINED OR GALVANISED STEEL TANK. Do not leave mixtures in spray tanks over long periods. Ensure that spray tanks are always thoroughly ventilated.

NEVER APPLY PRE-HARVEST TREATMENTS TO CROPS GROWN FOR SEED. Barley intended for brewing and contract-grown crops should only be treated following approval from the grain merchant. Consult processor before using on crops intended for processing.

Weed Control

It is important when treating perennial weeds that there is full emergence of healthy green foliage and active growth at the time of application.

The efficacy of this product is increased if the leaf surface for absorption is large. Common couch grass is particularly susceptible at the 4-5 leaf stage, where there is about 10-15 cm of new growth, when tillering and new rhizome growth is starting.

Most perennial broad-leaved weeds are particularly susceptible to treatment when they are actively growing and shortly before flowering.

Annual weeds should be growing actively at the time of treatment. Grasses should have at least 5cm of growth. Broad-leaved weeds should have at least two sizeable true leaves.

Under conditions of drought, flooding, frost or high temperatures, disease or insect damage or weeds heavily covered with dust, where plant growth is restricted the efficacy of this product will be reduced.

No extra surfactant should be added if the product is to be applied using a rotary atomiser.

Crops

GLYFOS SUPREME may be applied to all areas to be planted with food and feed crops and pre-harvest to wheat and oats and barley intended for brewing. Consult the processor before using on any crop intended for processing. Only treat barley intended for brewing and contract crops after having obtained approval from the grain merchant.

Some strains of grasses, e.g. black-grass, wild-oats and Italian Rye-grass have developed resistance to herbicides which may lead to poor control. A strategy for preventing and managing such resistance should be adopted. This should include integrating herbicides with a programme of cultural control measures. Guidelines have been produced by the Weed Resistance Action Group and copies are available from the HGCA or the Crop Protection Association.

Do not use Glyphosate products repeatedly over several years in the same field as selection of resistant biotypes can take place and may become prevalent.

ARABLE APPLICATION, stubbles of all crops and pre-cultivated land

Area of use	Target weeds	Extent of weed infestation	Application rate in l/ha	Water volume	Application details
Pre-harvest Wheat (including Durum wheat), barley and oats	Common Couch	<25 shoots/m ²	1.6	Hydraulic Sprayers 80-250 l/ha or rotary atomisers at 40 l/ha.	Apply when the moisture content of the crop grains is less than 30%, and at least 7 days before harvest. Use high clearance tractors with narrow wheels and crop dividers. NEVER TREAT CROPS WHICH ARE GROWN FOR SEED. Treated straw should not be used for horticultural mulch but may be used for all other applications. Following harvest, incorporate or remove straw as required. Treated area may be used for further cultivation after straw clearance.
		26 to 75 shoots/m ²	2.4		
		>75 shoots/m ²	3.2		
	Perennial Broad-leaved weeds, and other perennial Grasses	All species at all Levels of Infestation	3.2		
Pre-harvest in Cereals for harvest management to gain harvesting benefits resulting from the reduction of green material in the crop.	Annual grasses	All species at all levels**	1.2	Hydraulic Sprayers 80-250 l/ha or rotary atomisers at 40 l/ha**	Apply when the moisture content of the crop grains is less than 30%, and at least 7 days and up to 14 days before harvest. Use high clearance tractors with narrow wheels and crop dividers. DO NOT TREAT CROPS WHICH ARE GROWN FOR SEED. Treated straw should not be used for horticultural mulch but may be used for all other applications. Following harvest, incorporate or remove straw as required. Treated area may be used for further cultivation after straw clearance.
	Cereal stems and leaves				
	Annual broad-leaved weeds				

Area of use	Target weeds	Extent of weed infestation	Application rate in l/ha	Water volume	Application details
Pre-harvest of oilseed rape	Crop desiccation prior to combine harvesting	-	2.4	Use only hydraulic sprayers at 200-250 l/ha	Apply when seeds contain less than 30% moisture. Apply to standing crop 14-21 days before harvest. Use high clearance tractors with narrow wheels and crop dividers DO NOT TREAT CROPS WHICH ARE GROWN FOR SEED. for effective combining do not treat crops with a significant amount of secondary growth nor areas of crop with delayed maturing due to damage by poor drainage or birds. Extreme heat, drought or disease may cause crops to mature unevenly after treatment. After treatment, straw should be incorporated or removed.
	Common Couch Annual weeds	<75 shoots/m ² all species at all levels	2.4		
	Common Couch Perennial broad-leaved weeds Other perennial grasses	>75 shoots/m ² all species at all levels	3.2		
Pre-harvest of oilseed rape	Common Couch	<75 shoots/m ²	2.4	Hydraulic sprayers 80-250 l/ha or rotary atomisers at 40 l/ha*	Apply at least 7 days before harvest to crop seeds containing less than 30% moisture. DO NOT TREAT CROPS WHICH ARE GROWN FOR SEED. This treatment must not be used for crop desiccation. Use high clearance tractors with narrow wheels and crop dividers
	Common Couch	<75 shoots/m ²	3.2		
	Perennial broad-leaved weeds, Other perennial grasses	All species at all levels	3.2		
Pre-harvest use on linseed	Common Couch	<75 shoots/m ²	2.4	Use only hydraulic sprayers 80-250 l/ha	Apply at least 7 days before harvest to crop seeds containing less than 30% moisture. A period of 28 days may be necessary before combine harvesting. DO NOT TREAT CROPS WHICH ARE GROWN FOR SEED.
	Common Couch	<75 shoots/m ²	3.2		
	Other perennial grasses, autumn volunteer cereals	All species at all levels	3.2		
Autumn and spring application to stubbles of all crops	Common Couch	<75 shoots/m ²	2.4	Hydraulic sprayers 80-250 l/ha or rotary atomisers at 40 l/ha*.	Cultivation and drilling may take place 5 days after spraying perennial weeds. For best results allow sufficient weed growth before spraying. In spring a period of at least 21 days of weed growth should be allowed prior to treatment. NEVER CULTIVATE BEFORE SPRAYING
	Common Couch, Other perennial grasses, Autumn volunteer, potatoes	>75 shoots/m ² All species at all levels	3.2		
Stubbles of all crops and land prior to cultivation	Volunteer cereals	All species at all levels	1.2	Hydraulic sprayers 80-250 l/ha or rotary atomisers at 40 l/ha*.	Cultivation and drilling may take place 6 hours after spraying annual weeds and 24 hours after spraying annual grasses. NEVER CULTIVATE BEFORE SPRAYING
	Other annual grasses Annual broad-leaved weeds				

* Droplet size should be within 200-300 microns.

** Some weeds such as annual nettle, volunteer potato, polygonums , rose-bay willow-herb may not be controlled when using low harvest management rates.

A pre-harvest interval of 14 days should be observed during dull weather conditions.

GRASSLAND

GLYFOS SUPREME should be applied at a maximum rate of 4.8 l/ha once per year at least 5 days before harvest, grazing or drilling. Remove poisonous plants before grazing/mowing.

Area of use	Target weeds	Extent of weed infestation	Application rate in l/ha	Water volume	Application details
Grassland Destruction weeds and control of associated weeds	Short rotation rye grass with annual weeds	Application rates should be adapted to control the least susceptible weeds present. See the following table for dose rates.	2.4	Hydraulic sprayers 150-250 l/ha	Do not apply lime, chemical or natural fertilisers or other pesticides before treatment, or onto treated areas within 5 days of Glyfos Supreme application. Treat following re-growth or after grazing or mowing. Clear treated grass crop before planting or drilling the next crop. Grass and clover may be direct drilled after treatment on 1-2 year leys without mat, 5 days after spraying following removal of all surface vegetation. Long leys with some mat should be sprayed in the autumn and not direct drilled until the following spring.
	Perennial grasses in leys of 2-4 years		3.2		
	Perennial broad-leaved weeds in long leys of 4-7 years		4.0		
	Permanent pasture		4.8		

DOSE RATES FOR CONTROLLING WEED SPECIES IN GRASSLAND

Application Rate-2A 1/ha

Annual meadow-grass	Creeping bent-grass	Italian rye-grass	Smooth meadow-grass	Yorkshire fog	Perennial rye-grass
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Application Rate-3.2 Vha

Red fescue	Bracken	Broad-leaved dock	Creeping soft-grass	Plantains	Common couch-grass
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Creeping buttercup	Common ragwort	Cock's foot			
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Application Rate-4.8 1/ha

Yarrow	Creeping thistle	Perennial sow-thistle	Common nettle		
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NATURAL SURFACES NOT INTENDED TO BEAR VEGETATION, PERMEABLE SURFACES OVERLYING SOIL, HARD SURFACES, LAND PRIOR TO CULTIVATION

Area of use	Target weeds	Extent of weed infestation	Application rate in 1/ha	Water volume	Application details
Land not intended to bear vegetation and prior to cultivation	Annual weeds	All species at all levels	1.2	Hydraulic sprayers 80-250 l/ha Rotary atomisers at 40 l/ha*, or knapsack sprayer (see "Spray Application Techniques and Equipment").	DO NOT USE IN OR ALONG HEDGEROWS. DO NOT USE UNDER GLASS OR POLYTHENE. For use for weed control: - in fence lines, around buildings and storage areas, along roads, paths and ditch edges. - For annual weed control allow 6 hours and perennial weed control 5 days before cultivating. Allow 7 days before planting trees and shrubs and other crops. - To control regrowth in root crop storage areas.
	Perennial grasses	All species at all levels	3.2		
	Perennial Broad-leaved weeds	All species at all levels	4.8		

* Droplet size should be within 200-300 microns

GREEN COVER ON LAND NOT BEING USED FOR CROP PRODUCTION

Before using on land temporarily taken out of production as part of a grant aided scheme, ensure compliance with the management rules of that scheme.

Area of use	Target weeds	Extent of weed infestation	Application rate in 1/ha	Water volume	Application details
Green cover on land temporarily removed from production e.g. set-aside	Annual weeds including volunteer and wild oats, blackgrass, brome	Germinating seedlings	1.2	Hydraulic sprayers 80-250 l/ha, rotary atomisers 40l/ha* or knapsack sprayer (see "Spray Application Techniques and Equipment")	When green cover crop is predominantly grass, refer to the recommendations and application details in section "Grassland".
	Various perennial grasses.	<75 shoots/m ²	2.4		
	Annual and perennial broad-leaved weeds	<75 shoots/m ² All species at all levels	3.2		

*Droplet size should be within 200-300 microns.

ORCHARDS

GLYFOS SUPREME should be applied at a maximum rate of 4.0 l/ha once per year.

Area of use	Target weeds	Extent of weed infestation	Application rate in 1/ha	Water volume	Application details
Apple, pear, plum, cherry and damson orchards	Perennial grasses and broad-leaved weeds in; - arable stubbles - pastures	All species at all levels	3.2 4.0	Hydraulic Sprayers 200-250 l/ha or rotary atomisers 40 l/ha*.	Allow 7 days after spraying before planting top fruit crops.
Pre-planting within orchards containing apples, pears, plums, cherries and damson	Perennial Grasses and broad-leaved weeds	All species at all levels	4.0	Hydraulic Sprayers 200-400 l/ha (optimum 250 l/ha) or or knapsack sprayer (see "Spray Application Techniques and Equipment")	Fruit trees should be established for at least two years before treatment. AVOID CONTACT WITH BRANCHES AND TRUNKS 30 CM ABOVE GROUND LEVEL. Treat after trees have lost their leaves in autumn or for apples and pears in spring before green cluster and before white bud stage for stone fruit.

*Droplet size should be within 200-300 microns.

FORESTRY

When conventional hydraulic sprayers are being used the performance of GLYFOS SUPREME can be improved by the addition of Mixture B® to the spray tank at a rate of 2% of the final water volume, for all pre-plant and post plant uses in forestry only. Mixture B should not be added when using rotary atomiser sprayers.

GLYFOS SUPREME should be applied post planting in forestry at a maximum rate of 8 l/ha.

Area of use	Target weeds	Extent of weed infestation	Application rate in l/ha	Water volume	Application details
Forestry				Hydraulic Sprayers 200-400 l/ha optimum 250 l/ha or Rotary atomisers 40 l/ha*	All tree species may be planted 7 days after treatment.
Pre-planting on arable land and grassland areas	Arable weeds Grassland weeds	All species at all levels All species at all levels	3.2 4.0		
Post planting for clean-up around trees with knapsack applicators	Perennial and annual grasses Bracken, Beech-Brush, Brambles, Ash, Oak, Willow, Sycamore, Hazel Heather - peat soil - mineral soil Rhododendron	All species at all levels	3.2 2.4 3.2 4.8 8.0 or 6.4 (+)	Hydraulic knapsack sprayers, (see Spray Application Techniques and Equipment).	Always use TREE GUARD when treating during the growing season. Bracken should be treated after frond tips are uncurled but pre-senescence. Apply to heather late August to end of September. Apply to all other woody weeds from June to August before leaf senescence (but after new crop growth has hardened). (+) Rhododendrons may be controlled at 6.0 l/ha if a suitable authorised adjuvant is added.
Overall spraying post planting in dormant season	Grass weeds including Black Bent, Common Couch, Creeping Soft-grass, False Oat-grass, Cock's-foot, Purple Moorgrass, Wavy Hair-grass, Yorkshire Fog	All levels - with optimum timing and conditions - under slightly less favourable conditions	2.4 3.2	Hydraulic sprayers 80-250 l/ha or hand held equipment (see Spray Application Techniques and Equipment).	DO NOT OVERALL SPRAY trees grown for ornamental purposes including Christmas trees. When fully dormant and the leader growth has hardened it is safe to over-spray the following species; Corsican, Lodgepole and Scots Pines, Norway and Sitka Spruce, Lawson Cypress, Western Red Cedar, Douglas and Nobel Fir, may be sprayed when fully dormant and when leader growth has hardened, but NOT in spring. It is a good idea to test crop safety by spraying a small area before conducting widespread overall treatment in following years. Bracken should be treated after frond tips are uncurled but pre-senescence.
Stump application for chemical thinning	Prevention of coppicing and regrowth from stumps	Deciduous species Coniferous species	8 % solution of GLYFOS SUPREME in water 16 % solution of GLYFOS SUPREME in water	Clearing saw fitted with Enso attachment or knapsack or sprayer operated at low pressure or spot gun with solid stream nozzle or paint brush	Apply to saturate freshly cut stump. Treat stumps within 1 week of felling from November to March.
Chemical thinning by injection of tree stems	Coniferous and deciduous species		1.6 mls of neat GLYFOS SUPREME per cut, per 10 cm diameter (or less) /tree		Use a hatchet to cut one notch in trees up to 10 cm diameter and apply 1.6 ml of the solution to each cut, e.g. using a spot gun. Use 2 or 3 notches in trees over 10 cm diameter. Do not treat in the period of active sap flow in the spring/early summer.

(+) Add suitable surfactant at 2% concentration of the tank water volume.

* Droplet size should be within 200-300 microns

SPRAY APPLICATION TECHNIQUES AND EQUIPMENT

1. Hydraulic sprayers mounted on tractors

Use any equipment which can apply at 80-250 litres/ha as a Medium or Coarse spray (as defined by BCPC) with a pressure of 1.5-2.5 bar and 800 or 1100 nozzles. Pre-harvest applications should be made using high clearance tractors with narrow wheels and crop dividers, where the spray boom can be raised to just above the top of the crop.

For most applications, 200-250 litres of water/ha should be used. Spray pressure (typically 1.5-2.5 bar) should be adjusted and related to tractor speed, water volume and nozzle type. However, specific low-volume nozzles may be used with a reduced water volume of 80-120 litres.

When using low volume nozzles, spray pressure and tractor speed should be adjusted. A typical speed range would be 4-9 km/hour. When applying pre-harvest to crops, a low speed to avoid boom bounce is recommended.

All spray equipment should be calibrated before use, particularly if nozzles have been changed. Check at least one nozzle from each side of the boom. Before starting spraying, check that the boom is level, the boom height is correct for the intended application, and all the nozzles on the boom are aligned at the correct angle to the forward direction of the tractor.

2. Rotary Atomisers

Select one of the following:

CDA Boom and CDA Lightweight, Microdrop, Girojet, Dual-Option sprayer, Hydraspin.

Applications should be made using a water volume of 40 l/ha at a speed of 4-9 km/hour and a droplet setting of 200-300 microns (equivalent to the BCPC definitions of 'Medium' or 'Coarse'). The spray droplet spectrum produced by the atomiser must have a minimum Volume Median Diameter (VMD) of 200 microns. The equipment should be correctly calibrated according to the manufacturer's instructions.

3. Directed Application with a Knapsack Sprayer

Knapsack sprayers (e.g. Cooper Pegler Classic / Series 2000) may be used in forestry, orchards, set-aside land, land not intended to bear vegetation and pre-cultivation. Spray volumes normally range from 200-300 litres/ha but may be reduced to 100-150 litres/ha if low volume nozzles have been fitted (do not use less than 200 litres/ha when applying to control rhododendrons). Spray quality should be 'Medium' or 'Coarse' as defined by BCPC.

When using a knapsack sprayer with a total capacity of 10 litres applying 3.2 litres/ha with a spray volume of 200 litres/ha gives a concentration of 1.6%, thus requiring 0.16 litres of Glyfos Supreme in 9.84 litres of water. A 10-litre sprayer will cover an area of 500 sq. metres at a 1 metre/second walking pace and a 1-metre wide spray swath.

Weedwiper Applications (e.g. Weedwiper Mini)

Weedwipers may be used in orchards and non-crop areas. Apply a solution of 0.7 parts Glyfos Supreme with 2 parts water for Weedwiper Minis, or 0.7 parts Glyfos Supreme to 1 part water for other wipers.

Spot Gun-Tree injection

The applicator must be fitted with a solid stream nozzle, either a Spraying Systems 0006 or a Delavan LF 6.0. Set the gun to apply 1.6 ml of neat GLYFOS SUPREME per cut.

Spot Gun – Stump treatments

The applicator must be fitted with narrow angle cone nozzles (TG3 or TGS) or solid stream nozzle tips (Delavan LF 6.0 or Spraying Systems 0006).

Set the gun to deliver 4 ml per squeeze and select the concentration of GLYFOS SUPREME according to usage recommendations. A dose of 4 ml should be applied for each 5 cm diameter of tree stump.

FILLING SPRAY TANK

Half fill clean spray tank with clean water, add required quantity of product and mix well: add remaining water. Do NOT use mechanical agitators. Place the filling hose below water level to prevent excessive foaming and remove immediately after filling to prevent back-siphoning.

When tank-mixing with other products recommended on the label add the other product before adding GLYFOS SUPREME, then add the remaining water.

SPRAYER HYGEINE

It is essential to thoroughly clean out spray tanks, pumps, pipelines and nozzle or disc assemblies with a recommended detergent cleaner between applying this product and other pesticides, to avoid contamination by pesticide residues.

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SAFETY PRECAUTIONS

- a. **Operator Protection:** Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:
WEAR SUITABLE PROTECTIVE GLOVES when handling the concentrate or handling contaminated surfaces.
WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE.
PROTECTIVE GLOVES AND RUBBER BOOTS when using hand-held sprayers, hand-held rotary atomisers, weed wiper equipment, spot-gun equipment or when making cut stump applications.
WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE.
PROTECTIVE GLOVES, RUBBER BOOTS, FACE PROTECTION (FACESHIELD) when carrying out stem injection.
However, engineering controls may replace personal protective equipment if a CoSHH assessment shows they provide an equal or higher standard of protection.
WASH ALL PROTECTIVE CLOTHING THOROUGHLY AFTER USE especially the insides of gloves.
WASH CONCENTRATE from skin or eyes immediately.
DO NOT BREATHE SPRAY.
WASH HAND AND EXPOSED SKIN before meals and after work.
- b. **Environmental Protection:** Do not contaminate water with the product or its containers. Do not clean application equipment near surface waters; avoid contamination via drains from farmyards and roads.
Users must consult the appropriate water regulatory body (Environment Agency / Scottish Environment Protection Agency) before using this product near water and must obtain their agreement before using the product to control aquatic weeds.
The maximum concentration of active ingredient in treated water must not exceed 0.2 ppm or such lower concentration as the appropriate regulatory body may require.
- c. **Storage and Disposal**
KEEP IN ORIGINAL CONTAINER tightly closed in a safe place.
KEEP OUT OF REACH OF CHILDREN.
RINSE CONTAINER THOROUGHLY by using an integrated pressure-rinsing device or by manually rinsing three times. Add washings to the sprayer at the time of filling and dispose of safely.
DO NOT RE-USE CONTAINER for any purpose.

SECTION 6 OF THE HEALTH AND SAFETY AT WORK ACT

Additional Product Safety Information

(This section does not form part of the product label under the Control of Pesticides Regulations 1986).

The product label provides information on a specific pesticidal use of the product. Do not use unless you have assessed any potential hazard involved and the safety measures required.

1. Identification of the Preparation and of the Company:

Identification of the Preparation

Trade Name: KERNEl®

Company Identification

Headland Agrochemicals Ltd
Rectors Lane, Pentre, Deeside, Flintshire CH5 2DH
Tel: 01244 537370
Fax: 01244 532097
E-Mail: enquiry@headlandgroup.com

2. † Hazards Identification:

Health Hazards: May be irritating to eyes, causing pain and redness.

The (CoSHH) Control of Substances Hazardous to Health Regulations may apply to the use of this product at work.

Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

3. Composition and Information on Ingredients:

A soluble liquid containing 480 g/l (53.5% w/w) glyphosate as its isopropylamine salt* with tallow alkyl amine ethoxylate (9% w/w) and water.

* contains 640 g/l of glyphosate isopropylamine salt, equivalent to 480 g/l glyphosate acid, CAS No. 38641-94-0.

Hazardous components:

Tallow alkyl amine ethoxylate CAS No. 61791-26-2

EU Classification: Harmful Xn, Irritating Xi

Risk phrases R20, R36

4. First Aid Measures:

Eyes: Irrigate with clean water for at least 15 minutes. Seek medical attention if any irritation or redness persists.
Skin: Remove contaminated clothing. Wash thoroughly with soap and water. Seek medical advice if any irritation persists.
Ingestion: If swallowed dilute by drinking water. Obtain medical advice. No significant adverse health effects are likely to develop unless a significant amount (more than a mouthful) has been ingested. Ingestion may cause nausea, vomiting and diarrhoea.
Inhalation: Remove from exposure and provide maximum ventilation.
Guide to Doctors: This product contains a glycine herbicide of low acute toxicity. Treatment should be symptomatic and supportive. There is no specific antidote. Ingestion may cause irritation of the gastro-intestinal tract and the mouth, with nausea, vomiting and diarrhoea. Ingestion of large quantities of a similar product has been reported as resulting in hypertension and lung oedema.

5. Fire Fighting Measures

Kernel will burn.

Specific Hazards: If involved in a fire, fumes and vapours will be harmful and may include oxides of carbon, nitrogen and phosphorus. Fire fighters should wear full protective clothing and breathing apparatus.

Extinguishing media: Use dry chemical, foam, water spray, sand or earth. Prevent entry of the product or contaminated water into watercourses ditches or drains by bunding the area with sand or earth if possible. Inform the water authorities if contamination of water is threatened or occurs.

6. Accidental Release (Spillage):

Wear suitable protective clothing (see Section 8). Remove contaminated clothing immediately. Do not eat drink or smoke. Keep bystanders away.

Provide maximum ventilation. Absorb the spill onto absorbent clay or sand, sweep up and transfer to a container for later removal to a safe place for disposal. Thoroughly scrub the area with an industrial detergent when all the spillage has been removed. Spills which soak into the ground should be dug up, placed in containers and removed to a safe place for disposal. Prevent the spillage or washing water from entering watercourses sewers or drains. Inform the authorities if contamination of waterways, sewers or drains is threatened or occurs.

7. Storage and Handling

Keep in original container, tightly closed.

Keep cool and dry in a suitable agricultural chemical store under lock and key

Do not store in direct sunlight.

Keep away from food, drink and animal feedings stuffs and out of reach of children.

Do not store, mix or apply this product or dilute solutions of it in galvanised or unlined steel containers or sprayer tanks. Use only stainless steel, aluminium, fibreglass, plastic (HDPE or PET) or plastic-lined containers.

8. Personal Protection:

When using this product as a herbicide, refer to the label for details. In all other cases wear the following personal protective equipment:

Overalls, suitable protective rubber gloves and face-shield to BS2092 when handling the concentrated product or contaminated surfaces.

Decontaminate all personal protective equipment after use.

Occupational Exposure Limits: None applicable

9. Physical and Chemical Properties

Appearance: a clear viscous amber liquid

Odour: faint, chemical

Solubility: Completely soluble in water

Specific gravity: 1.196 at 20°C

Viscosity: 79.3 cS at 20°

Vapour pressure: 1.75 x 10⁻⁷ mm Hg at 25°C

Partition coefficient: P=4.5 x 10⁻⁴

pH: 4.5 (1% solution in water)

Flashpoint: >120°C

10. Stability and Reactivity:

Stability: Very stable. Stores for at least 2 years in original containers in normal agricultural chemical storage conditions.

Reactivity: Avoid strong alkalis. **Avoid galvanised or unlined steel. The product will react with these materials to produce hydrogen and highly combustible gas mixtures may form which could flash or explode causing severe injury.**

11. Toxicological Information

Acute Toxicity:

This product is of low acute toxicity:

Acute oral LD50: >5,000 mg/kg.bw (rat)

Acute dermal LD50: >2,000 mg/kg.bw (rat)

Inhalation: > 4.86 mg/litre over 4 hours

Irritation: Moderately irritating to eyes; mildly irritating to skin. Not a sensitiser in the M-K Maximisation Test

Carcinogenicity: EPA category E (Non-carcinogenic)

Teratogenicity: No indication of any teratogenic effects

Mutagenicity: No mutagenic risk exhibited in a wide range of *in-vivo* and *in-vitro* tests.

Cholinesterase Inhibition: Not a cholinesterase inhibitor, not neurotoxic.

12. Environmental Protection

Toxicity to:

Fish: 96-hour LC50 = 18.6 mg/l (Rainbow trout)
= 11.9 mg/l (Bluegill sunfish)

Aquatic invertebrates: 48 hour EC50 (Daphnia spp) = 21.6 mg/l

Aquatic Algae: 72 hour EC50 = 17.4 mg/l (Scenedesmus)
= 2 mg/l (Selenastrum)

Birds: LD50 (Bobwhite quail) = >2000mg/kg.bw

Bees: 48-hour Acute Oral LD50 = > 100 ug/bee

This product is a herbicide and therefore toxic to all green plants. It is harmful to fish, aquatic invertebrates and aquatic plants.

Soil Mobility: Strongly binds to clay particles. Not mobile.

Bio-degradation: Slow to bio-degrade in the environment and waste water treatment plants. Microbial activity is the main degradation mechanism but aerobic and anaerobic degradation also occur.

Bio-accumulation: Unlikely to bio-accumulate.

13. † Disposal of Unwanted Product and Used Containers

Consult the local authorities before disposing of unwanted chemical. Dispose of used containers as permitted by local authorities. Do not re-use containers for any purpose.

14. Transport Information

Road Transport: Environmentally Hazardous Liquid

UN Number: 3082

Proper Shipping Name: Environmentally Hazardous Substance, Liquid, N.O.S. (contains glyphosate)

UN Class: 9

CPL Packing Group: III

ADR/RID Description: None

IMDG Class: Not classified

ICAO/IATA Class: Not classified

15. † Regulatory Information

Hazard Symbol: Dangerous for the Environment N

Risk Phrases: R50 Very toxic to aquatic organisms

R53 May cause long-term adverse effects in the aquatic environment.

Safety Phrases: S35 This material and its container must be disposed of in a safe way

S57 Use appropriate containment to avoid environmental contamination.

16. **Other Information:** The above information is intended to give health and safety guidance on the storage and transport of the substance or product to which it relates. It is not intended to apply to the use of the product, for which purpose the product label and any appropriate technical usage literature available should be consulted and any relevant licences, consents or approvals complied with. The requirements or recommendations of any relevant site or working procedure, system or policy in force or arising from any risk assessment involving the substance or product should take precedence over any of the guidance contained in this safety data sheet where there is a difference in the information given. The information provided in this safety data sheet is accurate to the best of the issuer's available knowledge at the date of publication, and will be updated as and when appropriate. No liability will be accepted for any loss or damage resulting from any failure to take account of information or advice contained in this safety data sheet.

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Sections updated since last issue marked † in margin.

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