

Glyphogan®

This product is a soluble concentrate containing 360 g/l glyphosate present as 480 g/l (41.1% w/w) of the isopropylamine salt of glyphosate and polyoxyethylene amine surfactant.

GLYPHOGAN



MAPP 12668

A foliar applied herbicide for the control of annual and perennial grassland and broad-leaved weeds before sowing or planting all crops. For use pre-emergence and pre-harvest in cereals and certain other crops, destruction of grassland, and in set-aside, stubbles, orchards, forestry, industrial, amenity and non-crop areas.

SAFETY PRECAUTIONS

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 AND FACE PROTECTION (FACESHIELD) when handling the concentrate and when handling contaminated surfaces.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND RUBBER BOOTS when using hand-held sprayers, hand-held rotary atomizers.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES, RUBBER BOOTS AND FACE PROTECTION (FACESHIELD) when using weedwiper equipment, making cut stump treatments and using stem injection equipment.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide

an equal or higher standard of protection.

WHEN USING, DO NOT EAT, DRINK OR SMOKE.

WASH HANDS AND EXPOSED SKIN before meals and after work.

Environmental Protection

DO NOT CONTAMINATE SURFACE WATERS OR DITCHES with chemical or used container [do not clean application equipment near surface water/avoid contamination via drains from farmyards and roads].

Storage and Disposal

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDINGSTUFFS.

KEEP OUT OF REACH OF CHILDREN. KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.

RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rise three times. Add washings to sprayer at time of filling and dispose of safely.

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

MAKHTESHIM-AGAN (UK) LIMITED

Unit 16, Thatcham Business Village, Colthrop Way, Thatcham, Berkshire RG19 4LW

Tel: 01635 860555

Technical Helpline: 01635 876 622

www.mauk.co.uk

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Batch No. See packaging

PROTECT FROM FROST

5 Litres e



This label is compliant with the CPA Voluntary Initiative Guidance

This leaflet/booklet is part of the approved product label

GLYPHOGAN (MAPP 12668)

This product is a soluble concentrate containing 360 g/l glyphosate present as 480 g/l (41.1% w/w) of the isopropylamine salt of glyphosate and polyoxyethylene amine surfactant.



HARMFUL

**HARMFUL BY INHALATION.
RISK OF SERIOUS DAMAGE TO
EYES.**



**DANGEROUS
FOR THE
ENVIRONMENT**

**TOXIC TO AQUATIC
ORGANISMS, MAY CAUSE
LONG TERM ADVERSE
EFFECTS IN THE AQUATIC
ENVIRONMENT**

IN CASE OF CONTACT WITH EYES, RINSE IMMEDIATELY WITH PLENTY OF WATER AND SEEK MEDICAL ADVICE.

WEAR EYE/FACE PROTECTION.

THIS MATERIAL AND ITS CONTAINER MUST BE DISPOSED OF IN A SAFE WAY.

USE APPROPRIATE CONTAINMENT TO AVOID ENVIRONMENTAL CONTAMINATION.

To avoid risks to man and the environment, comply with the instructions for use.

IMPORTANT INFORMATION

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

Crops/situations:

Wheat, barley, oats, combining pea, vining pea, field bean;

Oilseed rape, mustard, linseed;

Sugar beet, swede, turnip, bulb onion, leek, asparagus;

All edible crops (stubble), all non edible crops (stubble);

Grassland;

Apple, pear, plum, cherry, damson;

Green cover on land not being used for crop production;

Amenity vegetation;

Forest nursery, forest (weed control, stump application and chemical thinning).

Natural surfaces not intended to bear vegetation, permeable surfaces overlaying soil, hard surfaces.

All edible and non-edible crops (destruction, before sowing/planting).

Maximum individual dose: }

Maximum number of treatments: } Full details are given in Statutory Area

Latest timing of application: } on the attached leaflet

Other specific restrictions: } (see Crop Specific Information - marked #)

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

SAFETY PRECAUTIONS

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 AND FACE PROTECTION (FACE-SHIELD) when handling the concentrate and when handling contaminated surfaces.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND RUBBER BOOTS when using hand-held sprayers, hand-held rotary atomizers.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES, RUBBER BOOTS AND FACE PROTECTION (FACESHIELD) when using weedwiper equipment, making cut stump treatments and using stem injection equipment.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection.

WHEN USING, DO NOT EAT, DRINK OR SMOKE.

WASH HANDS AND EXPOSED SKIN before eating and drinking and after work.

Environmental Protection

DO NOT CONTAMINATE SURFACE WATERS OR DITCHES with chemical or used container [do not clean application equipment near surface water/avoid contamination via drains from farmyards and roads].

Storage and Disposal

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDINGSTUFFS.

KEEP OUT OF REACH OF CHILDREN.

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.

RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinse three times.

Add washings to sprayer at time of filling and dispose of safely.

DIRECTIONS FOR USE

IMPORTANT:

This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

Warnings

EXTREME CARE SHOULD BE TAKEN TO AVOID SPRAY DRIFT AS THIS CAN SEVERELY DAMAGE NON-TARGET PLANTS. DO NOT MIX, STORE OR APPLY GLYPHOGAN IN GALVANISED OR UNLINED STEEL CONTAINERS OR SPRAY TANKS. DO NOT leave spray mixtures in tank for long periods and make sure tanks are WELL VENTED.

Restrictions

A period of at least 6 hours and preferably 24 hours rain-free must follow application of Glyphogan.

Do not spray onto weeds which are naturally senescent, or where growth is impaired by drought, high temperatures, a covering of dust, flooding or frost at, or immediately after application, otherwise poor control may result.

Do not spray in windy conditions as drift onto desired crops or vegetation could severely damage or destroy them.

After application, large concentrations of decaying foliage, stolons, roots or rhizomes should be dispersed or buried by thorough cultivation before crop drilling.

Applications of lime, fertilizer, farmyard manure and pesticides should be delayed until 5 days after application of Glyphogan.

Weeds Controlled

Glyphogan is a foliar acting herbicide which controls annual and perennial grasses and most broad-leaved weeds when used as directed. It is important that all weeds are at the correct stage when treated, otherwise some re-growth may occur and this will need re-treatment.

Apply Glyphogan herbicide once grasses and broad-leaved weeds have emerged and they have ACTIVELY GROWING green leaves.

- PERENNIAL GRASSES must have a full emergence of healthy, green leaf. (Common Couch, for example, becomes susceptible at the onset of tillering and new rhizome growth commences which usually occurs when plants have 4-5 leaves, each with 10-15 cm of new growth).
- PERENNIAL BROAD-LEAVED WEEDS are most susceptible around the flowering stage.
- ANNUAL GRASSES AND BROAD-LEAVED WEEDS should have at least 5 cm of leaf, or 2 expanded true leaves, respectively. In set-aside, annual grasses are best treated at full ear emergence, or before stem elongation. Application during stem extension phase of annual grasses e.g. Black-grass and Brome species on set-aside between the end of April and end of May, may result in poor control and require re-treatment.

- BRACKEN should be treated after frond tips are unfurled, but pre-senescence.
- OTHER SPECIES - recommendations for specific Areas of Use are given in the Recommendation Tables, pages 7 - 14.
- This product will not give an acceptable level of control of Horsetails (*Equisetum arvense*) - repeat treatment will be necessary.

Following Crops

Upon soil adsorption the herbicidal properties of Glyphogan are lost permitting the drilling of crops 48 hours after application.

Planting of trees, shrubs etc may take place 7 days after application. Grass seed may be sown from 5 days after treatment; see the 'Recommendation Tables' for specific restrictions on direct drilled crops.

Weed resistance strategy

There is low risk for the development of weed resistance to Glyphogan.

Strains of some annual weeds (e.g. Black-grass, Wild oats and Italian Ryegrass) 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, CPA, your distributor, or crop adviser.

Growers are encouraged to implement a weed resistance strategy based on (a) Good Agricultural Practices and (b) Good Plant Protection Practices by:

- Following label recommendations
- The adoption of complimentary weed control practices
- Minimising the risk of spreading weed infestations
- The implementation of good spraying practice to maintain effective weed control
- Using the correct nozzles to maximise coverage
- Application only under appropriate weather conditions
- Monitoring performance and reporting any unexpected results to Makhteshim-Agan

Sprayer Hygiene

It is essential to thoroughly clean-out spray tanks, pumps and pipelines and nozzle or disc assemblies, with a recommended detergent cleaner, between applying this product and other pesticides to avoid contamination from pesticide residues. Traces of Glyphogan left in the equipment may seriously damage or destroy crops sprayed later.

#CROP SPECIFIC INFORMATION

IMPORTANT INFORMATION			
Crops or situations:	Maximum individual dose (litres product/hectare)	Maximum total dose (litres product/hectare)	Latest time of application:
Pre-harvest of winter wheat, winter barley, winter oats, spring wheat, spring barley, spring oats, durum wheat, combining peas, field beans	4.0	4.0 l/ha/crop	7 days before harvest
Pre-harvest of oilseed rape and linseed	4.0	4.0 l/ha/crop	14 days before harvest
Pre-harvest of mustard	4.0	4.0 l/ha/crop	8 days before harvest
Post planting and pre-emergence of wheat, barley, oats, oilseed rape, combining and vining pea, field bean, mustard, linseed, sugar beet, swede, turnip, bulb onions, leek	1.5	1.5 l/ha/crop	Pre-emergence
Asparagus	5.0	5.0 l/ha/crop	Pre-emergence
Stubbles (of all crops)	Either: 5.0	5.0 l/ha/year	5 days before drilling or planting of the following crop
	Or: 1.5	1.5 l/ha/year	2 days before the drilling or planting of the following crop or 24 hours before cultivating
Permanent grassland (destruction) Rotational grass (destruction)	6.0	6.0 l/ha/year	5 days before harvest, grazing or drilling
Natural surfaces not intended to bear vegetation, permeable surfaces overlaying soil, hard surfaces	5.0	-	-

Crops or situations:	Maximum individual dose (litres product/hectare)	Maximum total dose (litres product/hectare)	Latest time of application:
Apple and pear orchards	5.0	5.0 l/ha/year	After harvest but before green cluster stage
Cherry, plum and damson orchards	5.0	5.0 l/ha/year	After harvest but before white bud stage
Green cover on land temporarily removed from production	6.0	6.0 l/ha/year	24 hours before cultivating
Amenity vegetation	5.0	-	-
All edible and non-edible crops (destruction, before sowing/planting)	5.0	5.0 l/ha/year	Refer to 'Recommendation Tables'
Forestry, forest nursery: Weed control	10.0	-	-
Stump application	200 ml/litre of water (20% solution of product in water)	-	-
Chemical thinning (by injection)	2 ml per 10 cm diameter (or less) of tree	-	-

Other specific restrictions:

The maximum individual dose must not exceed 22.5 g/l glyphosate for hydraulic knapsack sprayers.

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

Weed wipers may be used in any crop where the wiper or chemical does not touch the growing crop.

For weed wiper applications, the maximum concentrations must not exceed the following:

Weed wiper Mini	1:2 dilution with water	} Refer to weed wiper guidance under 'Mixing & Spraying' section
Other wipers	1:1 dilution with water	

For stump application, the maximum concentration must not exceed 200 ml of product per litre of water (i.e. a 20% solution).

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

RECOMMENDATION TABLES

AREA OF USE	TARGET WEEDS/USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE					
PRE-HARVEST ARABLE CROPS	Common couch	Winter and Spring Wheat, Durum Wheat	1 to 25 shoots/m ²	2.0 (+)	80-250 l/ha*	Grain/seed moisture must not exceed 30% at spraying. Harvest intervals: CEREALS, PEAS, BEANS 7+ days OILSEED RAPE 14-21 days					
		Winter and Spring Barley and Winter and Spring Oats	Up to 75 shoots/m ² Over 75 shoots/m ²	3.0 4.0							
		Oilseed Rape and Mustards	Up to 75 shoots/m ² Over 75 shoots/m ²	3.0 4.0			100-250 l/ha#	LINSEED 14-28 days MUSTARDS 8-10 days			
		Combining Peas, Field Beans	Up to 75 shoots/m ² Over 75 shoots/m ²	3.0 4.0			80-250 l/ha*	Use high clearance, narrow wheeled tractors, wide booms and crop dividers.			
	Perennial broad-leaved weeds, other perennial grasses	Winter and Spring Wheat, Durum Wheat Winter and Spring Barley and Winter and Spring Oats	All levels of species	4.0	80-250 l/ha*	Where desiccating crops, check susceptibility of any weeds present. Do not attempt to desiccate OILSEED RAPE or MUSTARD crops with significant secondary growth, uneven maturity, disease or stress.					
							Oilseed Rape and Mustards	All levels of species	4.0	100-250 l/ha#	Desiccate LINSEED when seeds are light brown and capsules brown; stems/leaves may be yellow/green.
							Combining Peas, Field Beans	All levels of species	4.0	80-250 l/ha*	Effects on brewing and baking have not been tested. Consult grain merchant or processor before use.
							Linseed	All levels of species	4.0	80-250 l/ha*	At Harvest managements rates. ANNUAL NETTLE, VOL. POTATO, ROSEBAY WILLOW HERB and POLYGONUM WEEDS will not be susceptible. Wheat crops, WHEAT VOLUNTEERS and BROAD LEAVED WEEDS may require up to 14 days before harvest. Treated straw must not be used as a horticultural mulch. DO NOT TREAT CROPS GROWN FOR SEED

AREA OF USE	TARGET WEEDS/USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
PRE-HARVEST ARABLE CROPS (continued)	Harvest management	Winter and Spring Wheat, Durum Wheat, Winter and Spring Barley and Winter and Spring Oats	Annual grasses, crop stems and leaves Annual broad-leaved weeds	1.0 (+) 1.5 (+)	80-250 l/ha*	<p>* Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns.</p> <p># Use higher volumes for dense canopies.</p> <p>(+) For optimum results use Frigate as an adjuvant at 0.5% spray solution as described in 'Compatibility' section.</p>
	Crop desiccation and annual weeds prior to direct combining	Oilseed Rape and Mustards	All levels/species	3.0	100-250 l/ha#	
		Linseed	All levels/species	3.0	80-250 l/ha	
STUBBLES PRE-SOWING AND PRE-PLANTING	Common Couch	Before all crops except orchards	Up to 75 shoots/m2 Over 75 shoots/m2	3.0 4.0	80-250 l/ha*	<p>Do not cultivate immediately before spraying.</p> <p>For PERENNIAL weed control, allow: - 21+ days growth before spraying in spring - VOLUTEER POTATOES to make ample top growth - 5 days before cultivating or drilling</p> <p>For ANNUAL weed control, allow: - 24 hours before cultivating - 48 hours before drilling</p> <p>Allow 7 days before planting trees</p> <p>*Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns.</p> <p>(+) For optimum results use Frigate as an adjuvant at 0.5% spray solution as described in 'Compatibility' section.</p>
	Other perennial grasses, volunteer potatoes (autumn only)		All levels of all species	4.0		
	Volunteer cereals and annual weeds		All levels of all species	1.5 (+)		
	Perennial broad leaved weeds		All levels of all species	5.0		
	Perennial grasses and broad-leaved weeds	Before orchard planting	Arable weeds	4.0		
Pasture weeds			5.0			
POST SOWING/ PLANTING, PRE-EMERGENCE OF THE CROP	Volunteer cereals and annual weeds	Listed cereals, oilseed rape, mustard, linseed, peas, field beans, sugar beet, swede, turnip, bulb onion and leek	All levels/species	1.5	80-250 l/ha*	<p>CAUTION - Ensure that spraying precedes ANY crop emergence.</p>
	Annual weeds	Asparagus	All levels/species	1.5		
	Perennial grasses		4.0			
Perennial broad-leaved weeds		5.0		<p>CAUTION - Ensure that spraying precedes ANY new spear emergence.</p>		

AREA OF USE	TARGET WEEDS/USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
ALL EDIBLE AND NON-EDIBLE CROPS (DESTRUCTION, BEFORE SOWING/ PLANTING)		Vegetation management	Annual weeds Perennial grasses Perennial broad-leaved weeds	1.5 4.0 5.0	80-250 l/ha* Or hand held equipment (pg xx)	*Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns No not use under polythene or glass Do not use alongside or in hedgerows Apply at the annual weed dose at least 2 days before sowing/planting Apply at the perennial weed dose at least 5 days before sowing/planting
GREEN COVER ON LAND NOT BEING USED FOR CROP PRODUCTION EG "SET-ASIDE"	Common Couch	Before or during removal from production E.g. prior to growing a set aside mixture	Up to 75 shoots/m2 Over 75 shoots/m2	3.0 4.0	80-250 l/ha* or Hand-held equipment (p.X)	Before using on land taken out of production as part of a grant aided scheme, ensure compliance with the management rules of that scheme. Do not 'top' or cultivate immediately before application. For PERENNIAL weed control, allow:-
	Perennial broad-leaved weeds and other perennial grasses		All levels/species	4.0	Or Tractor mounted weed wiper (p.XX)	- 21+ days growth before spraying in spring - 5 days before cultivating or drilling For ANNUAL weed control, allow:
	Annual weeds - Early autumn/spring - Late spring/summer		All levels/species	1.5		- 24 hours before cultivating
			All levels/species	3.0		Do not direct drill after set-aside.
	Natural regeneration and cover crop destruction	After short rotation or long term removal from production	Annual weeds only Perennial grasses Perennial broad-leaved weeds Perennial broad-leaved weeds as listed below.	3.0 4.0 5.0 6.0+	150-250 l/ha*	Avoid applications during stem elongation as reduced control and re-spray is likely. * Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns. Best control of annual grasses is achieved between full ear emergence and senescence. + Only for weeds listed as per grassland destruction application rate table below.

AREA OF USE	TARGET WEEDS/USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
PERMANENT GRASSLAND (DESTRUCTION)	Short rotation Ryegrass, longer leys and permanent pasture	Grass	Short rotation Ryegrass with annual weeds	3.0	150-250 l/ha*	Treat EITHER before grazing/mowing in June-Oct, when growth is 30-60 cm, not dense and lacking mature seeds, OR re-growth after grazing/mowing. Select the application rate which controls/destroys the least susceptible weed and grass species present in the sward. Grass may be conserved or grazed by cattle, dairy cows or sheep 5+ days after spraying. REMOVE POISONOUS PLANTS BEFORE GRAZING/MOWING. ONLY direct drill grass and clover EITHER into 1-2 year leys without mat, 5+ days after spraying, OR long leys with some mat, in the spring following autumn application. * Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns.
ROTATIONAL GRASS (DESTRUCTION)			Leys 2-4 years old with perennial grass weeds	4.0		
			Long leys 4-7 years old with perennial broad-leaved weeds	5.0		
			Permanent pasture See weed table below	6.0		

APPLICATION RATES FOR GRASSLAND DESTRUCTION

3.0 l/ha		4.0 l/ha	
Annual Meadow-grass Common Chickweed Common Mouse-ear Dock seedlings Italian Rye-grass Mayweed species	Meadow Fescue Meadow Foxtail Rough Meadow-grass Speedwell species Timothy	Black Bent Broad-leaved Dock Cock's Foot Common Bent Common Couch Creeping Bent	Creeping Soft-grass Curled Dock Perennial Rye-grass Plantains Soft Brome Yorkshire Fog

APPLICATION RATES FOR GRASSLAND DESTRUCTION

5.0 l/ha		6.0 l/ha	
Bracken** Common Sorrel Common Nettle Creeping Buttercup* Creeping Thistle Daisy Dwarf Thistle Yarrow Perennial Sow-thistle	Red Clover Sedges Sheep's Sorrel Soft Rush Spear Thistle Tufted Hair-grass Yarrow	Common Ragwort Hard Rush Heath Rush Jointed Rush Molinia (Purple Moor-grass)	Nardus (Mat grass) Red Fescue White Clover* Yellow Rattle Sheep's Fescue

* White Clover is best cut in June and sprayed one month later.

** At full frond expansion.

AREA OF USE	TARGET WEEDS/USAGE	CROP/SITUATION	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION TIMING AND GUIDANCE
AMENITY VEGETATION	Vegetation management	Areas of semi-natural or ornamental vegetation including trees. Areas of bare soil around ornamental plants or areas intended for ornamental planting.	Annual weeds	1.5	80-400 l/ha	Hydraulic sprayers, rotary atomisers or weed wipers may be used. DO NOT USE IN OR ALONGSIDE HEDGEROWS. * Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns. DO NOT USE UNDER POLYTHENE OR GLASS
			Perennial grasses and broad-leaved weeds	4.0-5.0		
ORCHARDS	Perennial grasses and broad-leaved weeds	Within orchards of Apple, Pear, Plum, Cherry or Damson	All level of most species	5.0	200-400 l/ha	Trees must have been established for 2 years before spraying. Spray AFTER autumn leaf-fall and BEFORE; Apples, pears - green cluster stage Stone fruit - white bud stage Avoid contact with tree branches and trunks above 30 cm from the ground. Treat suckers in late spring only.
	Root suckers	-	All species	5.0		
NATURAL SURFACES NOT INTENDED TO BEAR VEGETATION, PERMEABLE SURFACES OVERLYING SOIL, HARD SURFACES	Annual weeds	-	All levels/species	1.5	Hydraulic sprayers: 80-250 l/ha or Rotary atomisers 40 l/ha*	* Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns. Use areas include: Roadsides, paths, hard surfaces, along fences and walls and total weed control on industrial sites. DO NOT USE IN OR ALONGSIDE HEDGEROWS. DO NOT USE UNDER GLASS OR POLYETHYLENE.
	Perennial grasses		All levels/species	4.0		
	Perennial broadleaved Weeds		All levels/species	5.0		

Forestry Weed Control

Glyphogan can be used for site preparation and for weed control in planted out trees.

AREA OF USE	TARGET WEEDS/ USAGE	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION GUIDANCE
Forestry: - Pre-planting	Arable land, planting, replanting, & grassland areas	Arable weeds	4.0	80-250 l/ha*	All tree species may be planted 7 days or more after treatment. * Rotary atomisers may be used at a water volume of 40 l/ha. Ensure droplet diameter falls within the range 200-300 microns.
		Grassland weeds	5.0		
Forestry: - Post-planting (directed) in conifers & broad-leaved trees	Clean up around trees with knapsack applications.	Annual/perennial grasses and broad- leaves	4.0	Knapsack sprayers: 200-250 l/ha Or	It is ESSENTIAL to use a TREE GUARD for all applications made in the growing season. Treat bracken after frond tips are unfurled but before senescence.
		Woody weeds: Bracken/Beech Brush/Brambles Sycamore/Oak Hazel/Willow/Ash	3.0	Weed wiper mini: 1 part Glyphogan to 2 parts water See Mixing and Spraying section.	
		Heather (peat soils)	4.0		All other woody weeds are treated June-August, before leaf senescence (but after new growth of crop has hardened).
		Heather (mineral soils)	6.0		
		Rhododendron (*)	10.0	250 l/ha	Cut back and treat re-growth when at least 1 metre in height throughout the entire coppice. Spray to just before point of run-off. (*) For improved control of Rhododendron add Mixture B (ADJ A0161) at a concentration of 2% final water volume to 8.0 l/ha of Glyphogan. Application using the weed wiper is not suitable.

AREA OF USE	TARGET WEEDS/USAGE	WEED INFESTATION	APPLICATION RATE L/HA	WATER VOLUME	APPLICATION GUIDANCE
Forestry: - Stump application for chemical thinning	Deciduous trees Coniferous trees	All species All species	10% solution of Glyphogan in water 20% solution of Glyphogan in water		Apply the solution to saturate the rim of the newly cut surface, with a suitable adapted clearing saw, spot gun or paintbrush. Treat as soon as possible (within a week) after felling, in the period November to March. Do not apply in the period of active sap flow in the spring/early summer. Do not cut trenches or drill holes and fill with the solution or use undiluted product. Note: for ease of identification of treated areas a suitable, commercially available, water-soluble dye may be added to the prepared spray solution.
Forestry: - Chemical thinning by injection of tree stems	Coniferous and deciduous species	-	2 ml neat Glyphogan 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 2 ml of the solution to each cut. Use two or three notches in trees over 10 cm diameter. Do not treat in the period of active sap flow in the spring/early summer.

Mixing and Spraying

Glyphogan mixes readily with water and can be applied in spray volumes ranging from 80-400 l/ha using tractor mounted, knapsack, rotary atomisers and hand-held sprayers. Specialised application equipment such as weed wipers, stem injection and spot gun applicators may be used where indicated.

Correctly calibrate all sprayers under field or use conditions prior to application.

a) Tractor mounted and powered sprayers

These should be capable of applying accurately 80-400 l/ha within a pressure range of 1.5-2.5 bars (20-35 psi).

Half fill the spray tank with clean water, start gentle agitation, and then add the correct amount of Glyphogan. Top up the tank with water to the required level. To avoid foaming do not use top tank agitation. Use of a defoamer may be necessary.

All applications using hydraulic sprayers (including knapsack sprayers) to be as 'MEDIUM' or 'COARSE' spray quality (BCPC definition).

Medium Volume application (150-300 l/ha)

Avoid high water volumes (>300 l/ha) which may lead to run-off from the treated vegetation, resulting in reduced control. Low drift nozzles such as air induction and pre-orifice types producing a medium or coarse spray (BCPC definition) should be used to minimise the risk of drift.

Low Volume Application (minimum 80 l/ha)

Low volume application can be achieved by reducing pressure and the appropriate nozzle selection. Low drift nozzles which produce a medium spray quality (BCPC definition) should be used to minimise the risk of drift.

b) Knapsack sprayers

Recommended delivery range is 80-300 l/ha. Half fill the spray tank with clean water, add the correct amount to Glyphogan and top up with water. Fill according to best practice as given on the CPA's Voluntary Initiative website (www.Voluntaryinitiative.org.uk)

When used at a walking speed of 1 m/sec to apply a swath of 1 m width, most knapsack sprayers fitted with a Lurmark AN 2.0 or similar nozzle deliver approximately 200 l/ha spray volume (or 10 L per 500 m²). To apply 4.0 l/ha of GLYPHOGAN, therefore, use 40 ml of product for each 2 litres of spray liquid required. Similarly, knapsack sprayers fitted with low volume nozzles such as Lurmark AN 1.0 typically deliver approximately 100 l/ha spray volume. To apply 4.0 l/ha GLYPHOGAN in this case, use 80 ml of product for each 2 litres of spray liquid required.

c) Rotary Atomisers

Tractor-mounted boom sprayers and hand-held machines are suitable for use in some situations to apply a minimum spray volume of 40 l/ha.

When rotary atomisers are used to apply Glyphogan ensure that the droplet diameter falls within the range 200-300 microns for all uses.

Stir the correct amount of Glyphogan to control the particular target species into the sprayer bottle half filled with clean water. Top up with water, close the top and shake gently to ensure good mixing.

Do not tank mix Glyphogan when using rotary atomiser sprayers.

d) Weed Wipers

For ropewick applicators use a concentration of 1 part Glyphogan to 2 parts of water and add a water-soluble dye if required. Care should be taken to avoid dripping onto wanted vegetation.

For new generation weed wipers, use 1 part Glyphogan to 10 to 20 parts of water or as directed by manufacturer's instructions.

e) Cut Stump Applicators

For cut stump treatment an Enso attachment to rotary saws may be used.

This technique is specific to scrub clearance in forestry. A suitable water soluble dye may be used.

f) Stem Injection

Use a hatchet to cut one notch in trees up to 10 cm diameter and two to three notches in trees above 10 cm diameter. Use 2.0 ml of undiluted Glyphogan per notch.

g) Spot Gun Applicators

Spot gun applicators are for the treatment of individual weeds. Apply 5 ml of spray to target weed, using a narrow cone TG-3 or TG-5 nozzle

Spot Diameter (metres)	Amount of Glyphogan (ml) per 5 litres spray solution for targeted dosages of:		
	3.0 l/ha	4.0 l/ha	5.0 l/ha
0.3	20	28	35
0.6	85	110	140

Compatibility

Consult Makhteshim Agan (UK) Ltd before tank mixing with any adjuvants or pesticides.

COMPANY ADVISORY INFORMATION

This section is not part of the Product Label under the Plant Protection Products Regulations 1995 and provides additional advice on the product.

General Information

Glyphogan is taken up by foliage and translocated to underground roots, rhizomes and stolons, providing control of both annual and perennial grasses and broad-leaved weeds. Glyphogan is rapidly adsorbed onto particulate matter in soils and water and is quickly degraded by the micro-organism present in soil and aquatic bottom sediments. Until degraded, the active ingredient in Glyphogan, glyphosate, is practically immobile in soils and is, therefore, unlikely to contaminate groundwater.

To maximise the safety of Glyphogan to the operator, consumer and environment, the label recommendations and the DEFRA/HSC/NAW publication "Code of Practice for Using Plant Protection Products" of January 2006, should be adhered to.

Symptoms on the Weeds

Symptoms of treatment are generally first seen 7-10 days, or longer (if growth is slow), after spraying. These take the form of leaf reddening followed by yellowing and are usually quicker to appear on grasses than on broad-leaved weeds. Reaction of nettles is slow.

Effects of Weather

See Directions for Use (Restrictions).

Glyphogan will remain efficacious at low but not freezing temperatures however the onset of symptoms will be delayed.

A covering of dew may reduce efficacy where run-off occurs. Reduced control is likely where weed growth is impaired by natural senescence, drought, high temperature, a covering of dust, flooding or sever/prolonged frost at, or immediately after, application.

Agronomic Advice

Applications of lime, fertiliser, farmyard manure and pesticides should be delayed until 5 days AFTER application of Glyphogan.

General Cautions

Take extreme care to avoid drift, particularly when using near or alongside hedgerows. The use of low drift nozzles such as 'air induction' and 'pre-orifice' nozzles are recommended.

After application, large concentrations of decaying foliage, stolons, roots or rhizomes should be dispersed or buried by thorough cultivation before crop drilling.

New Generation Weed Wipers

Logic Contact 2000

Carrier Rollmaster

Allman Ecowipe

Rotowiper (UK) Ltd

C-Dax™ Eliminator

Weedswiper™

Disposal

Follow the guidance on the disposal of surplus spray solution, tank washings, concentrate and containers as given in the DEFRA/HSC/NAW publication "Code of Practice for Using Plant Protection Products" of January 2006.

CONDITIONS OF SUPPLY

All goods supplied by us are of high grade and we believe them to be suitable, but as we cannot exercise control over their storage, handling, mixing or use, or the weather conditions before, during and after application which may affect the performance of the goods, all conditions and warranties, statutory or otherwise, as to the quality of fitness for any purpose of our goods are excluded, and no responsibility will be accepted by us or re-sellers for any failure in performance, damage or injury whatsoever arising from their storage, handling application or use. These conditions cannot be varied by our staff or agents whether or not they supervise or assist in the use of such goods.

Makhteshim-Agan (UK) Limited

Unit 16, Thatcham Business Village, Colthrop Way, Thatcham, Berks RG19 4LW ENGLAND

Tel: 01635 860555 Technical helpline: 01635 876622 www.mauk.co.uk Email: admin@mauk.co.uk

In case of emergency day or night, telephone National Chemical Emergency Centre: (01865) 407333.

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MATERIAL SAFETY DATA SHEET GLYPHOGAN MAPP 12668

**This Safety Data Sheet does not form part of the label approved
under the Plant Protection Product Regulation 1995**

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : GLYPHOGAN
Product use : Herbicide
Chemical name : Not applicable
Synonyms : None
Company/(Sales office) : CardelAgro S.P.R.L./B.V.B.A. Avenue de Tervuren - Tervurenlaan 270-272,
1150 Brussels, Belgium
Company identification : Makhteshim Chemical Works Ltd. PO Box 60 , Beer Sheva 84100 Israel.
Fax : +972-8-6296848 MSDS@ma-industries.com
Telephone: : +32 (0)2 776 76 52
Fax: : +32 (0)2 776 48 13
Emergency numbers : Telephone: Belgium +32 (0)3 568 51 23

2. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient : Isopropylamine salt of N-(phosphonomethyl)glycine;
{Isopropylamine salt of glyphosate}

Composition

Components	CAS No.	Einecs/ Elincs No.	% by weight (approximate)	EU Symbols & R phrases of components
Isopropylamine salt of glyphosate	38641-94-0	254-056-8	41.5	N; R51/53; {b}
Surfactant	61791-26-2		15.5	Xn, N; R22, 41, 51/53; {a}
Water	7732-18-5	231-791-2	43	

3. HAZARDS IDENTIFICATION

**EU label (manufacturer
self-classification)** : Classification following the EU Dangerous Preparations' Directive 1999/45/EC.
Xi - Irritant, N - Dangerous for the environment
R36 : Irritating to eyes.
R51/53 : Toxic to aquatic organisms, may cause long-term adverse effects in
the aquatic environment.

National classification : U.K.
Xi - Irritant, N - Dangerous for the environment
R36 : Irritating to eyes.
R51/53 : Toxic to aquatic organisms, may cause long-term adverse effects in
the aquatic environment.

Potential health effects

- Likely routes of exposure** : Skin contact, eye contact.
- Eye contact, short term** : May cause temporary eye irritation.
- Skin contact, short term** : Not expected to produce significant adverse effects when recommended use instructions are followed.
- Inhalation, short term** : Not expected to produce significant adverse effects when recommended use instructions are followed.

Potential environmental effects

Toxic to aquatic organisms.
 May cause long-term adverse effects in the aquatic environment.
 Refer to section 11 for toxicological and section 12 for environmental information.

4. FIRST-AID MEASURES

- Eye contact** : Immediately flush with plenty of water. Continue for at least 15 minutes. If easy to do, remove contact lenses. If there are persistent symptoms, obtain medical advice.
- Skin contact** : Take off contaminated clothing, wristwatch, jewellery. Wash affected skin with plenty of water. Wash clothes and clean shoes before re-use.
- Inhalation** : Remove to fresh air.
- Ingestion** : Immediately offer water to drink. Never give anything by mouth to an unconscious person. Do NOT induce vomiting unless directed by medical personnel. If symptoms occur, get medical attention.
- Advice to doctors** : This product is not an inhibitor of cholinesterase.
- Antidote** : Treatment with atropine and oximes is not indicated.

5. FIRE-FIGHTING MEASURES

- Flash point** : Does not flash.
- Extinguishing media** : Recommended: Water, foam, dry chemical, carbon dioxide (CO₂)
- Unusual fire and explosion hazards** : Minimise use of water to prevent environmental contamination. Environmental precautions: see section 6.
- Hazardous products of combustion** : Carbon monoxide (CO), phosphorus oxides (P_xO_y), nitrogen oxides (NO_x)
- Fire fighting equipment** : Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions** : Keep all non-essential people away from affected area.
Use personal protection recommended in section 8.
Warn everybody of irritant/corrosive hazard.
- Environmental precautions**: Minimise spread. Keep out of drains, sewers, ditches and water ways.
Notify authorities.
- Methods for cleaning up** : Absorb in earth, sand or absorbent material. Dig up heavily contaminated soil.
Collect in containers for disposal. Refer to section 7 for types of containers.
Minimise use of water to prevent environmental contamination.
Do NOT flush away with water.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

- Handling** : Avoid contact with eyes. When using do not eat, drink or smoke.
Wash hands thoroughly after handling or contact.
Thoroughly clean equipment after use.
Do not contaminate drains, sewers and water ways when disposing of equipment rinse water. Emptied containers retain vapour and product residue.
FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.
- Storage** : Minimum storage temperature: -15 °C. Maximum storage temperature: 50 °C
Compatible materials for storage: stainless steel, aluminium, fibreglass, plastic, glass lining. Incompatible materials for storage: galvanised steel, unlined mild steel, see section 10. Keep out of reach of children. Keep away from food, drink and animal feed. Keep only in the original container. Partial crystallization may occur on prolonged storage below the minimum storage temperature. If frozen, place in warm room and shake frequently to put back into solution. Minimum shelf life: 5 years.
Use appropriate containment to avoid environmental contamination.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components	Exposure Guidelines
Isopropylamine salt of glyphosate	No specific occupational exposure limit has been established.
Surfactant	No specific occupational exposure limit has been established.
Water	No specific occupational exposure limit has been established.

- Engineering controls** : Have eye wash facilities immediately available at locations where eye contact can occur.
- Eye protection** : If there is potential for contact: Wear chemical goggles.
- Skin protection** : If repeated or prolonged contact: Wear chemical resistant gloves.

Respiratory protection : No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Colour/colour range	: Amber - Brown
Form	: Liquid
Odour	: Slight, Amines
Flash point	: Does not flash
Auto ignition temperature	: 443 °C
Specific gravity	: 1.172 @ 20 °C / 4 °C
Kinematic viscosity	: 62.47 cSt @ 20 °C
Solubility	: Water: Completely miscible
pH	: 4.4 - 4.9 @ 80 g/l
Partition coefficient (log Pow)	: -3.2 @ 25 °C (glyphosate)

10. STABILITY AND REACTIVITY

Stability	: Stable under normal conditions of handling and storage.
Hazardous decomposition	: Thermal decomposition: Hazardous products of combustion: see section 5.
Materials to avoid/	: Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly
Reactivity	flammable gas that could explode

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Data obtained on product and components are summarized below.

Acute oral toxicity

Rat, LD50 : 5,000 mg/kg body weight

Acute dermal toxicity

Rabbit, LD50 (limit test) : > 5,000 mg/kg body weight. No mortality.

Acute inhalation toxicity

Rat, LC50 (limit test), 4 hours, aerosol (3 fold dilution) : > 5.7 mg/L
Aerosol particle size (< 10 micron) much lower than the droplet size (> 100 micron) normally achieved during spraying operations. Maximum attainable concentration. No mortality.

Skin irritation

Rabbit, 6 animals, OECD 404 test : Redness, mean EU score: 0.64 . Swelling, mean EU score: 0.03
Days to heal: 3

Eye irritation

Rabbit, 6 animals, OECD 405 test : Conjunctival redness, mean EU score: 1.94
 Conjunctival swelling, mean EU score: 1.89
 Corneal opacity, mean EU score: 0.47
 Iris lesions, mean EU score: 0.69
 Days to heal: > 21
 Other effects: pannus, tissue destruction in eye (necrosis of conjunctivae)

Skin sensitization

Guinea pig, 9-induction Buehler test : Positive incidence: 0 %

EXPERIENCE WITH HUMAN EXPOSURE

Ingestion, excessive, intentional misuse:

Respiratory effects : pneumonitis (aspiration)
Gastro-intestinal effects : nausea/vomiting, diarrhoea, abdominal pain, bloody vomiting (haematemesis)
Cardiovascular effects : abnormal heart rhythm (cardiac dysrhythmia), decreased heart output (myocardial depression)
General/systemic effects : disturbances of fluid and electrolyte regulation, abnormally decreased blood volume (hypovolaemia), elevated serum amylase, fluid loss (haemoconcentration), no cholinesterase inhibition

Laboratory effects - blood chemistry : elevated serum transaminases, mild acidosis

Eye contact, short term, epidemiological:

Note : No cases of irreversible eye effects could be attributed to glyphosate formulations in an extensive epidemiological survey of reported accidental eye contact with these formulations.

N-(phosphonomethyl)glycine: {glyphosate}

Mutagenicity

In vitro and in vivo mutagenicity test(s) : Not mutagenic.

Repeated dose toxicity

Rabbit, dermal, 21 days : NOAEL toxicity: > 5,000 mg/kg body weight/day
 Target organs/systems: none
 Other effects: none
Rat, oral, 3 months : NOAEL toxicity: > 20,000 mg/kg diet
 Target organs/systems: none
 Other effects: none

Chronic effects/carcinogenicity

- Mouse, oral, 24 months** : NOEL tumour: > 30,000 mg/kg diet
 NOAEL toxicity: ~ 5,000 mg/kg diet
 Tumours: none
 Target organs/systems: liver
 Other effects: decrease of body weight gain, histopathologic effects
- Rat, oral, 24 months** : NOEL tumour: > 20,000 mg/kg diet
 NOAEL toxicity: ~ 8,000 mg/kg diet
 Tumours: none
 Target organs/systems: eyes
 Other effects: decrease of body weight gain, histopathologic effects

Toxicity to reproduction/fertility

- Rat, oral, 2 generations** : NOAEL toxicity: 10,000 mg/kg diet
 NOAEL reproduction: > 30,000 mg/kg diet
 Target organs/systems in parents: none
 Other effects in parents: decrease of body weight gain
 Target organs/systems in pups: none
 Other effects in pups: decrease of body weight gain
 Effects on offspring only observed with maternal toxicity.

Developmental toxicity/teratogenicity

- Rat, oral,**
6 - 19 days of gestation : NOAEL toxicity: 1,000 mg/kg body weight
 NOAEL development: 1,000 mg/kg body weight
 Other effects in mother animal: decrease of body weight gain, decrease of survival .
 Developmental effects: weight loss, post-implantation loss, delayed ossification
 Effects on offspring only observed with maternal toxicity.
- Rabbit, oral,**
6 - 27 days of gestation : NOAEL toxicity: 175 mg/kg body weight
 NOAEL development: 175 mg/kg body weight
 Target organs/systems in mother animal: none
 Other effects in mother animal: decrease of survival
 Developmental effects: none

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on product and components are summarized below.

Aquatic toxicity, fish

- Bluegill sunfish** : Acute toxicity, 96 hours, flowthrough, LC50: 5.8 mg/L
(Lepomis macrochirus)

Rainbow trout : Acute toxicity, 96 hours, flowthrough, LC50: 8.2 mg/L

(*Oncorhynchus mykiss*)

Aquatic toxicity, invertebrates

Water flea : Acute toxicity, 48 hours, static, EC50: 11 mg/L

(*Daphnia magna*)

Aquatic toxicity, algae/aquatic plants

Green algae : Acute toxicity, 72 hours, static, ErC50 (growth rate): 8.0 mg/L

(*Selenastrum capricornutum*)

Duckweed : Acute toxicity, 7 days, static, EC50: > 6 mg/L

(*Lemna minor*)

Avian toxicity

Bobwhite quail : Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet

(*Colinus virginianus*)

Mallard duck : Acute toxicity, 7 days, static, EC50: > 6 mg/L

(*Anas platyrhynchos*) : Dietary toxicity, 5 days, LC50: > 5,620 mg/kg diet

Arthropod toxicity

Honey bee : Oral/contact, 48 hours, LD50: > 326 µg/bee

(*Apis mellifera*)

Soil organism toxicity, invertebrates

Earthworm : Acute toxicity, 14 days, LC50: > 5,000 mg/kg dry soil

(*Eisenia foetida*)

N-(phosphonomethyl)glycine: {glyphosate}

Bioaccumulation

Bluegill sunfish : Whole fish: BCF: < 1 . No significant bioaccumulation is expected.

(*Lepomis macrochirus*)

Dissipation

Soil, field : Half life: 2 - 174 days. Koc: 884 - 60,000 L/kg. Adsorbs strongly to soil.

Water, aerobic : Half life: < 7 days

Surfactant

Dissipation

Water/sediment, aerobic, 30 °C : Half life: < 4 weeks

Soil, aerobic : Half life: 1 - 7 days

13. DISPOSAL CONSIDERATIONS

Product : Recycle if appropriate facilities/equipment available.
 Burn in special, controlled high temperature incinerator.
 Dispose of as hazardous industrial waste.
 Keep out of drains, sewers, ditches and water ways.
 Follow all local/regional/national/international regulations.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

ADR/RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (glyphosate, ethoxylated tallowamine)

UN No : UN3082

Class : 9

Kemler : 90

Packing Group : III

IMO

Voluntary classification by manufacturer applied for sea shipments within countries that have signed the ADR agreement, according to IMDG special provision 909:
 See ADR/RID

Classification by the criteria of the IMDG code itself:
 FOR IMDG NOT REGULATED FOR TRANSPORT

IATA/ICAO : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. , (ethoxylated tallowamine, glyphosate)

UN No : UN3082

Class : 9

Packing Group : III

15. REGULATORY INFORMATION

EU label (manufacturer self-classification) : Classification following the EU Dangerous Preparations' Directive 1999/45/EC.

Hazard symbol(s) : Xi: Irritant
 N: Dangerous for the environment.

Risk phrases : R36 - Irritating to eyes.
 R51/53 - Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases : S25 - Avoid contact with eyes.
 S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
 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 information given here is not necessarily exhaustive but is representative of relevant, reliable data.

Follow all local/regional/national/international regulations.

Please consult supplier if further information is needed.

This Safety Data Sheet has been prepared following the EU Directive 91/155/EEC as last amended by EU Directive 2001/58/EC.

In this document the British spelling was applied.

® Registered trademark.

EU Symbols & R phrases of components**Components****EU Symbols & R phrases of components**

Isopropylamine salt of glyphosate

N - Dangerous for the environment

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Surfactant

Xn - Harmful

N - Dangerous for the environment

R22 Harmful if swallowed.

R41 Risk of serious damage to eyes.

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Water

Endnotes:

{a} EU label (manufacturer self-classification)

{b} EU label (Annex I)

{c} National classification

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, the supplier makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for the purposes prior to use. In no event will the supplier be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR TO THE PRODUCT TO WHICH INFORMATION REFERS.