

RETURN LEAFLET TO
POCKET AFTER USE

HILITE™

A FOLIAR APPLIED HERBICIDE FOR USE IN PARKS, HIGHWAYS, PAVED AREAS, INDUSTRIAL AND FACTORY SITES, IN HORTICULTURE AND FORESTRY, IN PASTURE AND IN GREEN COVER ON LAND NOT BEING USED FOR CROP PRODUCTION, AROUND THE FARM AND ON STERILE STRIPS AROUND ARABLE FIELDS FOR THE CONTROL OF ANNUAL & PERENNIAL GRASSES AND BROAD-LEAVED WEEDS.
A pigmented oil emulsion containing 194 g/l (20.1% w/w) isopropylamine salt of glyphosate (equivalent to 144 g/l glyphosate).

MAPP 13871

IMPORTANT INFORMATION

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

For use on ornamental plant production, amenity vegetation, managed amenity turf (pre-establishment use only), forest, spot treatment in pasture and in green cover on land not being used for crop production, natural surfaces not intended to bear vegetation, (including sterile strips around arable fields), permeable surfaces overlying soil, hard surfaces.

Maximum individual dose: 10.0 litres of product per hectare.

Maximum number of treatments: not applicable

Latest time of application:

Pasture: 5 days before harvest drilling or grazing

Green Cover on land temporarily removed from production:

24 hours before cultivation

Other Situations: Not applicable

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.



**DANGEROUS FOR THE ENVIRONMENT
VERY TOXIC TO AQUATIC ORGANISMS.**

MAY CAUSE LONG-TERM ADVERSE EFFECTS IN THE AQUATIC ENVIRONMENT

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



Nomix Enviro, A Division of Frontier Agriculture Ltd,
The Grain Silos, Weyhill Road, Andover,
Hampshire, SP10 3NT Tel: 01264 388050

Contents: **5 LITRES**

Formulated for use with Nomix equipment.

READY FOR USE - NO MIXING

PROTECT FROM FROST

613404/20.03.08

SHAKE WELL BEFORE USE

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 CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND RUBBER BOOTS during application.

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

DO NOT BREATHE SPRAY.

WASH ALL PROTECTIVE CLOTHING thoroughly after use, especially the insides of gloves.

WHEN USING DO NOT EAT, DRINK OR SMOKE.

WASH ANY CONTAMINATION from skin or eyes immediately.

WASH HANDS AND EXPOSED SKIN before meals and after work.

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.

KEEP OUT OF REACH OF CHILDREN.

*The spray droplet spectra produced must be of a minimum Volume Mean Diameter (VMD) of 200 microns

(b) Environmental Protection

DO NOT CONTAMINATE WATER with product or its container. Do not clean application equipment near surface water. Avoid contamination via drains.

(d) Storage and Disposal

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

EMPTY CONTAINER COMPLETELY and dispose of safely.

Avoid storage for prolonged periods at temperatures above 30°C.

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

WARNING

BEFORE USE REFER TO THE NOMIX APPLICATOR INSTRUCTIONS AND OPERATION MANUAL.

DO NOT DECANT. CONNECT DIRECTLY TO NOMIX APPLICATOR.

DO NOT ALLOW SPRAY DROPLETS TO CONTACT DESIRED PLANTS OR CROPS.

AVOID STORAGE FOR PROLONGED PERIODS AT TEMPERATURES ABOVE 30°C.

In case of emergency day or night telephone: CARECHEM 24 on 01865 407333

GENERAL INFORMATION

HILITE™ herbicide is a pigmented emulsion containing 144 gms a.e. glyphosate per litre as a ready for use formulation. It is absorbed by the foliage of plants and translocated to their root systems. The product is recommended for the control of annual and perennial grasses and non-woody broad-leaved weeds in amenity and industrial areas, parks, highways, paved areas and factory sites. It can also be used for weed control in sterile strips around arable fields and for spot treatment of undesirable weeds in pasture and green cover on land not being used for crop production. It is also recommended for clearing vegetation prior to planting ornamental species and as directed application in shrubs, rose beds, ornamentals and in forestry areas.

HILITE herbicide is rapidly inactivated and degraded by micro-organisms in the soil.

DIRECTIONS FOR USE

Connection of the ready for use pack.

Do not decant from original container, shake the pack very thoroughly and connect direct to the Nomix® lance according to the directions in the Instruction and Operation manual.

Application rate

General weed control 10.0 l/ha

Annual weeds 7.5 l/ha

LANCE CALIBRATION INSTRUCTIONS

- Choose a comfortable forward speed and appropriate spray width.
- Using the calibration chart, read the required flow rate for your chosen forward speed and spray width.
- Adjust the head setting to achieve the required flow rate, which should be measured using the Nomix Calibration Cup provided with the lance. The flow rate should always be checked before spraying.

SUPERPRO 800 CALIBRATION CHART

THE GUIDE HEAD SETTINGS ARE FOR GUIDANCE ONLY AND ARE NO SUBSTITUTE FOR THE CORRECT CALIBRATION PROCEDURE.

Flow rate for 7.5 litres per hectare of Hilite									
Walking Speed mph (kph)									
		1.5	(2.4)	2	(3.2)	2.5	(4.0)	3	(4.8)
Disc	Spray width cm	Mls at 30 secs	Guide Head setting	Mls at 30 secs	Guide Head setting	Mls at 30 secs	Guide Head setting	Mls at 20 secs	Guide Head setting
Spiral	15 30	2 5	A A-B	3 6	A-B B	4 8	A-B B	3 6	B B
Square	45 60	7 9	B B	9 12	B B-C	11 15	B-C B-C	9 12	B-C C
Serrated	75 90	11 14	B-C B-C	15 18	B-C C	19 23	C C	15 18	C C-D

Flow rate for 10 litres per hectare of Hilite									
Walking Speed mph (kph)									
		1.5	(2.4)	2	(3.2)	2.5	(4.0)	3	(4.8)
Disc	Spray width cm	Mls at 30 secs	Guide Head setting	Mls at 30 secs	Guide Head setting	Mls at 20 secs	Guide Head setting	Mls at 20 secs	Guide Head setting
Spiral	15 30	3 6	A-B B	4 8	A-B B	3 7	B B-C	4 8	B B-C
Square	45 60	9 12	B B-C	12 16	B-C C	10 13	B-C C	12 16	C C
Serrated	75 90	15 18	B-C C	20 24	C C	17 20	C-D C-D	20 24	C-D D

WEED WARRIOR LANCE

Refer to the product calibration instructions supplied with the equipment

Disc Selection

The small square disc should be used where the spray width required is less than 0.6m (24 ins), e.g. shrub beds and confined areas. The narrow swath is also appropriate for application where accuracy is required, e.g. to pavement edges, obstacles (e.g. around trees, fence lines, gravestones) or for spot treatment of paved areas. Use of spray widths less than 30 cm may result in a reduced level of control.

The large serrated disc should be used where wide swaths are required e.g. extensive paved areas, and prior to planting shrubs.

When using the square spinner at narrow settings of less than 0.6m, care should be taken that the spray quality is adequate to ensure small weeds receive the spray. The disc should be held low over the foliage, so that the rotation speed must be increased to achieve the desired swath width. This results in better atomisation and cover of foliage.

Timing of application

Cultivation should not be carried out prior to application for the control of perennial weeds.

Annual grasses and broad-leaved weeds should have at least 5 cm of leaf, or 2 expanded true leaves respectively at the time of application. Common couch reaches the susceptible stage of growth when tillering and new rhizome growth commence, which usually occurs when plants have 4-5 leaves. The majority of perennial broad-leaved weeds are most susceptible if treated when they are actively growing, at or near flowering but before the onset of natural or enforced die-back. It is important that all weeds are at the correct growth stage when treated, otherwise some re-growth may occur and this will need re-treatment.

Application of lime, fertiliser, organic manure and pesticides should be delayed until 5 days after application of HILITE.

Weeds controlled

HILITE controls most emerged grasses and non-woody broad-leaved weeds. However it is important that all weeds are at the correct growth stage when treated otherwise some regrowth may occur necessitating re-treatment. HILITE will not give acceptable control of Horsetails (*Equisetum arvense*).

Long term effects on perennial weeds are variable and control cannot be expected in the year following the year of treatment.

Caution AVOID SPRAY CONTACT WITH ALL DESIRED VEGETATION

Do not use under polythene or glass

Symptoms on weeds

Leaf symptoms on treated weeds appear between 7 to 10 days in warm conditions, however in cold conditions this can take up to 20 days or more. Leaf symptoms, a reddening followed by yellowing of the foliage, usually appear first on grasses then later on broad-leaved weeds; nettles are extremely slow to show symptoms.

Effect of weather

At least 6 hours and preferably 24 hours rain-free must follow spraying. If rainfall occurs soon after treatment final weed control may be reduced and re-treatment may be necessary. Do not spray this product onto weeds suffering drought stress, waterlogging, heat or frost which prevent active regrowth and lead to weed die back, otherwise the level of control will be reduced. Do not spray in windy conditions as drift onto desired crops or vegetation can severely damage or destroy them.

Subsequent land use

For maximum weed control, the sprayed area should remain undisturbed for 7 days after application to enable the product to be fully translocated throughout the weeds. In cold conditions, await leaf symptoms before starting any cultivation or planting. HILITE is not residual in the soil. Planting of trees, shrubs, etc. may take place 7 days after application. Grass may be sown 14 days after treatment.

Equipment hygiene

It is essential to thoroughly clean out the Nomix applicator using Nomix Universal Cleaner, especially between applying this product and other pesticides, to avoid contamination from such products.

SPECIAL AREAS OF USE

Horticulture - ornamentals:

HILITE can be used as a direct spray around the base of trees and bushes. Avoid contact of the spray with the trees and bushes - using the square disc on a 22.5 - 45 cm setting will allow accurate placement of the spray and minimise drift potential.

Forestry

HILITE can be used to control grasses and broad-leaved weeds before planting trees or as a directed spray to treat around the base of trees. Other weeds, such as woody weeds will be controlled provided they have not become too tall to be easily treated using the Nomix lance. Woody weeds should be treated between June and August, before the leaves change colour. Care should be taken to avoid contact with tree foliage or the stem of young trees. A droplet size should be chosen which is visible and which can be directed precisely.

A weed free spot around the base of the tree will improve the establishment and growth rate. Using a spot diameter of 1.2m, a 5 litre pack will treat 4,425 trees at the 10 l/ha. rate.

Amenity Woodland & Planting

- Trees planted on roadsides, in streets, in parks and landscaped areas, and in amenity woodland.

HILITE can be used to control weeds growing amongst trees or shrubs in amenity plantings. Avoid contact of the spray with the foliage or stem of the tree by carefully directing the spray.

- Mature trees in parks and streets

HILITE can also be used around mature trees. Provided the bark is not damaged (e.g. by pruning, etc.) and there are no suckers or shoots, the base of the tree need not be protected from the spray.

Amenity – Ornamental Hedges

- Before planting.

Vegetation should be cleared before planting hedges by applying HILITE in suitable conditions during the autumn before planting.
(see Timing and Application)

- After planting to aid establishment and in Established Ornamental Hedges.

Hedge plants will not tolerate contact with HILITE. Weeds may be controlled by carefully directed sprays to the bottom of the hedge. Avoid contact with the foliage or stem of hedge plants.

Around Farm Buildings and Sterile Strips around Arable Field Margins

HILITE can be used to control growth on land not intended to bear vegetation around farm buildings, on sterile strips around arable fields. Do not apply within 2m of the base of hedgerows surrounding arable fields.

Pasture

- The latest time of application is 5 days before harvest drilling or grazing

Green Cover on Land not being used for Crop Production

- The latest time of application is 24 hours before cultivating

Managed Amenity Turf

- Preparation for seeding or laying turf.

Treat weed growth with HILITE prior to cultivation.

Weed Resistance Strategy

There is a low risk of the development of weed resistance to HILITE. 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 spray discs to maximise coverage
- Application only under appropriate weather conditions
- Monitoring performance and reporting any unexpected results to Nomix Enviro.

Strains of some annual weeds (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, CPA, your distributor, crop adviser or product manufacturer.

CONDITIONS OF SALE

The following shall form part of any contract of sale of this product whether sold by the manufacturer or a subsequent owner ("The Seller").

1. The seller warrants that the product complies with the product specification prevailing at the date of sale which is obtainable from the Seller on request provided that (except to the extent any claim is in respect of personal injury or death) the said Seller's liability, for breach of this warranty is limited to the price of the products involved in the breach.
2. Except as aforesaid, all conditions and warranties statutory or otherwise and expressed or implied as to the quality of the product or its fitness for any purpose are expressly excluded.
3. Except as aforesaid the Seller shall not be under any liability other than for personal injury or death whether in contract or in tort for any loss or damage arising out of or resulting from the use of the product.
4. The Seller shall in no event be liable for any loss or damage caused by the failure of any person to use the product in accordance with the instructions for use given by The Seller.

PRODUCT SAFETY INFORMATION

1.	IDENTIFICATION
Preparation	: HILITE
Supplier	: Nomix Enviro, A Division of Frontier Agriculture Ltd, The Grain Silos, Weyhill Road, Andover, Hampshire, SP10 3NT. Tel: 01264 388050

Chemical Emergency Agency Service (24 hr): Tel. 01865 407 333

2.	COMPOSITION/INFORMATION ON INGREDIENTS
Composition	: ISOPROPYLAMINE SALT OF N-(PHOSPHONOMETHYL) GLYCINE CAS No. 38641-94-0 EINECS No. 254-056-8 20.1% (Contains 192g/l of the Isopropylamine salt of Glyphosate equivalent to 144 g/l glyphosate)
	Other formulating ingredients 79.9%

3. HAZARDS IDENTIFICATION**Human health effects:**

On the basis of available information, this material is not expected to produce any significant adverse health effects when recommended use instructions are followed.

Environmental effects:

When recommended use instructions are followed no adverse effects are expected.

4. FIRST-AID MEASURES

Never give fluids or induce vomiting if patient is unconscious or is having convulsions.

Inhalation:

If inhalation of vapour, mists or fumes causes irritation of the nose or throat, or coughing remove patient to fresh air. If irritation persists obtain medical advice.

Skin contact:

Remove contaminated clothing immediately. Wash contaminated skin immediately with plenty of soap and water. If irritation persists get medical attention.

Eye Contact:

Flush immediately with plenty of water, for at least 15 minutes. If pain, redness or irritation persists, get medical attention.

Ingestion:

If oral contamination occurs, wash out mouth with water. If swallowed do not induce vomiting, seek medical advice immediately and show the container, label or this data sheet.

Medical Advice:

Over exposure symptoms: No symptoms diagnostic of systemic poisoning with this product.

Physician:

No specific antidote. This product is not an inhibitor of cholinesterase, and treatment with atropine and oximes is not indicated. Treat symptomatically.

5. FIREFIGHTING RELEASE MEASURES**Unusual hazards:**

Material burns to give toxic fumes.

Extinguishing media:

Extinguish with dry chemical, foam, waterspray, CO₂. Firefighters, and other exposed, wear self contained breathing apparatus. Thoroughly clean equipment after use.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions:**

Use personal protection recommended in section 8.

Environmental precautions:

Contain liquid spillage with sand or other means to prevent entry into drains.

Methods for cleaning up:

Absorb in earth or sand. Sweep up into containers for disposal. Dig up heavily contaminated soil and place in drums. (Refer to section 10 for types of containers and drums). Wash spill area with soap and water. Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE**Handling:**

Good industrial practice in housekeeping and personal hygiene should be followed. Wear suitable protective clothing (coveralls, suitable protective gloves) and rubber boots during application. Do not breath fumes, vapour or spray. When using do not eat, drink or smoke. Wash hands immediately after handling. Wash contaminated clothing before reuse. Thoroughly clean equipment after use.

Storage:

Keep out of reach of children.
Keep away from food, drink and animal feeding stuffs.
Keep at temperature not exceeding 30°C. Store above 0°C. Keep container tightly closed.
Keep only in the original container. Do not reuse container for any other purpose.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Occupational exposure limits:**

Not applicable

Engineering measures:

See section 10 - "Materials to avoid" for equipment.

Respiratory protection: If exposed to vapour or spray, wear suitable respiratory protective device. However this requirement should not arise in normal use.

Hand protection: Wear suitable protective (eg nitrile) gloves.

Eye protection: No special requirement when used as recommended.

Skin protection: Wear suitable protective clothing (coveralls, suitable protective gloves) and rubber boots during application.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Opaque
Colour	: White liquid
Odour	: Oil-like
Flash Point	: 97 °C.
Specific Gravity	: 0.97 (at 20°C)
Solubility in water	: Immiscible - disperses

10. STABILITY AND REACTIVITY**Conditions to avoid:**

Not applicable.

Materials to avoid:

Galvanised steel or unlined mild steel (except stainless steel). Keep in the original container

11. TOXIC HAZARD**Laboratory data:**

The toxicological information given here is not necessarily exhaustive but is representative of relevant, reliable data. All tests were conducted following OECD guidelines for Good Laboratory Practices (GLP).

Formulation:

Acute oral toxicity LD₅₀ (rat) : > 5 000 mg/kg. Practically non harmful by ingestion.

Acute dermal toxicity LD₅₀ (rabbit) : > 2 000 mg/kg. Practically non harmful by skin absorption.

Practically non irritating to eyes.

Slightly irritating to skin.

Not a skin sensitiser.

Active Ingredient:

Test on glyphosate showed that it did not cause any mutagenic, carcinogenic, teratogenic or adverse reproductive effects. It is not neurotoxic and does not inhibit cholinesterase.

Human Experience:

If swallowed, may cause gastrointestinal tract irritation (discomfort, nausea, vomiting, diarrhoea).

Other Ingredients:

Mineral oils may cause defatting of the skin and subsequently dermatitis in the event of repeated skin contact.

12. ECOLOGICAL INFORMATION**Aquatic Toxicity (derived):**

96 hour LC₅₀: Rainbow Trout = > 150 mg/l

48 hour LC₅₀: Daphnia Magna = > 0.52 mg/l (nominal)

72 hr EC₅₀: Algae (selenastrum capricornutum) = > 150 mg/l

No Observable effect:

Concentration (NOEL): Algae (selenastrum capricornutum) = 68 mg/l.

Other Wildlife toxicity:

Tests in a variety of mammalian, avian and aquatic species have shown that Glyphosate does not bio-accumulate. Mineral oils are harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS**Product:**

Absorb in earth or sand. Shovel up into covered containers for disposal. Dig up heavily contaminated soil and place in drums. (Refer to section 10 for types of containers and drums). Send to special chemical waste disposal facility or burn only in special, controlled high temperature incinerator. Do not empty into drains. Flush spill area with water.

Container:

Empty container completely before disposal. Dispose of container through a reputable waste disposal contractor. Do not contaminate waterways, ponds or ditches with waste product or container. All local and national regulations should be followed.

14. TRANSPORT INFORMATION

ADR Class/Conveyance class: 9

Packing group: III

UN No: 3082

Environmentally Hazardous Substance

15. REGULATORY INFORMATION

Hazard Symbol: N, Dangerous for the environment.

Risk Phrases: R50 Very toxic to aquatic organisms
R53 May cause long term adverse effects in the aquatic environment

16. OTHER INFORMATION

The information contained within this Material Safety Data Sheet does not constitute the users own assessment of workplace risk as required by other national health and safety legislation such as the Health and Safety at Work Act (1974) and the Control of Substances Hazardous to Health Regulations (1988 and subsequent amendments).

Read the label before you buy: Use pesticides safely.

Date of MSDS Review: 02.01.08 Supersedes MSDS Dated : 19.06.06

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