

# LockStar®

A herbicide for the pre-emergence and early post-emergence control of annual and perennial weeds on natural surfaces not intended to bear vegetation, permeable surfaces overlying soil, hard surfaces (railway ballast only) and amenity vegetation (around).

MAPP 19101

A water dispersible granule formulation containing 360 g/kg diflufenican and 10 g/kg iodosulfuron-methyl-sodium, a sulfonylurea.



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**500 g e**



## LOCKSTAR

A water dispersible granule formulation containing 360 g/kg diflufenican and 10 g/kg iodosulfuron-methyl-sodium, a sulfonylurea.

### Causes serious eye irritation.

### Very toxic to aquatic life with long lasting effects.

Wear protective gloves/ protective clothing/eye protection/face protection.

If eye irritation persists: Get medical advice/attention.

Collect spillage.

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

Contains disodium maleate. May produce an allergic reaction.

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



**WARNING**

## Directions for use

### FOR USE AS A PROFESSIONAL HERBICIDE

Situation:	For use on natural surfaces not intended to bear vegetation, permeable surfaces overlying soil, and hard surfaces (railway ballast only) and amenity vegetation (around).
Maximum individual dose:	0.5 kg product/ha.
Maximum number of treatments:	1 per year.
Aquatic buffer zone distance:	Hand-held use with coarse nozzles – 2 metres. Vehicle-mounted use with three-star nozzles – 6 metres.

### Other specific restrictions:

This product must only be applied to natural or permeable surfaces such as gravel or railway ballast.

Do not apply to any non-permeable man-made surfaces.

Use on hard surfaces refers to railway ballast only.

For hand-held use: To minimise spray drift, the product must be applied using a nozzle capable of producing a coarse quality spray.

For horizontal boom sprayer use: Low drift spraying equipment must be operated according to the specific conditions stated in the official three star rating for that equipment as published on HSE Chemicals Regulation Division's website. These operating conditions must be maintained until the operator is 30m from the top of the bank of any surface water bodies. Buffer zones greater than 5m are NOT eligible for buffer zone reduction under the LERAP scheme.

For spray train use: Do not apply more than one application per year of diflufenican-containing products. Do not allow direct overspray of static or flowing surface waters from track dedicated application equipment.

**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.**

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

Authorisation holder:

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**For 24 hour emergency information contact Bayer CropScience Limited**

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GB86274175C - ARTICLE 86273217

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## 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 product.

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

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

IF SWALLOWED, seek medical advice immediately and show this container or label.

### Environmental Protection

Do not contaminate water with the product or its container. (Do not clean application equipment near surface water / Avoid contamination via drains, farmyards and roads).

Extreme care must be taken to avoid spray drift onto non-target plants outside the target area.

**Hand-held use:** Since there is a risk to aquatic life from use, direct spray must not be allowed to fall within 2 m of the top of the bank of any static or flowing waterbody or the top of a ditch which is dry at the time of application. Spray must be aimed away from water.

**Vehicle-mounted boom sprayer:** To protect aquatic organisms, respect an unsprayed buffer zone to surface water bodies as specified for the crop. HORIZONTAL BOOM SPRAYERS MUST BE FITTED WITH THREE STAR DRIFT REDUCTION TECHNOLOGY. Low drift spraying equipment must be operated according to the specific conditions stated in the official three star rating for that equipment as published on HSE Chemicals Regulation Division's website. Maintain three star operating conditions until 30 m from the top of the bank of any surface water bodies.

DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within the distance specified for the crop to the top of the bank of a static or flowing water body, or within 1 m of the top of a ditch which is dry at the time of application. Aim spray away from water. NOTE: BUFFER ZONES OF MORE THAN 5 M CANNOT BE REDUCED UNDER THE LOCAL ENVIRONMENT RISK ASSESSMENT FOR PESTICIDES (LERAP) SCHEME.

The statutory buffer zone must be maintained and the distance recorded in Section A of the LERAP record form. The LERAP record form must be kept available for three years.

**Track-dedicated low-drift application system:** not allow direct overspray of static or flowing surface waters from track-dedicated application equipment.

### 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.

EMPTY CONTAINER COMPLETELY and dispose of safely.

PROTECT FROM FROST.

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.

Cleaning of MPV apparatus must only be conducted by trained personnel at Environment Agency approved sites. Clean thoroughly after use using a wetting agent or proprietary tank cleaner with 2 rinses

### 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.

## GENERAL INFORMATION

LockStar is a water dispersible granule formulation containing 360 g/kg diflufenican and 10 g/kg iodosulfuron-methyl-sodium. LockStar is a pre- and early post-emergence herbicide for control of a wide range of annual and perennial grasses and broad-leaved weeds for up to 4 months on non-crop areas (permeable surfaces overlying soil) such as: gravel paths and driveways, porous surfaces alongside roadways and fence lines, porous strips of land adjacent to buildings, industrial sites, timber yards, farm yards, oil and gas storage sites, power stations, electric sub-stations, beneath pylons, around street/park obstacles and furniture, porous areas near to trees and shrubs and other natural surfaces where vegetation is not desirable, and railway ballast. LockStar may also be used around the base of trees, shrubs and other plants in areas of semi-natural or ornamental vegetation, including parks, roadsides and other amenity areas.

LockStar is applied to give pre- and early post-emergence weed control up to the 2-leaf stage of the weeds. One application of LockStar can be made per year. LockStar can be applied during cold weather, however application to frozen ground should be avoided.

LockStar is to be dispersed in water (0.5 kg in 300 - 500 L) and should be applied using hand-held applicators or vehicle mounted sprayer. A drift shield is recommended for use around amenity vegetation, and in other areas where desired vegetation may be present. For application to railway ballast, a track dedicated low drift application system may also be used.

LockStar will not provide control of established deep rooted perennial weeds such as dandelion, thistle, dock and nettles..

## RESTRICTIONS

Since there is a risk to aquatic life from use, direct spray from hand-held equipment must not be allowed to fall within 2 m of the top of the bank of any static or flowing waterbody or the top of a ditch which is dry at the time of application. Do not allow direct spray from horizontal boom sprayer to fall within 6 m of the top of the bank of a static or flowing water body, or within 1 m of the top of a ditch which is dry at the time of application. Spray must be aimed away from water.

Do not allow direct overspray of static or flowing surface waters from track-dedicated application equipment.

Applications should not be made to plants growing under stress conditions, such as drought or waterlogging, as reduced levels of control may result.

Do not spray in windy weather.

Extreme care must be taken to avoid drift onto non-target plants, this includes: all green plant parts such as leaf surfaces, young bark or suckers of valued plants. Failure to do so may result in permanent damage or plant death.

Where LockStar has been applied to sites that are subsequently to be cleared or grubbed, a period of at least 6 months should elapse between treatment and the sowing and planting of subsequent crops. In addition, the soil should be deeply cultivated or dug afterwards to ensure thorough mixing in order to remove any risk of damaging subsequent crops or planting.

Where LockStar or other products containing diflufenican are applied in successive years, levels of diflufenican will build up in the soil. Even where soils are thoroughly dug there may be a risk of damage to subsequent plantings.

Care should be taken when applying LockStar as heavy rain following application may wash the herbicide onto sensitive areas such as newly sown grass and areas about to be planted.

Where the soil organic matter content is greater than 10%, or for example where leaves have collected or where a mat of organic matter has built up, pre-emergence activity will be reduced.

For maximum persistence of activity the area treated should not be cultivated or raked following application.

For maximum pre-emergence and residual activity from LockStar please ensure good coverage of the spray swath, Overdosing should be avoided.

DO NOT APPLY LOCKSTAR OVER DRAINS OR IN DRAINAGE CHANNELS, GULLIES OR SIMILAR STRUCTURES FOR MOVING WATER.







Austrian pine ( <i>Pinus austriaca</i> )	Nordmann fir ( <i>Abies nordmanniana</i> )
Chinese juniper ( <i>Juniperus media</i> )	Northern white cedar ( <i>Thuja occidentalis</i> )
Chinese thuja ( <i>Thuja orientalis</i> )	Norway spruce ( <i>Picea abies</i> )
Colorado spruce ( <i>Picea pungens</i> )	Picea sp.
Lawson's false cypress ( <i>Chamaecyparis lawsoniana</i> )	Scots pine ( <i>Pinus sylvestris</i> )
Leyland cypress ( <i>Cupressocyparis leylandii</i> )	Western red cedar Excelsa ( <i>Thuja plicata excelsa</i> )

**List of sensitive ornamental plants:** spray drift may cause significant damage, such as necrosis, discoloration, chlorosis or stunting of European yew (*Taxus baccata*), *rosa*, *cotoneaster* and *crataegus* species.

Do not apply LockStar around or under shrubs of the *Rosacea* family.

Application around or under other species not listed here is not recommended.

**SITUATION SPECIFIC INFORMATION**

**Use Areas**

**Natural surfaces not intended to bear vegetation, permeable surfaces overlying soil**

LockStar may be used in non-crop areas against weeds in open soil and against weeds growing in gravel or other porous surfaces. Examples of suitable use areas include gravel paths and driveways, porous surfaces alongside roadways and fence lines, porous strips of land adjacent to buildings, industrial sites, timber yards, farm yards, oil and gas storage sites, power stations, electric sub-stations, beneath pylons, around street/park obstacles and furniture, porous areas near to trees and shrubs and other natural surfaces where vegetation is not desirable.

**Hard surfaces (railway ballast only)**

LockStar may be used on railway track, railway sidings and other ballast areas of rail infrastructure.

**Amenity vegetation (around)**

LockStar may be used around the base of trees, shrubs and other plants in areas of semi-natural or ornamental vegetation, including parks, roadsides and other amenity areas. A drift shield is recommended for use around amenity vegetation, and in other areas where desired vegetation may be present.

**General**

LockStar must not be used on non-porous man made surfaces, for example paved areas, concrete or tarmac car parks and footpaths.

LockStar may be used on porous surfaces such as gravel ONLY where the underlying surface is soil. Do not use if an impermeable membrane lies between the gravel and the soil. The product must not be used on gravel where the underlying surface is concrete, tarmac or any other non-porous surface, or in situations where there is potential for run-off into surface waters.

**Application Timing**

Apply at any time of the year to weed-free soil (latest 2-leaf stage of any weeds present). Application to frozen ground should be avoided. 24 hours of dry weather are required immediately following application for optimum control.

**MIXING AND SPRAYING**

Half fill the spray tank with clean water and start gentle agitation. Add the required quantity of LockStar. Top up to the required volume with water and agitate to ensure the granules are dissolved. Use immediately.

**WASH OUT THE SPRAYER THOROUGHLY AFTER USE, USING A WETTING AGENT OR PROPRIETARY TANK CLEANER WITH TWO RINSES, AS TRACES OF LOCKSTAR MAY CAUSE HARM TO OTHER SUSCEPTIBLE PLANTS SPRAYED LATER.**

**Rates of Use**

EQUIPMENT	AREA	PRODUCT REQUIRED	WATER VOLUME	Spray Quality (Nozzle)	Buffer Zone
Knapsack	200m²	10 g	6 - 10 L	Coarse *Hypro Polijet AN0.6 or similar	2 M
Vehicle mounted sprayer	1 ha	0.5 kg	300 – 500 L	Three-star drift reduction nozzles	6 m
Track dedicated low drift application system	1 ha	0.5 kg	300 – 500 L	Coarse Radiarc nozzle or similar	

\*Hypro Polijet AN0.6 nozzle provided gives, subject to calibration: a coarse spray with a flow rate of 0.6 L/min at 1 bar, giving 225 L/ha at 4kph walking speed, swath width of 40 cm, 40 cm nozzle height

**Equipment**

**Hand-held (natural surfaces not intended to bear vegetation, permeable surfaces overlying soil, amenity vegetation and railway ballast)**

Use a knapsack sprayer or tank and lance fitted with a coarse nozzle using a pressure of around 1-2 bars to provide a coarse spray. Use of anti-drift nozzles or the use of a protector shield to avoid any drift is recommended.

**NOZZLE:** Hypro Polijet AN0.6 nozzle gives, subject to calibration: a coarse spray with a flow rate of 0.6 L/min at 1 bar, giving 225 L/ha at 4kph walking speed, swath width of 40 cm, 40 cm nozzle height, or use similar nozzles that give coarse spray. Good and even coverage of foliage and soil is essential for optimum activity.

**Vehicle-mounted applications (natural surfaces not intended to bear vegetation, permeable surfaces overlying soil, amenity vegetation and railway ballast)**

Use a vehicle-mounted boom sprayer fitted with three-star drift reducing nozzles and a pressure of around 1-2 bars to provide a coarse spray. Good and even coverage of foliage and soil is essential for optimum activity.

**Spray-train applications to railway ballast**

Application to railway ballast may also be made via a spray train using a low drift, train-mounted nozzle. Good and even coverage of foliage and ballast is essential for optimum activity.

**COMPATIBILITY**

LockStar may be tank-mixed with other plant protection products providing that the application timing is correct for both LockStar and the partner(s) in the mixture. For further information on the authorisation status of mixture partners, consult the manufacturer.



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