

## SAFETY INFORMATION

Wear suitable protective clothing (coveralls), and face protection.

When using do not eat, drink or smoke.

Wash concentrate from skin or eyes immediately.

Do not breathe spray.

Wash hands and exposed skin before meals and after work.

Keep in original container, tightly closed, in a safe place.

Do not contaminate water with the product or its container.

Do not clean application equipment near surface water.

Avoid contamination via drains from farmyards and roads.

Wash out container thoroughly, empty washings into spray tank, and dispose of safely.

Do not re-use container for any other purpose and dispose of safely.

## READ DIRECTIONS FOR USE ON ATTACHED LEAFLET.

## PROTECT FROM FROST.

### PROFESSIONAL USE ONLY



## TRIPLE RINSE CONTAINER, PUNCTURE AND INVERT AT TIME OF USE

1 litre e

**Dow** Dow AgroSciences



# Starane<sup>®</sup> 2

## HERBICIDE

An emulsifiable concentrate containing  
200 g/litre (20.6% w/w) fluroxypyr as the 1-methyl heptyl ester.

**FOR USE ONLY AS AN AGRICULTURAL HERBICIDE FOR THE CONTROL OF CERTAIN  
BROAD-LEAVED WEEDS IN WINTER AND SPRING CEREALS,  
FORAGE MAIZE AND GRASSLAND**

A selective post-emergence herbicide for use on WINTER and SPRING CEREALS, FORAGE  
MAIZE and PERMANENT GRASSLAND, ROTATIONAL GRASS to control a range of perennial  
and annual weeds.



Product Identifier according to Art.18 of Reg. (EC) No 1272/2008 (CLP): Starane<sup>®</sup>2;  
Hydrocarbons, C9, aromatics; Hydrocarbons, C10, aromatics, <1% naphthalene.

**ANGER**  
**FLAMMABLE LIQUID AND VAPOUR.**  
**MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.**  
**CAUSES SKIN IRRITATION.**  
**MAY CAUSE AN ALLERGIC SKIN REACTION.**  
**CAUSES SERIOUS EYE IRRITATION.**  
**MAY CAUSE RESPIRATORY IRRITATION.**  
**MAY CAUSE DROWSINESS OR DIZZINESS.**  
**VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.**

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Wear protective gloves/clothing/eye/face protection.

IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.

IF ON SKIN: Wash with plenty of soap and water.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present  
and easy to do. Continue rinsing.

Do NOT induce vomiting.

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

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

PCS No. 01807

## IMPORTANT INFORMATION

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

<b>Crop</b>	Wheat (winter), barley (winter), oats (winter), wheat (spring), barley (spring), oats (spring), rye, triticale, durum wheat, forage maize, permanent grassland (agricultural crop), rotational grass (agricultural crop), newly sown grass leys (agricultural crop).
<b>Maximum Individual Dose:</b>	}
<b>Maximum Total Dose:</b>	} Full details are given in the Statutory
<b>Latest Time of Application:</b>	} Area on the attached leaflet
<b>Other Specific Restrictions:</b>	}

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.

9 IRL 0714 STA C

Manufactured and Registered by:

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# 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.

## IMPORTANT INFORMATION.

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

Crop	Maximum Individual Dose	Maximum Total Dose	Latest Time of Application
Wheat (winter), barley (winter)	2.0 litres product per hectare	2.0 litres product per hectare per crop	Before late boot stage (GS45)
Oats (winter), rye, triticale, durum wheat	1.0 litre product per hectare	1.0 litre product per hectare per crop	Before first node detectable stage (GS31)
Wheat (spring), Barley (spring)	0.75 litre product per hectare	0.75 litre product per hectare per crop	Before flag leaf stage (GS39)
Oats (spring)	0.75 litre product per hectare	0.75 litre product per hectare per crop	Before first node detectable stage (GS31)
Forage maize	1.0 litre product per hectare	1.0 litre product per hectare per crop	Before seven leaves unfolded (GS17)
Permanent grassland, rotational grass (agricultural crop)	2.0 litres product per hectare	2.0 litres product per hectare (see Other Specific Restrictions)	-
Newly sown grass leys (agricultural crop)	0.75 litre product per hectare per year	0.75 litre product per hectare (see Other Specific Restrictions)	-

### Other Specific Restrictions:

A maximum total dose of 0.75 litres per hectare must be observed for applications made to cereals between crop emergence in the year of planting and 1<sup>st</sup> February in the year of harvest.

When applied as a spot treatment to permanent grassland, rotational grass and newly sown grass leys (agricultural crops) the maximum concentration must not exceed 30 ml product in 10 litres of water.

**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.**

## RATES OF USE

The rate of use for STARANE 2 is dependent on the weed, the size of weed and the tank mix used as detailed below.

## VOLUME

Using standard nozzles the recommended spray volume is 150 to 400 litres of water per hectare. The lowest water volume should only be used in very open crops on small weeds. On later applications where the crop is dense, the spray volume should be increased to 400 litres water per hectare. The minimum recommended pressure is 2 to 3 bars.

## MIXING

Add the appropriate amount of STARANE 2 to clean water in a half-filled sprayer tank, mix thoroughly and add the remainder of the water. The spray mix must be agitated continuously during mixing and until application is complete.

## SPRAY QUALITY

Apply STARANE 2 as a MEDIUM spray as defined by the BCPC system.

## CEREALS

### SPRING APPLICATION TO WINTER CEREALS

**Winter wheat, winter barley, winter oats, winter rye, durum wheat and triticale**

RATES OF USE, WEED SUSCEPTIBILITY AND MAXIMUM SIZE CONTROLLED

Product and rate of use per hectare	1.0 litre STARANE 2	0.75 litre STARANE 2 + rec rate HBN~	1.0 litre STARANE 2 + rec rate HBN~
Cleavers Common chickweed Common hemp-nettle Field forget-me-not	Flowering	250 mm Flowering 150 mm 100 mm	Flowering
Black bindweed	6 true leaves	100 mm	
Henbit dead-nettle Red dead-nettle	4 true leaves		
Common fumitory Knotgrass	2 true leaves		
Common field-speedwell Groundsel Ivy-leaved speedwell Mayweed spp Pale persicaria Redshank	Checked at 2 true leaf stage only	Up to 50 mm but it is dependent on type and rate of HBN~ used. See manufacturers' instructions	
Bugloss Charlock Common poppy Corn marigold Fat-hen Field penny-cress Scarlet pimpernel Shepherd's-purse Small nettle Volunteer rape Wild radish	Resistant	Up to 6 true leaves but it is dependent on type and rate of HBN~ used. See manufacturers' instructions	

~HBN's are products containing ioxynil and/or bromoxynil. Oxytril CM is a recommended HBN tank mix partner used at the manufacturer's recommended rates.

## Two-way tank mixes with other broad-leaved weedkillers

STARANE 2 is compatible with Ally SX. The addition of Ally SX to STARANE 2 will broaden the weed spectrum. Refer to the Ally SX label for weed susceptibilities, timing of application etc for these mixes.

## CROPS AND TIMING

### Winter wheat and winter barley

STARANE 2 alone can be applied from the two leaf stage of the crop (GS 12) to before late boot stage (before GS 45).

STARANE 2 tank mixed with HBN's~ can be applied from the two leaf stage of the crop but before the second node detectable stage (GS 12-31 inclusive).

### Winter oats, winter rye, durum wheat and triticale

STARANE 2 can be used on winter oats, winter rye, durum wheat and triticale from the two leaf stage of the crop (GS 12) but before the first node detectable stage (Before GS 31). The timing of application of STARANE 2 mixes depends on the tank mix partner but mixes should not be applied after the first node detectable stage (GS 31). At the present time there is no recommendation to use STARANE 2 on triticale in tank mix with any other herbicide.

## SPRING APPLICATION TO SPRING CEREALS

### Spring wheat, spring barley and spring oats

RATES OF USE, WEED SUSCEPTIBILITY AND MAXIMUM SIZE CONTROLLED

Product and rate of use per hectare	0.75 litre STARANE 2	0.5 litre STARANE 2 + rec rate HBN~	0.75 litre STARANE 2 + rec rate HBN~
Cleavers	100 mm	50 mm	150 mm
Common chickweed	100 mm	100 mm	Flowering
Common hemp-nettle	100 mm	100 mm	150 mm
Field forget-me-not	50 mm	50 mm	100 mm
Black bindweed	4 true leaves	50 mm	100 mm
Common fumitory	2 true leaves	50 mm	100 mm
Knotgrass	2 true leaves		
Corn spurrey	2 true leaves	Up to 6 leaves but dependent on type and rate of HBN~ used. See manufacturers' instructions.	
Groundsel	Checked at 2 true leaf stage only		
Mayweed spp			
Pale persicaria			
Redshank			
Speedwell spp			
Common orache	Resistant		
Common poppy			
Corn marigold			
Fat-hen			
Shepherd's-purse			
Small nettle			

~HBN's are products containing ioxynil and/or bromoxynil. Oxytril CM is a recommended HBN tank mix partner used at the manufacturer's recommended rates.

Two-way mixes with other broad-leaved weedkillers

STARANE 2 is compatible in two-way mix with Ally SX.

The addition of Ally SX to STARANE 2 will broaden the weed spectrum. Refer to the Ally SX label for weed susceptibilities, timing of applications etc, for this mix.

CROPS AND TIMING

Spring wheat and spring barley

STARANE 2 alone can be applied from the two leaf stage of the crop (GS 12) to before flag leaf stage (before GS 39).

Spring wheat, spring barley

STARANE 2 in mix with HBN products can be applied from two leaf stage of the crop (GS 12) to before second node detectable stage (before GS 32).

Spring oats

STARANE 2 alone can be applied from the two leaf stage of the crop (GS 12) to before first node detectable stage (before GS31).

CROPS, TIMINGS ETC CAN BE AFFECTED BY THE RATE AND TYPE OF TANK MIX PARTNER USED. ALWAYS REFER TO THE PRODUCT LABEL OF THE TANK MIX PARTNER.

AUTUMN APPLICATION TO WINTER WHEAT AND WINTER BARLEY

RATES OF USE, WEED SUSCEPTIBILITY AND MAXIMUM SIZE CONTROLLED

Product and rate of use per hectare	0.5† to 0.75†† litre STARANE 2 per hectare + recommended rate HBN
Cleavers	50 mm
Common chickweed	
Field forget-me-not	
Henbit dead-nettle	6 true leaves
Red dead-nettle	
Charlock	Up to 6 true leaves but it is dependent on type and rate of HBN– used. See manufacturers' instructions.
Common poppy	
Groundsel	
Mayweed spp	
Shepherd's-purse	
Speedwell spp	
Volunteer rape	

–HBN's are products containing ioxynil and/or bromoxynil. Oxytril CM is a recommended HBN tank mix partner used at the manufacturer's recommended rates.

† The higher rate will generally give more consistent results particularly if growing conditions are not ideal.

†† The higher rate is essential for control of cleavers.

STARANE 2 will only produce optimum results when the weeds are actively growing and the crops competitive. This is particularly important with cleavers. Do not spray if frost is imminent.

Autumn applications will not control weeds which germinate after spraying. In most circumstances a follow-up spray will be necessary to obtain season long weed control.

CROPS AND TIMING

Winter wheat and barley only

STARANE 2 alone or in tank mix with recommended HBN– partners can be applied from the two leaf stage of the crop until the end of February (but not after the first node detectable stage (GS 31). After the end of February, 'Spring Application' recommendations apply.

STARANE 2 PLUS REDUCED RATE OF HBN FOR CLEAVER CONTROL

Rates of Use

Starane 2 herbicide at 0.75 litre/ha can be mixed with 0.25 litre/ha of Oxytril CM. This tank mix will control cleavers up to 250 mm high or across.

Crops and Timing

Applications can be made to winter wheat, winter barley and winter oats, and spring wheat sown in the autumn or in the spring. Application to winter oats should be delayed until risk of frost is over. Applications should be made in the spring from the two-leaf stage of the crop but before second node detectable stage (GS 12-31 inclusive).

COMBINED GRASS AND BROAD LEAVED WEED CONTROL

Where black-grass and other weeds are a problem Starane 2 can be tank mixed with Tolkan Liquid ± Oxytril CM. These tank mixes can be used on all varieties of winter barley and winter wheat except for durum wheats.

Optimum time of application for the above mixtures is the early tillering stage of the black-grass.

Additional broad-leaved weeds such as mayweeds and common poppy will also be controlled by the residual herbicide.

VOLUNTEER POTATO CONTROL - WINTER WHEAT AND WINTER BARLEY ONLY

RATE OF USE AND WATER VOLUME

Apply STARANE 2 at 2.0 litres/ha in 300 to 400 litres of water per hectare using standard nozzles.

TIMING - CEREAL CROP STAGE

Apply STARANE 2 anytime from the third node detectable stage of crop growth up to and including the boots swollen stage (GS 33 to 45 inclusive).

WEED SIZE CONTROLLED

Potato shoots from 10 cm up to 40 cm in height.

NOTES

STARANE 2 will only affect shoots which have emerged at the time of spraying. STARANE 2 will not give complete control of top growth. However, a good degree of stunting can be expected, which will reduce the competitive threat posed to these crops by this weed. Because volunteer potatoes can emerge over an extended period, sprays applied later in the recommended period will generally give better results.

The main factors for obtaining successful results are that there is sufficient actively growing green foliage on the potatoes and that good coverage of this foliage is achieved, for example by use of sufficiently high water volumes. In addition to the control of volunteer potato haulm this use of STARANE 2 will give a useful reduction in the viability of daughter tubers.

WARNINGS

These warnings apply only for this high rate recommendation of 2.0 litres/ha of STARANE 2. They do not apply where STARANE 2 is used at the standard rates for annual broad leaved weed control (0.5 to 1.0 litre/ha).

Avoid overlapping spray bouts.

Straw from cereals treated at these rates and timings with STARANE 2 may contain residues which could damage certain crops. Straw must not be incorporated back into the soil. When straw is disposed of by baling and carting it should be used only for animal bedding. Manure from such animal bedding should be used on or before cereal or grass crops only.

DO NOT PLANT WINTER BEANS or other legumes in the same year as this treatment with STARANE 2.

DO NOT PLANT PEAS or other legumes in the spring following this treatment

DO NOT TANK MIX STARANE 2 WITH ANY OTHER PRODUCT when used as recommended as above.

FORAGE MAIZE

RATE OF USE

Apply STARANE 2 at 1.0 litre/ha.

WATER VOLUME

Apply STARANE 2 in 200-300 litres of water per hectare.

TIMING

Apply when forage maize is between the 3-6 leaf stage and before the crop is over 20 cm tall. Do not apply once the buttress roots (side roots) have started to develop on the first node.

**WEEDS CONTROLLED**

STARANE 2 will control black nightshade from cotyledons up to 6 true leaves. It will not control black nightshade which has not emerged at the time of application.

**NOTE**

Do not apply in tank mix with any other product or if the crop is beyond the recommended growth stage.

Avoid boom overlap.

**NEWLY SOWN GRASS LEYS**

**WEEDS CONTROLLED**

Weed	Rate of use litres/ha	Weed size controlled
Common chickweed	0.75	50 mm

**RATE OF USE AND WATER VOLUME**

Apply STARANE 2 at 0.75 litre/ha in a spray volume of 200 to 400 litres of water per hectare to give good coverage of the weed.

Use the higher volume of water where weeds, especially common chickweed, are large at the time of spraying and where the grass is dense.

**TIMING**

*Autumn application*

Apply STARANE 2 in early autumn when the grasses have at least 3 fully expanded leaves. Best control is achieved if STARANE 2 is applied when the weeds are growing actively.

*Spring application*

Apply STARANE 2 to newly sown spring leys when grasses have at least 3 fully expanded leaves.

Apply 0.5 to 2.0 litres/ha STARANE 2 in 200 to 400 litres water as an overall treatment to control annual or perennial weeds.

Application timing is crucial and STARANE 2 should be applied when weeds are actively growing.

**NOTES**

Do not apply to crops undersown with clover or other legume-containing mixtures.

**Spot Treatment**

On grassland where weed populations are too low to justify overall spraying and around the farm, all the above weeds can be controlled by spot treatment with a knapsack or suitable hand-held lance from a tractor-mounted sprayer. The weeds should be thoroughly wetted with the spray solution but spraying until "run-off" will decrease activity.

The use of flood jets is recommended to prevent spray drift.

**TANK MIXES**

Where tank mixes are used, and unless directed otherwise, the preferred order of addition of products to the tank is as follows:

- water dispersible grains
- wettable powders
- suspension concentrates (flowables)
- emulsifiable concentrates
- solution concentrates.

Each product should be added to the half-full sprayer tank and be fully dispersed before the addition of the next product.

STARANE 2 can be tank mixed with a number of other herbicides to broaden the spectrum of weeds controlled. These other herbicides may have crop, timing, varietal and other restrictions which are different to those of STARANE 2. STARANE 2 should be applied in tank mix with other products only if any requirements or restrictions on the other product label do not conflict with the requirements or restrictions for STARANE 2. Tank mixes should only be applied within label recommendations of every product in the mix.

Tank mixes should not be allowed to stand in the tank and agitation should be maintained at all times.

For the latest advice on tank mixes with STARANE 2 please contact Dow AgroSciences or your distributor.

**NOTES**

Keep livestock out of treated areas for at least 3 days and until poisonous weeds such as ragwort have died and become unpalatable.

For best results apply STARANE 2 when weeds are actively growing. In newly-sown crops, seedling and small weeds are more susceptible to STARANE 2 and will respond quicker when treated at this stage. Vigorous crop competition enhances control of the more resistant weeds and prevents weeds which germinate after application from becoming a problem in the crop.

Crops undersown with grass may be sprayed provided the grasses are tillering.

Do not apply to crops undersown with clover or other legume-containing mixtures.

STARANE 2 will only produce optimum results when the weeds are actively growing and the crop competitive. This is particularly important with cleavers, especially where HBN's are not included in the tank mix (eg tank mixes with Ally).

STARANE 2 is of low volatility and is therefore not subject to vapour drift.

Do not spray in windy weather and avoid drift onto non-target crops/areas.

Do not treat crops under stress. Stress can be caused by many factors including frost, drought, waterlogging, trace element deficiency, disease and pest attack etc.

Do not spray if night temperatures are low or if frost is imminent.

STARANE 2 used alone is rainfast one hour after application.

Do not roll or harrow 7 days before or after treatment.

Wash equipment thoroughly with water and detergent immediately after use.

Traces of STARANE 2 can cause harm to susceptible crops sprayed later.

**TRADEMARK ACKNOWLEDGEMENTS**

STARANE is a trademark of Dow AgroSciences LLC. DOW SHIELD is a registered trademark of The Dow Chemical Company. All other brand names used in the document are trademarks of other manufacturers in which proprietary rights may exist.

**Dow AgroSciences 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 or after application which may affect the performance of the goods, all conditions and warranties, statutory or otherwise, as to the quality or fitness for any purpose of our goods are excluded. 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.

# Safety Data Sheet

This Safety data Sheet does not form part of the approved product label.

## SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1 Product identifiers

**Product name:** STARANE® 2 Herbicide

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

**Identified uses:** Plant Protection Product

### 1.3 Details of the supplier of the safety data sheet

**COMPANY IDENTIFICATION**  
DOW AGROSCIENCES LIMITED  
LATCHMORE COURT  
BRAND STREET  
HITCHIN  
England  
SG5 1NH  
UNITED KINGDOM

**Customer Information Number:** [SDSQuestion@dow.com](mailto:SDSQuestion@dow.com)

### 1.4 EMERGENCY TELEPHONE NUMBER

**24-Hour Emergency Contact:** 0031 115 694 982

**Local Emergency Contact:** 00 31 115 69 4982

## SECTION 2. HAZARDS IDENTIFICATION

### 2.1 Classification of the substance or mixture

**Classification according to Regulation (EU) 1272/2008 :**

Flammable liquids - Category 3 - H226

Skin irritation - Category 2 - H315

Eye irritation - Category 2 - H319

Skin sensitisation - Category 1 - H317

Aspiration hazard - Category 1 - H304

Specific target organ toxicity - single exposure - Category 3 - Respiratory tract irritant. - H335

Specific target organ toxicity - single exposure - Category 3 - Narcotic effects. - H336

Acute aquatic toxicity - Category 1 - H400

Chronic aquatic toxicity - Category 1 - H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

**Classification according to EU Directives 67/548/EEC or 1999/45/EC:**

R10

Harmful - R65

Irritant - R36/37/38

R43

R67

Dangerous for the environment - R51/53

For the full text of the R-phrases mentioned in this Section, see Section 16.

### 2.2 Label elements

**Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS]:**

**Hazard pictograms**



**Signal word:** DANGER

### Hazard statements

H226

Flammable liquid and vapour.

H315

Causes skin irritation.

H319

Causes serious eye irritation.

H317

May cause an allergic skin reaction.

H304

May be fatal if swallowed and enters airways.

H335

May cause respiratory irritation.

H336

May cause drowsiness or dizziness.

H410

Very toxic to aquatic life with long lasting effects.

### Supplemental Hazard Statements

EUH401

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

### Precautionary statements

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P280

Wear protective gloves/ eye protection/ face protection.

P301 + P310

IF SWALLOWED: Immediately call a POISON CENTRE or doctor/ physician.

P302 + P352

IF ON SKIN: Wash with plenty of soap and water.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P331

Do NOT induce vomiting.

P501

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

### 2.3 Other hazards

no data available

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2 Mixture

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 81406-37-3 EC-No. 279-752-9 Index-No. 607-272-00-5	—	29.7%	fluoroxypyr-meptyl (ISO)	Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410
CASRN Not available EC-No. 918-668-5 Index-No. —	01-2119455851-35	> 60.0 - < 70.0 %	Hydrocarbons, C9, aromatics	Flam. Liq. - 3 - H226 STOT SE - 3 - H336 STOT SE - 3 - H335 Asp. Tox. - 1 - H304 Aquatic Chronic - 2 - H411
CASRN 68953-96-8 EC-No. 273-234-6 Index-No. —	—	< 5.0 %	Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	Skin Irrit. - 2 - H315 Eye Dam. - 1 - H318 Aquatic Chronic - 2 - H411
CASRN 111-27-3 EC-No. 203-852-3 Index-No. 603-059-00-6	01-2119487967-12	< 5.0 %	hexan-1-ol	Acute Tox. - 4 - H302
CASRN Not Available EC-No. — Index-No. —	01-2119463583-34	< 1.0 %	Hydrocarbons, C10, aromatics, <1% naphthalene	STOT SE - 3 - H336 Asp. Tox. - 1 - H304 Aquatic Chronic - 2 - H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

CASRN / EC-No. / Index-No.	Concentration	Component	Classification: 67/548/EEC
CASRN 81406-37-3 EC-No. 279-752-9 Index-No. 607-272-00-5	29.7%	fluoroxypyr- meptyl (ISO)	N - R50 - R53
CASRN Not available EC-No. 918-668-5 Index-No. -	> 60.0 - < 70.0 %	Hydrocarbons, C9, aromatics	R10 Xn - R65 Xi - R37 R66 R67 N - R51/53
CASRN 68953-96-8 EC-No. 273-234-6 Index-No. -	< 5.0 %	Benzenesulfonic acid, mono-C11- 13-branched alkyl derivs., calcium salts	Xi - R38 - R41 N - R51/53
CASRN 111-27-3 EC-No. 203-852-3 Index-No. 603-059-00-6	< 5.0 %	hexan-1-ol	Xn - R22 R10 Xi - R36
CASRN Not Available EC-No. - Index-No. -	< 1.0 %	Hydrocarbons, C10, aromatics, <1% naphthalene	Xn - R65 N - R51/53 R66 R67

For the full text of the R-phrases mentioned in this Section, see Section 16.

## SECTION 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

**General advice:** First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

**Skin contact:** Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

**Eye contact:** Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control centre or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

**Ingestion:** Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control centre or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

**4.2 Most important symptoms and effects, both acute and delayed:** Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

**4.3 Indication of any immediate medical attention and special treatment needed**  
**Notes to physician:** Skin contact may aggravate preexisting dermatitis. Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

## SECTION 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

**Suitable extinguishing media:** Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

**Unsuitable extinguishing media:** no data available

### 5.2 Special hazards arising from the substance or mixture

**Hazardous combustion products:** During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide. Hydrogen fluoride.

**Unusual Fire and Explosion Hazards:** Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Dense smoke is produced when product burns.

### 5.3 Advice for firefighters

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Consider feasibility of a controlled burn to minimize environmental damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

**Special protective equipment for firefighters:** Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

## SECTION 6. ACCIDENTAL RELEASE MEASURES

**6.1 Personal precautions, protective equipment and emergency procedures:** Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapour to avoid fire or explosion. Vapour explosion hazard. Keep out of sewers. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

**6.2 Environmental precautions:** Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

**6.3 Methods and materials for containment and cleaning up:** Contain spilled material if possible. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

**6.4 Reference to other sections:** References to other sections, if applicable, have been provided in the previous sub-sections.



SECTION 7. HANDLING AND STORAGE

**7.1 Precautions for safe handling:** Keep out of reach of children. Keep away from heat, sparks and flame. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapour or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. No smoking, open flames or sources of ignition in handling and storage area. Electrically ground and bond all equipment. Containers, even those that have been emptied, can contain vapours. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

**7.2 Conditions for safe storage, including any incompatibilities:** Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies. Minimize sources of ignition, such as static build-up, heat, spark or flame.

**Storage stability**  
**To maintain product quality, recommended storage temperature is > 0 °C**

**7.3 Specific end use(s):** Refer to product label.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
fluoroxypyr-meptyl (ISO)	Dow IHG	TWA	10 mg/m3
hexan-1-ol	US WEEL	TWA	40 ppm

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

8.2 Exposure controls

**Engineering controls:** Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

**Eye/face protection:** Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

**Skin protection**

**Hand protection:** Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL").

Styrene/butadiene rubber. Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. If vapors are strong enough to be irritating to the nose, or eyes, the OEL is probably being exceeded. Special ventilation or respiratory protection may be required.

Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.

Environmental exposure controls

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Physical state	Liquid.
Colour	Brown
Odour	Aromatic
Odour Threshold	No test data available
pH	5.3 1% CIPAC MT 75.2 (1% aqueous suspension)
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	closed cup 55 °C CIPAC MT 12

Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapour Pressure	No test data available
Relative Vapour Density (air = 1)	No test data available
Relative Density (water = 1)	0.9698 at 20 °C Pyknometer
Water solubility	emulsifiable
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	442 °C EC Method A15
Decomposition temperature	No test data available
Dynamic Viscosity	No test data available
Kinematic Viscosity	2.96 mm2/s at 20 °C ASTM D455
Explosive properties	No No EEC A14
Oxidizing properties	No test data available

9.2 Other information

Liquid Density	0.9698 g/cm3 at 20 °C Pyknometer
Molecular weight	no data available
Surface tension	27.0 mN/m at 25 °C EC Method A5

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10. STABILITY AND REACTIVITY

**10.1 Reactivity:** no data available

**10.2 Chemical stability:** Thermally stable at typical use temperatures.

**10.3 Possibility of hazardous reactions:** Polymerization will not occur.

**10.4 Conditions to avoid:** Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems. Avoid direct sunlight.

**10.5 Incompatible materials:** Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

**10.6 Hazardous decomposition products:** Decomposition products depend upon temperature, air supply and the presence of other materials. Toxic gases are released during decomposition.

## SECTION 11. TOXICOLOGICAL INFORMATION

*Toxicological information on this product or its components appear in this section when such data is available.*

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Acute oral toxicity

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product:

LD50, rat, male, > 2,000 - 3,500 mg/kg

##### Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:

LD50, rat, male and female, > 5,000 mg/kg

##### Acute inhalation toxicity

Vapor concentrations are attainable which could be hazardous on single exposure. May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

As product: The LC50 has not been determined.

#### Skin corrosion/irritation

Brief contact may cause severe skin irritation with pain and local redness. May cause drying and flaking of the skin.

#### Serious eye damage/eye irritation

May cause pain disproportionate to the level of irritation to eye tissues. May cause moderate eye irritation. May cause slight corneal injury.

#### Sensitization

Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

#### Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation.

May cause drowsiness or dizziness.

#### Specific Target Organ Systemic Toxicity (Repeated Exposure)

For the active ingredient(s):

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Based on information for component(s):

In animals, effects have been reported on the following organs:

Kidney.

Liver.

Blood.

Eye.

Gastrointestinal tract.

Respiratory tract.

For the active ingredient(s):

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

#### Carcinogenicity

For the active ingredient(s): Did not cause cancer in laboratory animals.

For the minor component(s): Has caused cancer in laboratory animals. However, the relevance of this to humans is unknown.

#### Teratogenicity

For the active ingredient(s): Has been toxic to the foetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For the solvent(s): Has been toxic to the foetus in laboratory animals at doses toxic to the mother. Has caused birth defects in lab animals only at doses producing severe toxicity in the mother.

#### Reproductive toxicity

For the solvent(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, active ingredient did not interfere with reproduction.

#### Mutagenicity

For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

#### Aspiration Hazard

May be fatal if swallowed and enters airways.

#### COMPONENTS INFLUENCING TOXICOLOGY:

##### fluoroxypyr-meptyl (ISO)

##### Acute inhalation toxicity

Prolonged exposure is not expected to cause adverse effects. Dust may cause irritation to upper respiratory tract (nose and throat).

Maximum attainable concentration. LC50, rat, male and female, 4 Hour, dust/mist, > 1.16 mg/l No deaths occurred at this concentration.

##### Hydrocarbons, C9, aromatics

##### Acute inhalation toxicity

Vapor concentrations are attainable which could be hazardous on single exposure. May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness.

LC50, rat, 4 Hour, > 10.2 mg/l

##### Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

##### Acute inhalation toxicity

The LC50 has not been determined.

##### hexan-1-ol

##### Acute inhalation toxicity

No adverse effects are anticipated from single exposure to vapor. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs. LC50, rat, 1 Hour, vapour, > 21 mg/l

##### Hydrocarbons, C10, aromatics, <1% naphthalene

##### Acute inhalation toxicity

Prolonged excessive exposure may cause adverse effects. May cause central nervous system effects. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Excessive exposure may cause irritation to upper respiratory tract (nose and throat) and lungs.

As product: The LC50 has not been determined.

For similar material(s): LC50, rat, 4 Hour, vapour, > 4.688 mg/l

Maximum attainable concentration.

## SECTION 12. ECOLOGICAL INFORMATION

*Ecotoxicological information on this product or its components appear in this section when such data is available.*

### 12.1 Toxicity

#### Acute toxicity to fish

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 8.5 mg/l, OECD Test Guideline 203

#### Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, 6.2 mg/l, OECD Test Guideline 202

#### Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, > 40 mg/l, OECD Test Guideline 201

ErC50, diatom Navicula sp., Static, 72 Hour, 0.684 mg/l, OECD Test Guideline 201

#### Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, Colinus virginianus (Bobwhite quail), mortality, > 2250mg/kg bodyweight.

contact LD50, Apis mellifera (bees), 48 Hour, mortality, > 100µg/bee

oral LD50, Apis mellifera (bees), 48 Hour, mortality, > 130µg/bee

#### Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, survival, 270 mg/kg



## 12.2 Persistence and degradability

### fluoroxypyr-meptyl (ISO)

**Biodegradability:** Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

**Biodegradation:** 32 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301D or Equivalent

**Theoretical Oxygen Demand:** 2.2 mg/mg

**Stability in Water (1/2-life)**

, half-life, 454 d

### Hydrocarbons, C9, aromatics

**Biodegradability:** For the major component(s): Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. For some component(s): Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

### Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

**Biodegradability:** No relevant data found.

### hexan-1-ol

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

**Biodegradation:** 61 - 77 %

**Exposure time:** 30 d

**Method:** OECD Test Guideline 301D or Equivalent

### Hydrocarbons, C10, aromatics, <1% naphthalene

**Biodegradability:** Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).

## 12.3 Bioaccumulative potential

### fluoroxypyr-meptyl (ISO)

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 5.04 Measured

**Bioconcentration factor (BCF):** 26 Oncorhynchus mykiss (rainbow trout) Measured

### Hydrocarbons, C9, aromatics

**Bioaccumulation:** For the major component(s): Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). For the minor component(s): Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

### Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

**Bioaccumulation:** No relevant data found.

### hexan-1-ol

**Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Potential for mobility in soil is very high (Koc between 0 and 50). Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

**Partition coefficient: n-octanol/water(log Pow):** 1.8 Measured

### Hydrocarbons, C10, aromatics, <1% naphthalene

**Bioaccumulation:** No data available for this product. For similar material(s):

Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

## 12.4 Mobility in soil

### fluoroxypyr-meptyl (ISO)

Expected to be relatively immobile in soil (Koc > 5000).

**Partition coefficient(Koc):** 6200 - 43000

### Hydrocarbons, C9, aromatics

No relevant data found.

### Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

No relevant data found.

### hexan-1-ol

**Partition coefficient(Koc):** 83

### Hydrocarbons, C10, aromatics, <1% naphthalene

No relevant data found.

## 12.5 Results of PBT and vPvB assessment

### fluoroxypyr-meptyl (ISO)

This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

This substance is not considered to be very persistent and very bioaccumulating (vPvB).

### Hydrocarbons, C9, aromatics

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

### Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

### Hydrocarbons, C10, aromatics, <1% naphthalene

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

## 12.6 Other adverse effects

### fluoroxypyr-meptyl (ISO)

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

### Hydrocarbons, C9, aromatics

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

### Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

### Hydrocarbons, C10, aromatics, <1% naphthalene

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

## SECTION 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

## SECTION 14. TRANSPORT INFORMATION

### Classification for ROAD and Rail transport (ADR/RID):

14.1 UN number	UN 1993
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S. (Aromatic hydrocarbon)
14.3 Class	3
14.4 Packing group	III
14.5 Environmental hazards	Fluoroxypyr 1-methylheptyl ester
14.6 Special precautions for user	Special Provision 640E Hazard identification No: 30

**Classification for SEA transport (IMO-IBC):**

<b>14.1 UN number</b>	UN 1993
<b>14.2 Proper shipping name</b>	FLAMMABLE LIQUID, N.O.S.(Aromatic hydrocarbon)
<b>14.3 Class</b>	3
<b>14.4 Packing group</b>	III
<b>14.5 Environmental hazards</b>	Fluoroxypyr 1-methylheptyl ester
<b>14.6 Special precautions for user</b>	EmS: F-E, S-E
<b>14.7 Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

<b>14.1 UN number</b>	UN 1993
<b>14.2 Proper shipping name</b>	Flammable liquid, n.o.s.(Aromatic hydrocarbon)
<b>14.3 Class</b>	3
<b>14.4 Packing group</b>	III
<b>14.5 Environmental hazards</b>	Not applicable
<b>14.6 Special precautions for user</b>	No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

**SECTION 15. REGULATORY INFORMATION**

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

**Other regulations**

Registration Number: MAPP 12018

This product contains only components that have been either pre-registered, registered, are exempt from registration or are regarded as registered according to Regulation (EC) No. 1907/2006 (REACH). The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

**15.2 Chemical Safety Assessment**

For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

**SECTION 16. OTHER INFORMATION**

**Full text of H-Statements referred to under sections 2 and 3.**

H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

**Full text of R-phrases referred to under Sections 2 and 3**

R10	Flammable.
R22	Harmful if swallowed.
R36	Irritating to eyes.
R36/37/38	Irritating to eyes, respiratory system and skin.
R37	Irritating to respiratory system.
R38	Irritating to skin.
R41	Risk of serious damage to eyes.
R43	May cause sensitisation by skin contact.
R50	Very toxic to aquatic organisms.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53	May cause long-term adverse effects in the aquatic environment.
R65	Harmful: may cause lung damage if swallowed.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]**

Flam. Liq. - 3 - H226 - On basis of test data.  
Skin Irrit. - 2 - H315 - On basis of test data.  
Eye Irrit. - 2 - H319 - On basis of test data.  
Skin Sens. - 1 - H317 - On basis of test data.

Asp. Tox. - 1 - H304 - On basis of test data.  
STOT SE - 3 - H335 - Calculation method  
STOT SE - 3 - H336 - Calculation method  
Aquatic Acute - 1 - H400 - On basis of test data.  
Aquatic Chronic - 1 - H410 - Calculation method

**Revision**

Identification Number: 101202953 / A293 / Issue Date: 09.07.2014 / Version: 4.1  
DAS Code: EF-1512

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

Dow IHG	Dow Industrial Hygiene Guideline
TWA	8-hr TWA
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

**Information Source and References**

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW AGROSCIENCES LIMITED urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

## SAFETY INFORMATION

Wear suitable protective clothing (coveralls), and face protection.

When using do not eat, drink or smoke.

Wash concentrate from skin or eyes immediately.

Do not breathe spray.

Wash hands and exposed skin before meals and after work.

Keep in original container, tightly closed, in a safe place.

Do not contaminate water with the product or its container.

Do not clean application equipment near surface water.

Avoid contamination via drains from farmyards and roads.

Wash out container thoroughly, empty washings into spray tank, and dispose of safely.

Do not re-use container for any other purpose and dispose of safely.

## READ DIRECTIONS FOR USE ON ATTACHED LEAFLET.

## PROTECT FROM FROST.

### PROFESSIONAL USE ONLY



## TRIPLE RINSE CONTAINER, PUNCTURE AND INVERT AT TIME OF USE

1 litre e

**Dow** Dow AgroSciences



# Starane<sup>®</sup> 2

## HERBICIDE

An emulsifiable concentrate containing  
200 g/litre (20.6% w/w) fluroxypyr as the 1-methyl heptyl ester.

**FOR USE ONLY AS AN AGRICULTURAL HERBICIDE FOR THE CONTROL OF CERTAIN  
BROAD-LEAVED WEEDS IN WINTER AND SPRING CEREALS,  
FORAGE MAIZE AND GRASSLAND**

A selective post-emergence herbicide for use on WINTER and SPRING CEREALS, FORAGE  
MAIZE and PERMANENT GRASSLAND, ROTATIONAL GRASS to control a range of perennial  
and annual weeds.



Product Identifier according to Art. 18 of Reg. (EC) No 1272/2008 (CLP): Starane<sup>®</sup>2;  
Hydrocarbons, C8, aromatics; Hydrocarbons, C10, aromatics, <1% naphthalene.

**DANGER**  
**FLAMMABLE LIQUID AND VAPOUR.**  
**MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.**  
**CAUSES SKIN IRRITATION.**  
**MAY CAUSE AN ALLERGIC SKIN REACTION.**  
**CAUSES SERIOUS EYE IRRITATION.**  
**MAY CAUSE RESPIRATORY IRRITATION.**  
**MAY CAUSE DROWSINESS OR DIZZINESS.**  
**VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.**

Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Wear protective gloves/clothing/eye/face protection.

IF SWALLOWED: Immediately call a POISON CENTRE or doctor/physician.

IF ON SKIN: Wash with plenty of soap and water.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present  
and easy to do. Continue rinsing.

Do NOT induce vomiting.

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

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

**PCS No. 01807**

## IMPORTANT INFORMATION

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

**Crop** Wheat (winter), barley (winter), oats (winter),  
wheat (spring), barley (spring), oats (spring), rye,  
triticale, durum wheat, forage maize, permanent  
grassland (agricultural crop), rotational grass  
(agricultural crop), newly sown grass leys  
(agricultural crop).

**Maximum Individual Dose:** }

**Maximum Total Dose:** } Full details are given in the Statutory

**Latest Time of Application:** } Area on the attached leaflet

**Other Specific Restrictions:** }

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.

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