

# SAFETY PRECAUTIONS

## Operator protection:

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

WEAR SUITABLE PROTECTIVE GLOVES AND FACE PROTECTION (FACESHIELD) when handling the concentrate.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection. DO NOT BREATHE SPRAY.

WHEN USING DO NOT EAT, DRINK OR SMOKE.

WASH CONCENTRATE from skin and eyes immediately.

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

## Environmental protection:

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.

## Storage and disposal:

KEEP OUT OF REACH OF CHILDREN.

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.

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

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

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

DO NOT RE-USE CONTAINER for any purpose.



Product Registration Number: MAPP 10879

A suspension emulsion formulation containing 100 g/litre fluroxypyr methyl heptyl ester and 1.0 g/litre florasulam.

A post-emergence herbicide for use on all varieties of WINTER AND SPRING WHEAT, BARLEY AND OATS for the control of CLEAVERS and COMMON CHICKWEED.

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

READ DIRECTIONS FOR USE ON ATTACHED LEAFLET.

PROTECT FROM FROST  
SHAKE WELL BEFORE USE

5 Litres e



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Product Identifier according to Art.18 of Reg. (EC) No 1272/2008 [CLP]: Starane® Gold; Hydrocarbons, C9, aromatics

**WARNING**  
**CAUSES SKIN IRRITATION**  
**MAY CAUSE AN ALLERGIC SKIN REACTION**  
**CAUSES SERIOUS EYE IRRITATION**  
**MAY CAUSE RESPIRATORY IRRITATION**  
**MAY CAUSE DROWSINESS OR DIZZINESS**  
**TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS**

Wear protective gloves/clothing/eye/face protection.  
 IF ON SKIN: Wash with plenty of soap and water.  
 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
 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 hazardous-waste disposal contractor or collection site except for empty clean 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.**

## IMPORTANT INFORMATION

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

Crops	Maximum Individual Dose	Maximum Total Dose	Latest Time of Application
Winter wheat, winter barley	1.8 litres product per hectare	1.8 litres product per hectare per crop	Before flag leaf sheath opening stage (up to Zadoks 45 inclusive)
Winter oats	1.8 litres product per hectare	1.8 litres product per hectare per crop	Before second node detectable stage (up to Zadoks 31 inclusive)
Spring wheat, spring barley,	1.5 litres product per hectare	1.5 litres product per hectare per crop	Before flag leaf sheath extended stage (up to Zadoks 39 inclusive)
Spring oats	1.5 litres product per hectare	1.5 litres product per hectare per crop	Before second node detectable stage (up to Zadoks 31 inclusive)

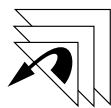
## Other Specific Restrictions:

For autumn planted crops a maximum total dose of 3.75 g of florasulam must be observed for applications made between crop emergence in the year of planting and February 1<sup>st</sup> in the year of harvest. The total amount of florasulam applied to a cereal crop must not exceed 7.5 g.

**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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## USE INSTRUCTIONS

**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

STARANE® GOLD is mainly absorbed through the foliage of weeds. The ideal timing for application is when the weeds are small and actively growing.

### NOTES

Do not spray when crops are under stress from cold, drought, pest damage, nutrient deficiency etc.

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

Take extreme care to avoid drift onto crops and non-target plants outside the target area.

### WEED SUSCEPTIBILITY AND MAXIMUM SIZE CONTROLLED

Weed	Size Controlled
Cleavers ~	Flowering
Chickweed	Flowering

~Cleavers which germinate after application will not be controlled

### CROPS

STARANE GOLD can be used on all varieties of winter and spring wheat, barley and oats.

### SOIL

STARANE GOLD may be used on all soil types.

### TIMING

#### Winter wheat, winter barley

STARANE GOLD should be applied from 3 leaves (Zadoks 13) up to before flag leaf sheath opening stage (Zadoks 45).

#### Spring wheat, spring barley

STARANE GOLD should be applied from 3 leaves (Zadoks 13) up to and including before flag leaf sheath extending stage (Zadoks 39).

#### Winter oats, spring oats

STARANE GOLD should be applied from 3 leaves (Zadoks 13) up to and including the before second node detectable stage (Zadoks 31).

### RATES OF USE

One application of up to 1.8 litres/ha in winter crops or 1.5 litres/ha in spring crops will control all susceptible emerged weeds. A split application may be applied up to a maximum total dose of 1.8 litres/ha (winter crops) or 1.5 litres/ha (spring crops) where weed germination takes place over an extended period.

### APPLICATION

STARANE GOLD may be applied through tractor-mounted hydraulic sprayers providing they are in good working order and have been calibrated according to the manufacturers' recommendations.

Do not apply through CDA applicators.

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### WATER VOLUME

Apply STARANE GOLD in 150 to 250 litres of water per hectare. The lower volume must only be used in open crops on small weeds.

### FOLLOWING CROPS

Crops that can be sown in the year of treatment with STARANE GOLD:

Cereals, oilseed rape<sup>1</sup>, vegetable brassicas as transplants, field beans, grass. <sup>1</sup>Vigour reductions may be seen in following crops of oilseed rape after a dry summer. This will be outgrown and will not result in yield loss.

Crops that can be sown the calendar year following treatment with STARANE GOLD:

Cereals, oilseed rape, field beans, carrots, vegetable brassicas as transplants, grass, linseed, peas, sugar beet, potatoes, maize, clover (for use in grass/clover mixtures).

### JOINT APPLICATION

A joint application is the use of a product in tank mixture or sequence with another product.

**IMPORTANT NOTE:** Joint applications should only be made within the label recommendations of every product in the application.

Only one other product with an ALS-inhibitor mode of action may be applied to a cereal crop treated with STARANE GOLD. However a further application of STARANE GOLD or another product containing florasulam may also be made **providing the maximum total dose of florasulam is not exceeded<sup>1</sup>**.

STARANE GOLD may be applied in joint application to the same cereal crop with one of the following ALS products:

Absolute	Galaxy <sup>1</sup>
Alias	GF-184 <sup>1</sup>
Alias SX	GF-2070
Ally Express	Harmony M SX
Ally Max SX	Harmony SX
Ally SX	Hatra
Answer SX	Hiker <sup>1</sup>
Avocet	Inka SX
Avro SX	iodosulfuron-methyl sodium (MAPP 12364, 15174, 16173)
Biplay SX	Jubilee SX
Bofix FFC <sup>1</sup>	Lancer
Broadway Star <sup>1</sup>	Lexus Class
Broadway Sunrise	Lexus Millenium
Bullion	Lexus SX
Calibre SX	Lorate
Chimera SX	mesosulfuron-methyl + iodosulfuron-methyl sodium (MAPP 12049, 12478)
Concert SX	mesosulfuron-methyl + iodosulfuron-methyl sodium + diflufenican (MAPP 12695, 16149)
Cleancrop Mondial	Mozaic SX
Dakota <sup>1</sup>	Octavian
Ductis SX	Oklar SX
Exceed SX	Oriel 50SX
Finish SX	Pennant

Pinnacle	Spitfire <sup>1</sup>
Presite SX	Spitfire Solo <sup>1</sup>
Primus 25SSC <sup>1</sup>	Staka SX
Quantum	Starane Gold <sup>1</sup>
Quantum SX	Starane Vantage <sup>1</sup>
Ratio SX	Starane XL <sup>1</sup>
Refine Max SX	Taxi
Simba SX	Thor
Slalom <sup>1</sup>	Triad

<sup>1</sup>The maximum total dose of florasulam applied to the crop must not exceed 7.5 g. For autumn planted crops a maximum total dose of 3.75 g of florasulam, must be observed for applications made between crop emergence in the year of planting and February 1<sup>st</sup> in the year of harvest.

Apart from these specific joint applications STARANE GOLD must NOT be applied with any other product containing an ALS-inhibitor, for example amidosulfuron or triasulfuron.

### CROP FAILURE

In the event of a crop failure in the spring with STARANE GOLD, only the following crops may be planted: spring wheat, spring barley, spring oats, maize or ryegrass.

### MIXING

Half fill the spray tank with water and add the required amount of STARANE GOLD. Fill up the spray tank, agitating continuously to ensure thorough mixing, and maintain agitation until spraying is complete. Use only clean water for mixing.

### SPRAY QUALITY

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

### TANK MIXTURES

Where tank mixes are used, and unless directed otherwise, the preferred order of addition of products to the spray tank is as follows: water dispersible granules, wettable powders, suspension concentrates (flowables), emulsifiable concentrates, solution concentrates. Each product should be added to the half-full sprayer and be fully dispersed before the addition of the next product.

### TANK CLEANING

To avoid subsequent injury to crops other than cereals, all spraying equipment must be thoroughly cleaned both inside and out, using All Clear Extra spray cleaner as follows:

- Immediately after spraying, drain tank completely. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
- Rinse inside of tank with clean water and flush through booms and hoses using at least one tenth of the spray tank volume. Drain tank completely.
- Half fill tank with clean water and add All Clear Extra at the recommended rate. Agitate and then briefly flush the booms and hoses with the cleaning solution. Top up with water making sure the tank is completely full and allow to stand for 15 minutes with agitation. Flush the booms and hoses and drain tank completely.
- Nozzles and filters should be removed and cleaned separately with All Clear Extra solution containing 50 ml of All Clear Extra per 10 litres of water.
- Rinse the tank with clean water and flush through the booms and hoses using at least one tenth of the spray tank volume. Drain tank completely.
- For disposal of washings, follow Code of Practice for Using Plant Protection Products. Do not spray onto sensitive crop or land intended for cropping with sensitive crop.

**Note:** If it is not possible to drain the tank completely, step 3 must be repeated before going onto step 4.

**TRADEMARK ACKNOWLEDGEMENTS**

STARANE, Broadway, Galaxy, Hiker, Hunter, Slalom, Spitfire, Sunrise and Vantage are trademarks of Dow AgroSciences LLC. All other brand names are trademarks of other manufacturers for 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® Gold 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 :**

Skin corrosion/irritation - Category 2 - H315

Serious eye damage/eye irritation - Category 2 - H319

Skin sensitisation - Category 1 - H317

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

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

Chronic aquatic toxicity - Category 2 - H411

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:**

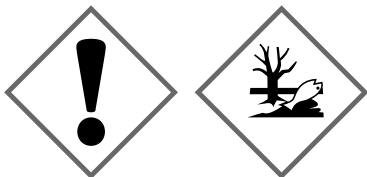
Irritant - R36/37/38

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: WARNING****Hazard statements**

H315 Causes skin irritation.  
 H319 Causes serious eye irritation.  
 H317 May cause an allergic skin reaction.  
 H335 May cause respiratory irritation.  
 H336 May cause drowsiness or dizziness.  
 H411 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**

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
 P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
 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.

**Contains**

Hydrocarbons, C9, aromatics

**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	-	14.6%	fluroxypyr-meptyl (ISO)	Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410
CASRN 145701-23-1 EC-No. Not available Index-No. 613-230-00-7	-	0.1%	Florasulam (ISO)	Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410
CASRN Not available EC-No. 918-668-5 Index-No. -	01-2119455851- 35	> 30.0 - < 40.0 %	Hydrocarbons, C9, aromatics	Flam. Liq. - 3 - H226 STOT SE - 3 - H336 STOT SE - 3 - H335 Asp. Tox. - 1 - H304 Aquatic Chronic - 2 - H411

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 57-55-6 EC-No. 200-338-0 Index-No. —	01-2119456809-23	< 5.0 %	Propylene glycol	Not classified

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	14.6%	fluroxypyr-meptyl (ISO)	N - R50 - R53
CASRN 145701-23-1 EC-No. Not available Index-No. 613-230-00-7	0.1%	Florasulam (ISO)	N - R50 - R53
CASRN Not available EC-No. 918-668-5 Index-No. —	> 30.0 - < 40.0 %	Hydrocarbons, C9, aromatics	R10 Xn - R65 Xi - R37 R66 R67 N - R51/53
CASRN 57-55-6 EC-No. 200-338-0 Index-No. —	< 5.0 %	Propylene glycol	Not classified

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 centre or doctor for treatment advice. If breathing is difficult, oxygen should be administered by qualified personnel.

**Skin contact:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control centre or doctor for treatment advice. Suitable emergency safety shower facility should be available in work area.

**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:** No emergency medical treatment necessary.

**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. 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 centre or doctor, or going for treatment.

## SECTION 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

**Suitable extinguishing media:** To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. 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.

**Unusual Fire and Explosion Hazards:** This material will not burn until the water has evaporated. Residue can burn.

## 5.3 Advice for firefighters

**Fire Fighting Procedures:** Keep people away. Isolate fire and deny unnecessary entry. Burning liquids may be extinguished by dilution with water. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. 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:** No smoking in area. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep upwind of spill. Ventilate area of leak or spill. 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. 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. Use with adequate ventilation. Wash thoroughly after handling. Keep container closed. 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. 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.

**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
fluroxypyr-meptyl (ISO)	Dow IHG	TWA	10 mg/m3
Florasulam (ISO)	GB EH40		
Propylene glycol	US WEEL	TWA	10 mg/m3
	GB EH40	TWA	474 mg/m3 150 ppm
	GB EH40	TWA	10 mg/m3

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. If exposure causes eye discomfort, use a full-face respirator.

### 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 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 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. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. Use the following CE approved air-purifying respirator: Organic vapour 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  
Colour

Suspension  
Off-white

#### Odour

Characteristic

#### Odour Threshold

No test data available

#### pH

6.2 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** 63 °C *Pensky-Martens Closed Cup ASTM D 93*

#### 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)

0.991 at 20 °C / 4 °C *Pyknometer*

#### Water solubility

emulsifiable

#### Partition coefficient: n-octanol/water

no data available

#### Auto-ignition temperature

> 400 °C at 1,006 mbar *92/69/EEC A15* none below 400 degC

#### Decomposition temperature

No test data available

#### Kinematic Viscosity

no data available

#### Explosive properties

No *EEC A14*

#### Oxidizing properties

No

### 9.2 Other information

#### Molecular weight

no data available

#### Surface tension

36.5 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:** Stable under recommended storage conditions. See Storage, Section 7.

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

**10.4 Conditions to avoid:** Active ingredient decomposes at elevated temperatures.

**10.5 Incompatible materials:** Avoid contact with: Acids. Strong oxidizers.

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

## 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

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):

LD50, rat, female, > 5,000 mg/kg Estimated.

Based on information for component(s):

LD50, rat, male, > 2,000 mg/kg

##### Acute dermal toxicity

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

As product: The dermal LD50 has not been determined.

Based on information for component(s):

LD50, > 5,000 mg/kg Estimated.

##### Acute inhalation toxicity

Vapor concentrations are attainable which could be hazardous on single exposure. May cause respiratory irritation and central nervous system depression. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

As product: The LC50 has not been determined.

#### Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

May cause drying and flaking of the skin.

#### Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight corneal injury.

Vapour may cause eye irritation experienced as mild discomfort and redness.

#### Sensitization

For the active ingredient(s):

Has demonstrated the potential for contact allergy in mice.

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

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

#### 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.

Contains component(s) which have been reported to cause effects on the following organs in animals:

Blood.

Eye.

Kidney.

Liver.

Respiratory tract.

Lung.

In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

#### Carcinogenicity

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

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

#### 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.

Based on information for component(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

In animal studies, active ingredient did not interfere with reproduction.

Based on information for component(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

#### Mutagenicity

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

#### Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.



## COMPONENTS INFLUENCING TOXICOLOGY:

### fluroxypyr-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.

### Florasulam (ISO)

#### **Acute inhalation toxicity**

No adverse effects are anticipated from single exposure to dust. Based on the available data, respiratory irritation was not observed.

LC50, rat, 4 Hour, Aerosol, > 5.0 mg/l

### 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

### Propylene glycol

#### **Acute inhalation toxicity**

Mist may cause irritation of upper respiratory tract (nose and throat). LC50, rabbit, 2 Hour, Aerosol, 317.042 mg/l No deaths occurred at this 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**

Based on information for component(s):

LC50, Rainbow trout (*Oncorhynchus mykiss*), 96 Hour, 13.5 mg/l

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

#### **Acute toxicity to aquatic invertebrates**

Based on information for component(s):

EC50, water flea *Daphnia magna*, 48 Hour, 31.7 mg/l

#### **Acute toxicity to algae/aquatic plants**

ErC50, Lemna minor (duckweed), 14 d, Biomass, > 2.248 mg/l

ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, 24.8 mg/l

#### **Toxicity to Above Ground Organisms**

For the active ingredient(s):

oral LD50, *Colinus virginianus* (Bobwhite quail), > 2,000 mg/kg

For the active ingredient(s):

oral LD50, *Apis mellifera* (bees), 48 Hour, 359micrograms/bee

For the active ingredient(s):

contact LD50, *Apis mellifera* (bees), 48 Hour, 959micrograms/bee

#### **Toxicity to soil-dwelling organisms**

LC50, *Eisenia fetida* (earthworms), 14 d, 608 mg/kg

### **12.2 Persistence and degradability**

#### fluroxypyr-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

#### Florasulam (ISO)

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Fail

**Biodegradation:** 2 %

**Exposure time:** 28 d

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

**Theoretical Oxygen Demand:** 0.85 mg/mg

## Biological oxygen demand (BOD)

Incubation Time	BOD
	0.012 mg/mg

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

, > 30 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.

## Propylene glycol

**Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen).

10-day Window: Pass

**Biodegradation:** 81 %

**Exposure time:** 28 d

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

10-day Window: Not applicable

**Biodegradation:** 96 %

**Exposure time:** 64 d

**Method:** OECD Test Guideline 306 or Equivalent

## 12.3 Bioaccumulative potential

**Bioaccumulation:** No data available.

## 12.4 Mobility in soil

### fluroxypyr-meptyl (ISO)

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

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

### Florasulam (ISO)

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient(Koc):** 4 - 54

## Hydrocarbons, C9, aromatics

No relevant data found.

## Propylene glycol

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Potential for mobility in soil is very high (Koc between 0 and 50).

**Partition coefficient(Koc):** < 1 Estimated.

## 12.5 Results of PBT and vPvB assessment

### fluroxypyr-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).

### Florasulam (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).

## Propylene glycol

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).

## 12.6 Other adverse effects

### fluroxypyr-meptyl (ISO)

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

### Florasulam (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.

## Propylene glycol

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 3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Fluroxypyr, Florasulam)
14.3 Class	9
14.4 Packing group	III
14.5 Environmental hazards	Fluroxypyr, Florasulam
14.6 Special precautions for user	Hazard identification No: 90

### Classification for SEA transport (IMO-IMDG):

14.1 UN number	UN 3082
14.2 Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Fluroxypyr, Florasulam)
14.3 Class	9
14.4 Packing group	III
14.5 Environmental hazards	Fluroxypyr, Florasulam
14.6 Special precautions for user	EmS: F-A, S-F
14.7 Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

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

14.1 UN number	UN 3082
14.2 Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Fluroxypyr, Florasulam)
14.3 Class	9

14.4 Packing group	III
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	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

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.

**Product Registration Number:** MAPP 10879

### 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.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
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.
R36/37/38	Irritating to eyes, respiratory system and skin.
R37	Irritating to respiratory system.
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]**

2 - H315 - On basis of test data.

2 - H319 - On basis of test data.

Skin Sens. - 1 - H317 - On basis of test data.

STOT SE - 3 - H335 - Calculation method

STOT RE - 3 - H336 - Calculation method

Aquatic Chronic - 2 - H411 - Calculation method

**Revision**

Identification Number: 101194172 / A293 / Issue Date: 01.08.2014 / Version: 6.2

DAS Code: GF-185

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
GB EH40	UK. EH40 WEL - Workplace Exposure Limits
TWA	Long-term exposure limit (8-hour TWA reference period)
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 PRECAUTIONS

## Operator protection:

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

WEAR SUITABLE PROTECTIVE GLOVES AND FACE PROTECTION (FACESHIELD) when handling the concentrate.

However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection. DO NOT BREATHE SPRAY.

WHEN USING DO NOT EAT, DRINK OR SMOKE.

WASH CONCENTRATE from skin and eyes immediately.

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

## Environmental protection:

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.

## Storage and disposal:

KEEP OUT OF REACH OF CHILDREN.

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.

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

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

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

DO NOT RE-USE CONTAINER for any purpose.



Product Registration Number: MAPP 10879

A suspension emulsion formulation containing 100 g/litre fluroxypyr methyl heptyl ester and 1.0 g/litre florasulam.

A post-emergence herbicide for use on all varieties of WINTER AND SPRING WHEAT, BARLEY AND OATS for the control of CLEAVERS and COMMON CHICKWEED.

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

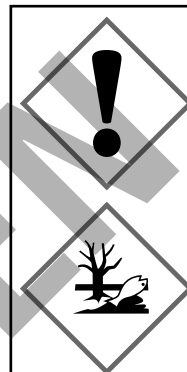
**READ DIRECTIONS FOR USE ON ATTACHED LEAFLET.**

**PROTECT FROM FROST  
SHAKE WELL BEFORE USE**

**5 Litres e**



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Product Identifier according to Art.18 of Reg. (EC) No 1272/2008 (CLP): Starane® Gold; Hydrocarbons, C9, aromatics  
**WARNING**  
**CAUSES SKIN IRRITATION**  
**MAY CAUSE AN ALLERGIC SKIN REACTION**  
**CAUSES SERIOUS EYE IRRITATION**  
**MAY CAUSE RESPIRATORY IRRITATION**  
**MAY CAUSE DROWSINESS OR DIZZINESS EFFECTS**  
**TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS**  
Wear protective gloves/clothing/eye/face protection.  
IF ON SKIN: Wash with plenty of soap and water.  
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
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 hazardous-waste disposal contractor or collection site except for empty clean 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.**

## IMPORTANT INFORMATION

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

Crops	Maximum Individual Dose	Maximum Total Dose	Latest Time of Application
Winter wheat, winter barley	1.8 litres product per hectare	1.8 litres product per hectare per crop	Before flag leaf sheath opening stage (up to Zadoks 45 inclusive)
Winter oats	1.8 litres product per hectare	1.8 litres product per hectare per crop	Before second node detectable stage (up to Zadoks 31 inclusive)
Spring wheat, spring barley,	1.5 litres product per hectare	1.5 litres product per hectare per crop	Before flag leaf sheath extended stage (up to Zadoks 39 inclusive)
Spring oats	1.5 litres product per hectare	1.5 litres product per hectare per crop	Before second node detectable stage (up to Zadoks 31 inclusive)

## Other Specific Restrictions:

For autumn planted crops a maximum total dose of 3.75 g of florasulam must be observed for applications made between crop emergence in the year of planting and February 1<sup>st</sup> in the year of harvest. The total amount of florasulam applied to a cereal crop must not exceed 7.5 g.

**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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