

ADAMA  
ESSENTIALS

# Tomahawk® 2

MAPP 17468 PCS 05043  
fluroxypyr acid equivalent 200 g/l

A post-emergence herbicide for annual and perennial weed control in maize, barley, wheat, durum wheat, established grassland, oats, rye, seedling leys and triticale.

An emulsifiable concentrate formulation containing 200 g/l (20.4% w/w) fluroxypyr acid equivalent.



OPEN HERE ▲



## SAFETY INFORMATION



### Danger

May be fatal if swallowed and enters airways.

Causes serious eye damage.

May cause drowsiness or dizziness.

Toxic to aquatic life with long lasting effects.

Repeated exposure may cause skin dryness or cracking.

Keep out of reach of children. Avoid breathing vapours or spray.

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

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

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTRE or doctor/ physician if you feel unwell.

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. Use only outdoors or in a well-ventilated area.

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

To protect aquatic organisms respect an unsprayed buffer zone of 5m to surface water bodies.

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

MAPP 17468 PCS 05043

510009247 - 0220

5 Litres e

**IMPORTANT INFORMATION  
FOR PROFESSIONAL USE ONLY AS AN AGRICULTURAL HERBICIDE**

Crops	Maximum Individual Dose (L product/ha)	Maximum Total Dose (L product/ha)	Latest time of application
Winter wheat, winter barley	2.0	2.0	Before flag leaf sheath opening stage (GS 47)
Winter oats, rye, triticale, durum wheat	1.0	1.0	Before 2nd node detectable stage (GS 32)
Spring wheat, spring barley	0.75	0.75	Before flag leaf sheath opening stage (GS 47)
Spring oats	0.75	0.75	Before 2nd node detectable stage (GS 32)
Forage maize	1.0	1.0	Before 7 leaves unfolded stage (GS 17)
Grassland	2.0	2.0/year	-
Permanent grassland, rotational grass	2.0	2.0/year	-
Newly sown leys	0.75	0.75/year	-

**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 1st February in the year of harvest.

The container must not be re-used for any other purpose.

Livestock must be kept out of treated areas for at least 7 days following treatment. If ragwort is present, follow the guidance in the 'Directions for Use'.

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

**SAFETY PRECAUTIONS**

**Operator Protection**

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

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

WEAR SUITABLE PROTECTIVE GLOVES when applying by hand-held equipment.

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

WASH CONCENTRATE from skin or eyes immediately.

IN CASE OF CONTACT WITH EYES, rinse immediately with plenty of water and seek medical advice.

DO NOT BREATHE SPRAY.

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

WHEN USING, DO NOT EAT, DRINK OR SMOKE.

IN CASE OF ACCIDENT OR IF YOU FEEL UNWELL, seek medical advice immediately (show the label where possible).

## Environmental Protection

Livestock must be kept out of treated areas for at least 7 days following treatment. If RAGWORT IS PRESENT, FOLLOW THE GUIDANCE IN THE 'DIRECTIONS FOR USE'.

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.

Avoid spray drift onto non-target plants.

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

UK only: To protect aquatic organisms respect an unsprayed buffer zone to surface water bodies in line with LERAP requirements.

UK only: DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5 metres of the top of the bank of a static or flowing water body, unless a Local Environment Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone (UK only), or within 1 metre of the top of a ditch which is dry at the time of application. Aim spray away from water.

UK only: This product qualifies for inclusion within the Local Environmental Risk Assessment for Pesticides (LERAP) scheme. Before each spraying operation from a horizontal boom sprayer, either a LERAP must be carried out in accordance with HSE's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for three years.

Ireland only: To protect aquatic organisms respect an unsprayed buffer zone of 5m to surface water bodies.

## Storage and Disposal

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

WASH OUT CONTAINER THOROUGHLY, empty washing into spray tank and dispose of safely.

DO NOT RE-USE CONTAINER FOR ANY PURPOSES.

Keep away from food, drink and animal feeding stuffs.

Keep out of reach of children.

## 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.

TOMAHAWK® 2 is a post-emergence auxin/xyalkanoic acid herbicide for the control of annual dicotyledonous weeds and perennial weeds in maize, wheat, barley, durum wheat, established grassland, oats, rye, seedling leys and triticale.

The best results are achieved when the weeds are actively growing when uptake of TOMAHAWK 2 will be at the optimum. TOMAHAWK 2 acts by uptake from the leaves, and from there is readily translocated to other parts of the plant, inducing auxin-type characteristics e.g. leaf curling.

## RESTRICTIONS

Do not use on crops undersown with clovers or other legumes.

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

Do not treat crops suffering stress caused by any factor, e.g. frost, drought etc.

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

Avoid drift onto non-target crops.

Where ragwort is present users should consult the Code of Practice on How to Prevent the Spread of Ragwort. Ragwort plants sprayed with this herbicide are more palatable with higher levels of toxins. Animals should be excluded from treated areas until any ragwort has completely recovered or died and there is no visual sign of the dead weed. Do not include treated ragwort in hay or silage crops.

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

Wash equipment thoroughly with water and detergent immediately after use. Traces of TOMAHAWK 2 can cause harm to susceptible crops sprayed later.

† **Cautions to be followed where 2.0 L/ha of TOMAHAWK 2 is applied to winter wheat and winter barley.**

1. Do not tank-mix with other pesticides.
2. Avoid overlapping spray bouts.
3. Straw from cereals sprayed with 2.0 L/ha of TOMAHAWK 2 should not be incorporated into the soil. Treated straw should only be used for animal bedding. Manure from animal bedding should only be used where cereals or grassland is to be grown.
4. Do not follow treated crops with winter sown beans or other legumes.
5. Do not drill any legumes, including peas, in the spring following a treated crop.

**RESISTANCE**

TOMAHAWK 2 contains fluroxypyr which belongs to the synthetic auxin family (Group O - HRAC classification). There is no known resistance or cross-resistance issues with fluroxypyr and the risk of resistance developing is unlikely. As part of a resistance management strategy avoid repeated application and use products with different modes of action.

**WEED CONTROL**

For weed control details please look under the 'Crop Specific Information' section.

**CROP SPECIFIC INFORMATION (including weed control)**  
**Cereals**

Crop	Timing of Application	Rate of use L/ha	Weeds controlled at weed sizes shown
<b>Winter Cereals</b>			
<b>Spring application to winter wheat and winter barley</b>	From the 2 <sup>nd</sup> leaf stage of the crop to before flag sheath opening stage (up to and including Zadoks GS 45)	1.0	<u>up to flowering:</u> Cleavers Common chickweed Common hemp-nettle Field forget-me-not <u>up to 6 true leaves:</u> Black-bindweed <u>up to 4 true leaves:</u> Red dead-nettle Henbit dead-nettle <u>up to 2 true leaves:</u> Knotgrass Common fumitory <u>Checked up to 2 true leaves:</u> Redshank Groundsel Mayweed spp Common field speedwell Ivy-leaved speedwell Pale persicaria
<b>Spring application to winter oats, triticale, rye and durum wheat</b>	From the 1 <sup>st</sup> leaf stage of the crop to before 2 <sup>nd</sup> node detectable stage (up to and including Zadoks GS 31)		
<b>Spring application to winter wheat and winter barley</b>	From 3 <sup>rd</sup> node detectable to the flag leaf ligule visible (Zadoks GS 39)	2.0	Volunteer potato shoots. Spray when there is adequate foliage i.e. when shoots are between 10 and 40cm high. Complete control of top growth will not be achieved but a good degree of stunting can be expected. Best results will be obtained with late timings and high water volumes. See cautions †

Crop	Timing of Application	Rate of use L/ha	Weeds controlled at weed sizes shown
<b>Spring Cereals - spring application</b>			
<b>Spring wheat and spring barley</b>	From 2 leaf stage of the crop but before flag sheath extending stage (up to and including Zadoks GS 39).	0.75	<u>up to 100mm:</u> Cleavers Common chickweed Common hemp-nettle
<b>Spring oats</b>	From the 2 leaf stage of the crop but before 2nd node detectable stage (up to and including Zadoks GS 31)		<u>up to 50mm:</u> Field forget-me-not <u>up to 4 true leaves stage:</u> Black-bindweed <u>up to 2 true leaves stage:</u> Common fumitory Knotgrass Corn spurrey checked up to 2 true leaves stage: Mayweed spp Pale persicaria Speedwell spp Groundsel Redshank

Volume of water: For cereals apply in 200-400 litres of water per hectare.

#### Forage maize

Apply before the crop reaches 7 leaves unfolded stage and over 20cm. Optimum timing is between the 3-6 leaf stage. Do not apply once the buttress roots (side roots) have started to develop on the first node.

Rate of use: Apply TOMAHAWK 2 at 1.0 L/ha in 200-300 L/ha water.

#### Weed Control

Black nightshade will be controlled from cotyledons up to 1 true leaves stage.

#### Grassland

TOMAHAWK 2 can be applied to established grassland or newly sown spring leys when grasses have at least 3 fully expanded leaves. Application should be made in the spring. It is important to ensure that weeds are actively growing at the time of application.

Rate of use on established grassland: Apply TOMAHAWK 2 at 2.0 L/ha in 200-400 L/ha water, using the higher volume in dense vegetation.

Rate of use on newly sown leys: Apply TOMAHAWK 2 at 0.75 L/ha in 200-400 L/ha water, using the higher volume in dense vegetation.

#### Weed control

Newly sown leys at 0.75 L/ha, weed size 50mm: Common chickweed

Established grassland, 2.0 L/ha: Common nettle - spray before flowering - a reduction in top growth only can be expected.

Dandelion - spray before flowering.

Curled and broad-leaved docks - spray in the spring when docks are 15-20cm high at the rosette stage.

Large established docks may require a follow up treatment in the following season. If the grass has been cut for hay or silage or grazed over winter, leave for 2-3 weeks to allow sufficient re-growth to occur before spraying.

## **MIXING AND SPRAYING**

For use by tractor mounted/trailed sprayer only.

Before spraying it is important to check all hoses, filters and nozzles, and to ensure that the sprayer is clean and correctly set to give an even application at the correct volume.

Half-fill the sprayer tank with water, add the required quantity of TOMAHAWK 2. Top up the sprayer tank with water to the required level. The spray mix must be used immediately and agitated continuously during mixing and until application is complete.

SHAKE WELL BEFORE USING.

On emptying the container 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 container safely.

### **Volume of water**

Refer to individual crop sections for water volumes. Use the higher water volumes on dense crops.

### **Spray quality**

Apply TOMAHAWK 2 as a MEDIUM quality spray (BCPC definition).

### **Crop failure**

In the event of a cereal crop failure the following crops can be sown: spring cereals, spring oilseed rape, maize and new leys. A minimum interval of 5 weeks is required and there are no cultivation restrictions.

### **Rotational crops**

All crops can be sown following an application of TOMAHAWK 2.

### **DISCLAIMER/CONDITIONS OF SUPPLY**

The specified properties of our products and the mode of application stated on this label have been established on the basis of research and experience. Products conform to specification at the time of delivery but, as we exercise no control over their subsequent storage, handling, mixing or use or the weather conditions before, during and after application, all of which may affect the performance of the products, no responsibility or liability will be accepted by us or our resellers for any failure in performance, damage or injury to person or property whatsoever arising from the storage, handling, application or use of the products. These conditions cannot be varied by our staff or agents whether or not they supervise or assist in or make recommendations concerning the use of such products. We recommend you contact your dealer to request advice on the suitability of this product for any new and/or unusual growing methods or for new varieties not listed on this label.

### **Marketed by**

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## SAFETY DATA SHEET

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

#### 1.1. Product identifier

Synonyms: Fluoroxypyr 200 EC  
Pure substance/mixture: Mixture

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

Recommended Use: Herbicide  
Uses advised against: No information available

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

Supplier Address  
ADAMA Agricultural Solutions UK Ltd  
Third Floor East, 1410 Arlington Business Park,  
Theale, Reading, RG7 4SA  
UK : 01635 860555 - Fax: 01635 861555

For further information, please contact  
Email address: ukenquiries@adamacom

#### 1.4. Emergency telephone number

Emergency Telephone  
National Chemical  
Emergency Centre (UK): 01865 07353 (24hr)

### 2. HAZARD IDENTIFICATION

#### 2.1 Classification of the substance or mixture Classification according to Regulation (EC) No. 1272/2008 [CLP]

Aspiration  
hazard Category 1: H304  
Skin corrosion/  
irritation Category 2: H315  
Serious eye damage/  
eye irritation Category 2: H319  
Skin sensitization  
Category 1: H317  
Specific target  
organ toxicity single  
exposure Category 3: H335  
H336  
Acute aquatic  
toxicity Category 1: H400

Hazardous to the  
Aquatic Environment -  
Chronic Hazard Category 1: H410

Flammable  
liquids Category 3: H226

#### Classification according to Directive 67/548/EEC or 1999/45/EC

Full text of R-phrases: see section 16  
R10 - Xi; R36/37/38 - R43 - Xn; R65 - R67 - N; R51/53

#### 2.2. Label elements Labeling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictogram:



Signal word: Danger  
Hazard Statements: 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  
H410 - Very toxic to aquatic life with long lasting effects  
H226 - Flammable liquid and vapor  
Precautionary Statements: P210 - Keep away from heat/ sparks/ open flames/ hot surfaces. — No smoking  
P280 - Wear protective gloves and eye/face protection

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER 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

EU Specific Hazard Statements:

Additional phrases for PPP

P501 - Dispose of contents/ container to an approved waste disposal plant

EUH401 - To avoid risks to human health and the environment, comply with the instructions for use

SP1 - Do not contaminate water with the product or its container

**2.3. Other Hazards**

No information available

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**3.2 Mixture**

Chemical Name	Weight-%	CAS No	EC No	Index No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Classification according to 67/548/EEC	M-Factor	REACH Registration Number
Fluroxypyr-meptyl	29.7	31463-3-3	279-752-9	607-272-00-5	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	N; R50-53		-
Hydrocarbons, C9, aromatics	>60 - <70	N/A	918-668-5	-	Flam. Liq. 3 (H226) Asp. Tox. 1 (H304) STOT SE 3 (H335) STOT SE 3 (H336) (EUH066) Aquatic Chronic 2 (H411)	F; R10 Xn; R65 Xi; R37 R67 R66 N; R51/53		-
Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	< 5	68953-96-8	273-234-6	-	-	-		-



Chemical Name	Weight-%	CAS No	EC No	Index No	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Classification according to 67/548/EEC	M-Factor	REACH Registration Number
Hexan-1-ol	< 5	111-27-3	203-852-3	603-059-00-6	Acute Tox. 4 (H302)	Xn; R22		-
Hydrocarbons, C10, aromatics, <1% naphthalene	< 1	N/A	918-811-1	-	Asp. Tox. 1 (H304) STOT SE 3 (H336) Aquatic Chronic 2 (H411) (EUH066)	Xn;R65, R66, R67, N;R51/53		01-21194635 83-34

Full text of R-phrases: see section 16

Full text of H- and EUH-phrases: see section 16

#### 4. FIRST AID MEASURES

##### 4.1. Description of first aid measures

General advice:

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). First aider: Pay attention to self-protection!

Ingestion:

Keep eye wide open while rinsing. If symptoms persist, call a physician.

Do NOT induce vomiting. Rinse mouth. Drink plenty of water. Immediate medical attention is required. Never give anything by mouth to an unconscious person.

Inhalation:

Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Call a physician.

Self-protection of the first aider:

Use personal protective equipment as

Skin Contact:

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Consult a physician if necessary.

required.

##### 4.2. Most important symptoms and effects, both acute and delayed

Symptoms See also section 11

##### 4.3. Indication of any immediate medical attention and special treatment needed

Note to physicians:

Treat symptomatically.

Eye contact:

Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes.

## **5. FIRE-FIGHTING MEASURES**

### **5.1. Extinguishing media**

Suitable

Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable

Extinguishing Media: No information available.

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

No specific hazard known.

### **5.3. Advice for firefighters**

In the event of fire, wear self-contained breathing apparatus

In the event of fire and/or explosion do not breathe fumes

## **6. ACCIDENTAL RELEASE MEASURES**

### **6.1. Personal precautions, protective equipment and emergency procedures**

Personal precautions: Remove all sources of ignition. Evaluate personnel to safe areas. Use only with adequate ventilation. Use personal

protective equipment

as required. Keep people away from and upwind of spill/leak.

For emergency responders:

Use personal protection recommended in Section 8.

### **6.2. Environmental precautions**

Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system.

### **6.3. Methods and material for containment and cleaning up**

Methods for cleaning up:

Take up mechanically, placing in appropriate containers for disposal.

### **6.4. Reference to other sections**

Other Information: See also section 8,13

## **Section 7: HANDLING AND STORAGE**

### **7.1. Precautions for safe handling**

Advice on safe handling: Use only with adequate ventilation. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Take precautionary measures against static discharges. Use spark-proof tools and explosion-proof equipment. All equipment used when handling the product must be grounded. Use with local exhaust ventilation. Use personal protective equipment as required. Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.

General Hygiene Considerations:

When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended.

## 7.2. Conditions for safe storage, including any incompatibilities

Storage Conditions: Keep tightly closed in a dry and cool place. Keep in properly labeled containers. Keep containers tightly closed in a cool, well-ventilated place.

## 7.3. Specific end use(s)

Risk Management  
Methods (RMM):

The information required is contained in this Material Safety Data Sheet.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

Chemical Name	European Union	United Kingdom	France	Spain	Germany
Hexan-1-ol 111-27-3					TWA: 50 ppm TWA: 210 mg/m <sup>3</sup>

Derived No Effect Level (DNEL): No information available.

Predicted No Effect Concentration (PNEC): No information available.

### 8.2. Exposure controls

#### Engineering Controls:

Ensure adequate ventilation, especially in confined areas.

#### Personal protective equipment:

##### Eye/face protection:

Tight sealing safety goggles.

##### Body Protection:

Antistatic footwear, Wear fire/ flame resistant/retardant clothing, Gloves made of plastic or rubber, Suitable protective clothing, Apron.

#### General Hygiene Considerations:

When using do not eat, drink or smoke. Regular cleaning of equipment, work area and clothing is recommended.

#### Environmental exposure controls:

Do not allow into any sewer, on the ground or into any body of water.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Values	Method	Remarks
<b>Appearance</b>			
Physical state	Liquid		
Color	brown		
Odor	Aromatic		
Odor threshold	No data available		
pH	5.3	CIPAC MT 75.2	solution (1 %)
Melting point/freezing point °C	----		Not Applicable

Property	Values	Method	Remarks
Boiling point/boiling range °C	----		No data available
Flash point °C	55	CIPAC MT 12	CC (closed cup)
Evaporation rate	Not Applicable		
Flammability (solid, gas)	Not Applicable		
Upper/lower flammability or explosive limits	No data available		
Vapor pressure kPa	----		Not Applicable
Vapor density	No data available		
Relative density	0.9698		20 °C
Solubility(ies) mg/l	----		
Partition Coefficient (n-octanol/water) Log Pow			See Section 12 for more information
Autoignition temperature °C	442	EEC A.15	
Decomposition temperature °C	----		
Kinematic viscosity mm <sup>2</sup> /s 40 °C	2.96	ASTM D455	20 °C
Explosive properties	Not an explosive	EEC A.14	
Oxidizing properties	No data available		

## 9.2. Other information

Property	Values	Method	Remarks
Bulk density g/ml			
Surface tension mN/m	27	EEC A.5	25 °C
Minimum ignition energy (MIE) mJ			

## 10. STABILITY AND REACTIVITY

### 10.1. Reactivity

Not available.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

#### Hazardous polymerization

Hazardous polymerization does not occur.  
None under normal processing.

#### 10.4. Conditions to avoid

Heat, flames and sparks. Extremes of temperature and direct sunlight.

#### 10.5. Incompatible materials

Incompatible with strong acids and bases

#### 10.6. Hazardous decomposition products

None under normal use conditions.

## 11. TOXICOLOGY INFORMATION

### 11.1. Information on toxicological effects

Acute toxicity	Values	Species	Method	Remarks
Oral LD50 mg/kg	> 2000-3500	Rat		male
Dermal LD50 mg/kg	> 5000	Rat		
Inhalation LC50 mg/l/4h	----			No data available
Skin corrosion/ irritation	Severe skin irritation			
Serious eye damage/eye irritation	Moderately irritating to the eyes			
Respiratory/skin sensitization	Skin sensitizer	Guinea pig		

### Chronic toxicity

#### Germ cell mutagenicity

Chemical Name Fluroxypyr-meptyl:	Not classified	STOT - single exposure Chemical Name Fluroxypyr-meptyl:	Not available
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#### Carcinogenicity

Chemical Name Fluroxypyr-meptyl:	Not Carcinogenic	STOT - repeated exposure Chemical Name Fluroxypyr-meptyl:	Not available
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#### Reproductive toxicity

Chemical Name Fluroxypyr-meptyl:	Not toxic for the reproductive system	Aspiration hazard Chemical Name Fluroxypyr-meptyl:	Not available
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## 12. ECOLOGICAL INFORMATION

### 12.1. Toxicity

#### Aquatic toxicity

Acute toxicity	Values	Species	Method	Remarks
Fish 96-hour LC50 mg/l	8.5	Rainbow trout	OECD 203	
Crustacea 48-hour EC50 mg/l	6.2	Daphnia magna	OECD 202	
Algae 72-hour EC50 mg/l	> 40, 0.684	P. subcapitata Navicula sp.	OECD 201	
Other plants EC50 mg/l	----			No data available

Terrestrial Toxicity  
 Birds Oral LD50 mg/kg  
 Chemical Name  
 Fluroxy pyr-meptyl: > 2000  
 Bobwhite quail

Bees Oral LD50 µg/bee  
 Chemical Name  
 Fluroxy pyr-meptyl: > 100

**12.2. Persistence and degradability**  
**Abiotic Degradation**

Water DT50 days  
 Chemical Name  
 Fluroxy pyr-meptyl: 38.1

Soil DT50 days  
 Chemical Name  
 Fluroxy pyr-meptyl: 1

Biodegradation  
 Chemical Name  
 Fluroxy pyr-meptyl: No data available

**12.3. Bioaccumulative potential**  
**Partition Coefficient**

(n-octanol/water) Log Pow  
 Chemical Name  
 Fluroxy pyr-meptyl : 5.04  
 pH 7

Bioconcentration factor (BCF)  
 Chemical Name  
 Fluroxy pyr-meptyl : 26

**12.4. Mobility in soil**  
Adsorption/Desorption  
 Chemical Name  
 Fluroxy pyr-meptyl : 19550  
 Koc

**12.5. Results of PBT and vPvB assessment**

The components in this formulation do not meet the criteria for classification as PBT or vPvB

**12.6. Other adverse effects**

No information available.

**13. DISPOSAL CONSIDERATIONS**

**13.1. Waste treatment methods**

Waste from residues/unused products: Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated packaging: Improper disposal or reuse of this container may be dangerous and illegal.

Other information: Waste codes should be assigned by the user based on the application for which the product was used.

**14. TRANSPORTATION INFORMATION**

RID/ ADR	II.DG/ IMO	ICAO/ IATA
<b>14.1. UN/ID No</b>		
1993	1993	1993
<b>14.2. UN proper shipping name</b>		
FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics)	FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics)	FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics)
<b>14.3. Transport hazard class(es)</b>		
3	3	3
<b>14.4. Packing group</b>		
III	III	III
<b>14.5. Environmental hazards</b>		
Dangerous for the environment : Yes	Dangerous for the environment : Yes	Dangerous for the environment : Yes

#### 14.6 Special precautions for user

#### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not Applicable



#### 15. REGULATORY INFORMATION

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

##### 15.2. Chemical safety assessment

A chemical safety assessment according to regulation (EC) No. 1907/2006 is not required. A risk assessment was performed according to directive (EC) No. 91/414 or according to regulation (EC) No. 1107/2009.

#### 16. OTHER INFORMATION

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

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

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

H226	Flammable liquid and vapor
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	Toxic to aquatic life with long lasting effects
H410	Very toxic to aquatic life with long lasting effects

Revision Note:

Change from previous version.

Further information: Fluroxypyr-meptyl (ISO), Dow IHG, TWA: 10 mg/m<sup>3</sup>

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

##### Disclaimer

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet