ADAMA
ESSENTIALS

Tomahawk®

MAPP 09249

fluroxypyr as the methyl heptyl ester 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 containing 200 g/l (20.4% w/w) fluroxypyr as the methyl heptyl ester.
Also contains solvent naptha.

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 and 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 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.

FRS1564A09 R3.2.2DEC14

5 litres e

This leaflet/booklet is part of the approved label.

For advice on medical emergencies, fires or major spills telephone the National Chemical Emergency Centre on 01865 407333

IMPORTANT INFORMATION

FOR PROFESSIONAL USE ONLY AS AN AGRICULTURAL HERBICIDE

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

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.

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 CLOTHING (COVERALLS) AND 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.
WASH CONCENTRATE from skin or eyes immediately.
DO NOT BREATHE SPRAY.
WASH HANDS AND EXPOSED SKIN before eating and drinking and after work.
IF YOU FEEL UNWELL, seek medical advice immediately (show the label where possible).
WHEN USING DO NOT EAT, DRINK OR SMOKE.

Environmental Protection

LIVESTOCK must be kept out of treated areas for at least three days after treatment and until poisonous weeds such as ragwort have died and become unpalatable.
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 IN ORIGINAL CONTAINER, tightly closed, in a safe place.
WASH OUT CONTAINER THOROUGHLY, empty washings into spray tank and dispose of safely.
DO NOT RE-USE CONTAINER FOR ANY PURPOSE.

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® is a post-emergence aryloxyalkanoic 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 will be at the optimum. TOMAHAWK acts by uptake from the leaves, and from there is readily translocated to other parts of the plant.

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.
Keep livestock out of treated areas for 3 days, and until poisonous weeds such as ragwort have died and become unpalatable.
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 can cause harm to susceptible crops sprayed later.

† Cautions to be followed where 2.0 L/ha of TOMAHAWK 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 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.

WEED CONTROL

For weed control details please look under '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
Winter Cereals			
Spring application to winter wheat and winter barley	From the 2 leaf stage of the crop to before flag sheath opening stage (up to and including Zadoks GS 45). When applied in tank-mix with HBN apply up to and including Zadoks GS 31	1.0	up to flowering: Cleavers (§250mm) Common chickweed (§flowering) Common hemp-nettle (§150mm) Field forget-me-not (§100mm) up to 6 true leaves (§100mm): Black-bindweed
Spring application to winter oats, triticale, rye and durum wheat	From the 2 leaf stage of the crop to before 2nd node detectable stage (up to and including Zadoks GS 31)		up to 4 true leaves (§100mm): Red dead-nettle Henbit dead-nettle up to 2 true leaves (§50mm): Knotgrass Common fumitory Checked up to 2 true leaves: Redshank Groundsel Mayweed spp Common field-speedwell Ivy-leaved speedwell Pale persicaria
Spring application to winter wheat and winter barley	From 3rd 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 †

Autumn application to winter wheat and winter barley	From two leaf stage of the crop up to and including 1st node detectable (Zadoks GS 31) or end February, whichever is the earliest. After this time follow spring recommendations above.	0.5 to 0.75 plus HBN	up to 50mm: Cleavers* Common chickweed Field forget-me-not up to 6 true leaves: Red dead-nettle Henbit dead-nettle Charlock** Common poppy** Groundsel** Mayweed spp** Shepherd's purse** Speedwell spp** Volunteer rape**

Key to Winter Cereals:

* to control cleavers it is essential to use the higher rate of use.
** may be controlled up to 6 true leaves stage of the weed dependent on the type and rate of HBN used - see manufacturer's instructions.
§ the weed sizes shown in brackets indicate the sizes of the weeds, which will be controlled when TOMAHAWK is applied at 0.75 L/ha in tank-mix with HBN.

HBN means products containing ioxynil and/or bromoxynil.

Where a range of rates are recommended, the higher rate of use will generally give better control, particularly if weeds are not actively growing.

Crop	Timing of Application	Rate of use L/ha	Weeds controlled at weed sizes shown
Spring Cereals - spring application			
Spring wheat and spring barley	From 2 leaf stage of the crop but before flag sheath extending stage (up to and including Zadoks GS 39). When applied in tank-mix with HBN, apply before second node detectable (Zadoks GS 31)	0.75	up to 100mm: Cleavers (§50mm, §§150mm) Common chickweed (§100mm, §§flowering) Common hemp-nettle (§100mm, §§150mm) up to 50mm: Field forget-me-not (§50mm, §§100mm) up to 4 true leaves stage: Black-bindweed (§50mm, §§100mm) up to 2 true leaves stage: Common fumitory (§50mm, §§100mm) Knotgrass Corn spurrey checked up to 2 true leaves stage: Mayweed spp Pale persicaria Speedwell spp Groundsel Redshank
Spring oats	From 2 leaf stage of the crop but before 2nd node detectable stage (up to and including Zadoks GS 31)		

Key to Spring Cereals:

§ weed size controlled with 0.5 L/ha TOMAHAWK in tank-mix with HBN.
§§ weed size controlled with 0.75 L/ha TOMAHAWK in tank-mix with HBN.

HBN means products containing ioxynil and/or bromoxynil.

Forage maize

Apply before the crop reaches 7 leaves unfolded stage and over 20cm. Optimum timing is between 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 at 1.0 L/ha in 200-300 L/ha water.

Weed control

Black nightshade will be controlled from cotyledons up to 6 true leaves stage.

Grassland

TOMAHAWK can be applied to established grassland or newly sown spring leys when grasses have at least 3 fully expanded leaves. Application can be made in the autumn or 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 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 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

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. Top up the sprayer tank with water to the required level and agitate the mixture thoroughly before and during spraying.

The spray mix must be used immediately and agitated continuously during mixing and until application is complete.

Volume of Water:

Apply in a minimum of 200 litres of water per hectare.

Use 400 litres of water per hectare on dense crops.

Spray Quality

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

COMPATIBILITY

Apply TOMAHAWK alone to triticale. There is no tank-mix recommendation for this crop.

CONDITIONS OF SUPPLY

All products supplied by us are of high grade and conform to specification at the time of delivery but, as we cannot exercise control over their subsequent storage, handling, mixing or use or the weather conditions before, during and after application which may affect the performance of the products, all conditions and warranties, statutory or otherwise, as to the quality or fitness for any purpose of our products are excluded and no responsibility or liability will be accepted by us or our re-sellers 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 the use of such products.

Adama Agricultural Solutions UK Ltd
Unit 15, Thatcham Business Village
Colthrop Way, Thatcham, Berkshire RG19 4LW
Tel: 01635 860555
Technical Helpline: 01635 876622
wwww.adama.com
Email: ukenquiries@adama.com

R3.2.2DEC14

This Safety Data Sheet does not form part of the approved label. Following the instructions on the pesticide Product Label for the specified uses should ensure that the product is used safely and efficaciously for those uses.

SAFETY DATA SHEET

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (EC) Annex II

Revision Date 12-Nov-2014 **Version** 1
Product No. HRB00952-44 H-0031-37960-RAII / 37960

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/ MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Tomahawk

Synonyms Fluroxypyr 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
Unit 15, Thatcham Business Village
Colthrop Way, Thatcham
Berkshire RG19 4LW
UK: 01635 860555
Fax: 01635 861555

For further information, please contact

Email address ukenquiries@adama.com

1.4. Emergency telephone number

Emergency telephone Centre: National Chemical Emergency (UK): Tel: 01865 407333 (24 hours)

SECTION 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 sensitisation	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

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms

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 vapour

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 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 an approved waste disposal plant

EU Specific hazard statements

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

Additional phrases for PPP

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

2.3. Other hazards

No information available

SECTION 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	81406-37-3	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-branche d alkyl derivs., calcium salts	<5	68953-96-8	273-234-6	-	-	-		-
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.

SECTION 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!

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

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

Eye contact
Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.

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

Self-protection of the first aider
Use personal protective equipment as 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.

SECTION 5: FIREFIGHTING 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

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions
Remove all sources of ignition. Evacuate 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 and 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/fumes/gas/mist/vapours/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 labelled 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.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

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

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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Property		Values	Method	Remarks
Appearance				
Physical state	:	Liquid		
Colour	:	Brown		
Odour	:	Aromatic		
Odour threshold	:	No data available		
pH	:	5.3	CIPAC MT 75.2	Solution (1%)
Melting point/freezing point °C	:	---		Not applicable
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		
Vapour pressure kPa	:	---		Not applicable
Vapour 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 mm²/s 40°C	:	2.96	ASTM D455	20°C
Explosive properties	:	Not an explosive	EEC A.14	
Oxidising properties	:	No data available		

9.2. Other information

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

SECTION 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.

SECTION 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 sensitisation	: Skin sensitiser	Guinea pig		

Chronic toxicity

Germ cell mutagenicity

Chemical name

Fluroxypyr-meptyl : Not classified

Carcinogenicity

Chemical name

Fluroxypyr-meptyl : Not carcinogenic

Reproductive toxicity

Chemical name

Fluroxypyr-meptyl : Not toxic for the reproductive system

STOT - single exposure

Chemical name

Fluroxypyr-meptyl : Not available

STOT - repeated exposure

Chemical name

Fluroxypyr-meptyl : Not available

Aspiration hazard

Chemical name

Fluroxypyr-meptyl : Not available

SECTION 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

Fluroxypyr-meptyl : >2000 Bobwhite quail

Bees oral LD50 µg/ee

Chemical name

Fluroxypyr-meptyl : >100

12.2. Persistence and degradability

Abiotic Degradation	Values	Method	Remarks
Water DT50 days			
Chemical name			
Fluroxypyr-meptyl	: 38.1		
Soil DT50 days			
Chemical name			
Fluroxypyr-meptyl	: 1		
Biodegradation			
Chemical name			
Fluroxypyr-meptyl	: No data available		

12.3. Bioaccumulative potential

Partition coefficient	Values	Method	Remarks
(n-octanol/water) Log Pow			
Chemical name			
Fluroxypyr-meptyl	: 5.04		pH 7
Bioconcentration factor (BCF)			
Chemical name			
Fluroxypyr-meptyl	: 26		

12.4. Mobility in soil

Adsorption/desorption	Values	Method	Remarks
Chemical name			
Fluroxypyr-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.

SECTION 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.

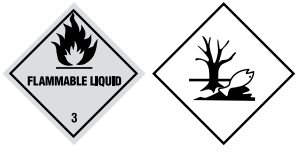
Other information
Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: TRANSPORTATION INFORMATION

IMDG/IMO
14.1 UN/ID No. 1993
14.2 Proper shipping name
FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics)
14.3 Hazard class 3
14.4 Packing group III
14.5 Marine pollutant Yes
14.6 Special precautions for user

RID/ADR
14.1 UN/ID No. 1993
14.2 Proper shipping name
FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics)
14.3 Hazard class 3
14.4 Packing group III
14.5 Environmental hazard Yes
14.6 Special precautions for user

ICAO/IATA
14.1 UN/ID No. 1993
14.2 Proper shipping name
FLAMMABLE LIQUID, N.O.S. (Hydrocarbons, C9, aromatics)
14.3 Hazard class 3
14.4 Packing group III
14.5 Environmental hazard 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



SECTION 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.

SECTION 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 sensitisation 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 - Vapours 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 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
H411 - 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/m3

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

Tomahawk®

MAPP 09249

An emulsifiable concentrate containing 200 g/l (20.4% w/w) fluroxypyr as the methyl heptyl ester. Also contains solvent naptha.

SHAKE WELL BEFORE USE

Batch No.: see packaging

Adama Agricultural Solutions UK Ltd
Unit 15, Thatcham Business Village, Colthrop Way, Thatcham, Berkshire RG19 4LW
Telephone: 01635 860555 | **Technical Helpline:** 01635 876622
www.adama.com | ukenquiries@adama.com

For advice on medical emergencies, fires or major spills telephone the National Chemical Emergency Centre on 01865 407333

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

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 CLOTHING (COVERALLS) AND 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.
WASH CONCENTRATE from skin or eyes immediately.
DO NOT BREATHE SPRAY.
WASH HANDS AND EXPOSED SKIN before eating and drinking and after work.
IF YOU FEEL UNWELL, seek medical advice immediately (show the label where possible).
WHEN USING DO NOT EAT, DRINK OR SMOKE.

Environmental Protection

LIVESTOCK must be kept out of treated areas for at least three days after treatment and until poisonous weeds such as ragwort have died and become unpalatable.
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 IN ORIGINAL CONTAINER, tightly closed, in a safe place.
WASH OUT CONTAINER THOROUGHLY, empty washings into spray tank and dispose of safely.
DO NOT RE-USE CONTAINER FOR ANY PURPOSE.

IMPORTANT INFORMATION

FOR PROFESSIONAL USE ONLY AS AN AGRICULTURAL HERBICIDE

Crops: Winter and spring wheat, winter and spring barley, winter and spring oats, rye, triticale, durum wheat, forage maize, permanent grassland, rotational grass and newly sown leys.

Maximum total dose (L product/ha/crop)
Latest time of application
Other specific restrictions

Full details are given in the information box within the attached leaflet.

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.

BKT1564B09 R3.2.2DEC14