

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 (UK only).

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 yards and roads.

Storage and disposal:

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.

**READ DIRECTIONS FOR USE ON ATTACHED LEAFLET.
SHAKE WELL BEFORE USE.
PROTECT FROM FROST.**

Pack size: 5 Litres

9 UKE 0113 Caba A



CABADEX®

Product Registration Number: MAPP 13948/PCS No. 03749

A suspension emulsion formulation containing 100 g/litre fluroxypyr and 2.5 g/litre florasulam.

A post-emergence herbicide for use on MANAGED AMENITY TURF, including domestic lawns, and AMENITY GRASSLAND for the control of DAISY, DANDELION, CLOVER, BUTTERCUP, RIBWORT PLANTAIN and other broad-leaved weeds.

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



IRRITANT



DANGEROUS FOR THE ENVIRONMENT

RISK AND SAFETY INFORMATION

Irritating to eyes and skin.

May cause sensitisation by skin contact.

Vapours may cause drowsiness and dizziness.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Wear suitable gloves.

Avoid contact with skin.

Keep out of reach of children.

Keep away from food, drink and animal feeding stuffs.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed seek medical advice immediately and show this container or label.

This material and its container must be disposed of in a safe way.

Use appropriate containment to avoid environmental contamination.

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

MAPP 13948/PCS No. 03749

IMPORTANT INFORMATION

FOR USE ONLY AS A HORTICULTURAL HERBICIDE

Situation	Maximum Individual Dose	Maximum Number of Applications
Managed amenity turf, lawns, amenity grassland	2.0 litres product per hectare	One per year

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.

Dow AgroSciences Limited

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Telephone: Hitchin +44 (0) 1462 457272 Fax: +44 (0) 1462 426605
24 Hour Emergency Telephone Number: +44 (0) 1553 761 251

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This label is compliant with the CPA Voluntary Initiative Guidance (UK only).

Headland Amenity Limited

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DIRECTIONS FOR USE

IMPORTANT: This information is approved as part of the Product Label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

GENERAL INFORMATION

CABADEX® herbicide has activity against a range of broad-leaved weeds. The ideal timing for application is when the weeds are small and actively growing.

NOTES

Broad-leaved weeds not present at application will not be controlled.
Clippings from grass treated with CABADEX can be safely used for mulch after the third cut.
An interval of four weeks must elapse between application of CABADEX and re-seeding turf.
Do not apply if turfgrass is wet.
Do not apply to turf, lawns or grass areas which are under stress.
Do not apply if night temperatures are low, if ground frost is imminent, or in periods of prolonged cold or dry weather.
Ensure weeds are actively growing as after periods of prolonged drought, weeds can take a long time to start actively growing again after soil moisture returns.
Take extreme care to avoid drift onto crops and non-target plants e.g. trees, shrubs, bedding, outside the target area.

RESISTANCE

CABADEX contains active ingredients with differing modes of action and the risk of resistance building is therefore reduced. However, as florasulam is an ALS-inhibitor there is a risk of resistance building to this active ingredient and so precautions should be taken to minimise the risk. Therefore, avoid using single action mode of action herbicides, such as ALS-inhibitors in the same field over a number of years. Users are advised to apply products containing herbicides with different modes of action or use sequences or tank mixtures where two or more components are active against the target weeds.

AREA OF USE

CABADEX can be applied to newly sown or established managed amenity turf, including domestic lawns, and amenity grassland.

Ensure newly sown turf has become established before treating. Turf sown in spring or summer may be ready for spraying at or after two leaf growth stage, usually two months after sowing, but turf sown in late summer or autumn should not be sprayed until growth is resumed in the following spring, perhaps eight months after sowing.

CABADEX has been tested for selectivity on the following range of turf grass species:

Annual meadow-grass	Perennial ryegrass
Browntop bent	Smooth-stalked meadow-grass
Chewings fescue	Rough stalked bluegrass
Creeping bentgrass	

In view of the large number of turf grass cultivars grown consult manufacturer for current approved list or test CABADEX for turf safety on a small area of turf before overall application.

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APPLICATION TIMING

Apply when weeds are in active growth normally from March to October when the soil is moist. Do not apply in periods of drought unless irrigation is applied. Avoid mowing 3 days before and after spraying to ensure sufficient weed leaf surface is present and to allow uptake and movement of CABADEX within the weed.

RATE OF APPLICATION AND WEEDS CONTROLLED

One application of CABADEX will control susceptible emerged weeds at the following rates:

Weed	Rate L product/ha	Rate mL product/100m ²
Bird's-foot trefoil ¹	2.0	20
Common daisy		
Common dandelion		
Common mouse-ear		
Creeping buttercup		
Ribwort plantain ¹		
Slender speedwell		
White clover		
Yarrow ¹		

¹Moderate control only

WATER VOLUME

For overall application apply CABADEX in 200 litres of water per hectare. For knapsack application apply CABADEX in 2 litres of water per 100 m².

APPLICATION EQUIPMENT

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

Do not apply through CDA applicators.

MIXING

Half fill the spray tank with water and add the required amount of CABADEX. 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 CABADEX as a MEDIUM spray as defined by the BCPC system.

TANK CLEANING

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

1. Immediately after spraying, drain tank completely. Any contamination on the outside of the spraying equipment should be removed by washing with clean water.
2. 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.
3. 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.
4. 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.
5. 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.
6. For disposal of washings, follow The 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.

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/preparation and of the company/undertaking**1.1 Product identifiers****Product Name**

CABADEX* 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
A Subsidiary of The Dow Chemical Company
Latchmore Court, Brand Street
SG5 1NH Hitchin
United Kingdom

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact:

00 31 115 694 982

Local Emergency Contact:

00 31 115 694 982

Section 2. Hazards Identification**2.1 Classification of the substance or mixture**

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

Xi	R36/38	Irritating to eyes and skin.
	R43	May cause sensitization by skin contact.
	R67	Vapours may cause drowsiness and dizziness.
N	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
	R43	May cause sensitization by skin contact.
	R67	Vapours may cause drowsiness and dizziness.
N	R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

2.2 Label elements

Labelling according to EC Directives

Hazard Symbol:

Xi	-	Irritant.
N	-	Dangerous for the environment.

Risk Phrases :

R36/38 - Irritating to eyes and skin.

R43 - May cause sensitization by skin contact.

R67 - Vapours may cause drowsiness and dizziness.

R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases :

S2 - Keep out of the reach of children.

S13 - Keep away from food, drink and animal feeding stuffs.

S24 - Avoid contact with skin.

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S35 - This material and its container must be disposed of in a safe way.

S37 - Wear suitable gloves.

S46 - If swallowed, seek medical advice immediately and show this container or label.

S57 - Use appropriate containment to avoid environmental contamination.

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

2.3 Other Hazards

No information available.

Section 3. Composition/information on ingredients

3.2 Mixture

This product is a mixture.

CAS-No. / EC-No. / Index	REACH No.	Amount	Component	Classification: REGULATION (EC) No 1272/2008	CAS-No. / EC-No. / Index	Amount	Component	Classification: 67/548/EEC
CAS-No. 81406-37-3 EC-No. 279-752-9 Index 607-272-00-5	—	14.5 %	fluoroxypyr-meptyl (ISO)	Aquatic Acute, 1, H400 Aquatic Chronic, 1, H410	CAS-No. 81406-37-3 EC-No. 279-752-9 Index 607-272-00-5	14.5 %	fluoroxypyr-meptyl (ISO)	N: R50, R53
CAS-No. 145701-23-1 EC-No. Not available Index 613-230-00-7	—	0.2 %	Florasulam (ISO)	Aquatic Acute, 1, H400 Aquatic Chronic, 1, H410	CAS-No. 145701-23-1 EC-No. Not available Index 613-230-00-7	0.2 %	Florasulam (ISO)	N: R50, R53
CAS-No. 64742-95-6 EC-No. 265-199-0 Index 649-356-00-4	—	> 30.0 - < 40.0 %	Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified	Flam. Liq., 3, H226 Asp. Tox., 1, H304 STOT SE, 3, H335 STOT SE, 3, H336 Aquatic Chronic, 2, H411	CAS-No. 64742-95-6 EC-No. 265-199-0 Index 649-356-00-4	> 30.0 - < 40.0 %	Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified	R10; Xn: R65; Xi: R37; R66; R67; N: R51/53
CAS-No. 95-63-6 EC-No. 202-436-9 Index 601-043-00-3	—	<= 10.0 %	1,2,4-Trimethylbenzene	Flam. Liq., 3, H226 Acute Tox., 4, H332 Eye cor/irr, 2, H319 STOT SE, 3, H335 Skin Irrit., 2, H315 Aquatic Chronic, 2, H411	CAS-No. 95-63-6 EC-No. 202-436-9 Index 601-043-00-3	<= 10.0 %	1,2,4-Trimethylbenzene	R10; Xn: R20; Xi: R36/37/38; N: R51, R53
CAS-No. 98-82-8 EC-No. 202-704-5 Index 601-024-00-X	—	< 5.0 %	Cumene	Flam. Liq., 3, H226 Asp. Tox., 1, H304 STOT SE, 3, H335 Aquatic Chronic, 2, H411	CAS-No. 98-82-8 EC-No. 202-704-5 Index 601-024-00-X	< 5.0 %	Cumene	R10; Xn: R65; Xi: R37; N: R51, R53
CAS-No. 57-55-6 EC-No. 200-338-0 Index 601-025-00-5	01-2119456809-23	< 5.0 %	Propylene glycol#	Not classified	CAS-No. 57-55-6 EC-No. 200-338-0 Index 601-025-00-5	< 5.0 %	Propylene glycol#	Not classified.
CAS-No. 108-67-8 EC-No. 203-604-4 Index 601-025-00-5	—	< 5.0 %	Mesitylene; 1,3,5-trimethylbenzene	Flam. Liq., 3, H226 Eye cor/irr, 2, H319 Skin cor/irr, 2, H315 STOT SE, 3, H335 Asp. Tox., 1, H304 Aquatic Chronic, 2, H411	CAS-No. 108-67-8 EC-No. 203-604-4 Index 601-025-00-5	< 5.0 %	Mesitylene; 1,3,5-trimethylbenzene	R10; Xn: R65; Xi: R36/37/38; N: R51, R53

Substance(s) with an Occupational Exposure Limit.
For the full text of the H-Statements mentioned in this Section, see Section 16.
See Section 16 for full text of R-phrases.

Section 4. First-aid measures

4.1 Description of first aid measures

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

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

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

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

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

4.2 Most important symptoms and effects, both acute and delayed

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), no additional symptoms and effects are anticipated.

4.3 Indication of immediate medical attention and special treatment needed

Skin contact may aggravate preexisting dermatitis.

Section 5. Fire Fighting Measures

5.1 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.

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: Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. 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. Spills or discharge to natural waterways is likely to kill aquatic organisms.

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.

Section 7. Handling and Storage

7.1 Precautions for safe handling

Handling

General 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 vapor or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapors. 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

Storage

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 uses

Refer to product label.

Section 8. Exposure Controls / Personal Protection

8.1 Control parameters

Exposure Limits

Component	List	Type	Value
fluoroxyppyr-meptyl (ISO) 1,2,4-Trimethylbenzene	Dow IHG	TWA	10 mg/m3
	EU IOELV	TWA	100 mg/m3 20 ppm
	ACGIH	TWA	25 ppm
	UK WEL	TWA	125 mg/m3 25 ppm
	Ireland OELV	TWA	100 mg/m3 20 ppm SKIN Indicative OELV
Propylene glycol	Ireland OELV	TWA Particulate.	10 mg/m3
	UK WEL	TWA Particulate.	10 mg/m3
	UK WEL	TWA Total vapour and particulates.	474 mg/m3 150 ppm
	WEEL	TWA Aerosol.	10 mg/m3

Mesitylene; 1,3,5-trimethylbenzene	EU IOELV	TWA	100 mg/m3	20 ppm
	ACGIH	TWA	25 ppm	
	UK WEL	TWA	125 mg/m3	25 ppm
Cumene	ACGIH	TWA	50 ppm	
	EU IOELV	TWA	100 mg/m3	20 ppm
			Indicative	
	EU IOELV	STEL	250 mg/m3	50 ppm
			Indicative	
	UK WEL	TWA	125 mg/m3	25 ppm SKIN
	UK WEL	STEL	250 mg/m3	50 ppm SKIN

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.

A "skin" notation following the inhalation exposure guideline refers to the potential for dermal absorption of the material including mucous membranes and the eyes either by contact with vapors or by direct skin contact.

It is intended to alert the reader that inhalation may not be the only route of exposure and that measures to minimize dermal exposures should be considered.

8.2 Exposure controls

Personal Protection

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: 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.

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Styrene/butadiene rubber. Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

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 vapor cartridge with a particulate pre-filter, type AP2.

Ingestion: Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating.

Engineering Controls

Ventilation: 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.

Section 9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Appearance

Physical State

Color

Odor

Odor Threshold

pH

Melting Point

Freezing Point

Boiling Point (760 mmHg)

Flash Point - Closed Cup

Evaporation Rate (Butyl Acetate = 1)

Flammable Limits In Air

Vapor Pressure

Vapor Density (air = 1)

Specific Gravity (H2O = 1)

Solubility in water (by weight)

Partition coefficient, n-octanol/water (log Pow)

Autoignition Temperature

Decomposition Temperature

Dynamic Viscosity

Kinematic Viscosity

Explosive properties

Oxidizing properties

9.2 Other information

Liquid Density

Surface tension

Liquid.

Off-white

Characteristic

No test data available

5.8 (@ 1 %) *CIPAC MT 75.2* (1% aqueous suspension)

Not applicable

No test data available

No test data available.

61 °C *Pensky-Martens Closed Cup ASTM D 93*

No test data available

Lower: No test data available

Upper: No test data available

No test data available

No test data available

0.992 @ 22 °C/4 °C *Pyknometer*

emulsifies/suspends

No data available for this product. See Section 12 for individual component data.

1,007 mbar *92/69/EEC A15* none below 400degC

No test data available

No test data available

No test data available

No

No

0.992 g/cm³ @ 22 °C *Pyknometer*

34.5 mN/m @ 25 °C

Section 10. Stability and Reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

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. Ecological Information

11.1 Information on toxicological effects

Acute Toxicity

Ingestion

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

As product: No deaths occurred at this concentration. LD50, rat, male > 2,000 mg/kg

As product: LD50, rat, female > 5,000 mg/kg

Aspiration hazard

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

Dermal

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

As product: LD50, rat > 5,000 mg/kg

Inhalation

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

As product: The LC50 has not been determined.

Based on information for component(s): Estimated. LC50, 4 h, rat > 10 mg/l

Eye damage/eye irritation

May cause moderate eye irritation which may be slow to heal. May cause slight corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness.

Skin corrosion/irritation

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

Sensitization

Skin

Has demonstrated the potential for contact allergy in mice.

Respiratory

No relevant data found.

Repeated Dose Toxicity

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: Kidney. Liver. Eye. Respiratory tract. Lung. Blood. In rare cases, repeated excessive exposure to propylene glycol may cause central nervous system effects.

Chronic Toxicity and Carcinogenicity

For the active ingredient(s): Did not cause cancer in laboratory animals. For the minor component(s): Has caused cancer in laboratory animals. However, the relevance of this to humans is unknown.

Developmental Toxicity

For the active ingredient(s): Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals. Based on information for component(s): Has caused birth defects in lab animals only at doses producing severe toxicity in the mother. Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive Toxicity

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

Genetic Toxicology

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

Section 12. Ecological Information

12.1 Toxicity

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species). Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

Fish Acute & Prolonged Toxicity

LC50, *Oncorhynchus mykiss* (rainbow trout), 96 h: 13.5 mg/l

Aquatic Invertebrate Acute Toxicity

EC50, *Daphnia magna* (Water flea), 48 h, immobilization: 31.7 mg/l

Aquatic Plant Toxicity

ErC50, *Pseudokirchneriella subcapitata* (green algae), biomass growth inhibition, 72 h: 9.03 mg/l

ErC50, *Lemna gibba*, biomass growth inhibition, 7 d: 0.932 mg/l

Toxicity to Above Ground Organisms

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

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

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

Toxicity to Soil Dwelling Organisms

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

12.2 Persistence and Degradability

Data for Component: **fluoroxypyr-meptyl (ISO)**

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

Stability in Water (1/2-life):

454 d

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
32 %	28 d	OECD 301D Test	fail

Theoretical Oxygen Demand: 2.2 mg/mg

Data for Component: **Florasulam (ISO)**

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

Stability in Water (1/2-life):

> 30 d

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
2 %	28 d	OECD 301B Test	fail

Indirect Photodegradation with OH Radicals

Rate Constant	Atmospheric Half-life	Method
7.04E-11 cm ³ /s	1.82 h	Estimated.

Theoretical Oxygen Demand: 0.85 mg/mg

Data for Component: Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified

For the major component(s): Material is expected to biodegrade only 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.

Data for Component: 1,2,4-Trimethylbenzene

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

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
4 - 18 %	28 d	OECD 301C Test	Not applicable

Data for Component: Cumene

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

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
86 %	28 d	OECD 301D Test	pass

Data for Component: Propylene glycol

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

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
81 %	28 d	OECD 301F Test	pass
96 %	64 d	OECD 306 Test	Not applicable

Data for Component: Mesitylene; 1,3,5-trimethylbenzene

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.

OECD Biodegradation Tests:

Biodegradation	Exposure Time	Method	10 Day Window
0 %	28 d	OECD 301C Test	Not applicable
50 %	4.4 d	Calculated	Not applicable

12.3 Bioaccumulative potential

Data for Component: fluoroxypr-meptyl (ISO)

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

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

Bioconcentration Factor (BCF): 26; Oncorhynchus mykiss (rainbow trout); Measured

Data for Component: Florasulam (ISO)

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

Partition coefficient, n-octanol/water (log Pow): -1.22

Bioconcentration Factor (BCF): 0.8; Fish; Measured

Data for Component: Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified

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

Data for Component: 1,2,4-Trimethylbenzene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient, n-octanol/water (log Pow): 3.63 Measured

Bioconcentration Factor (BCF): 33 - 275; Cyprinus carpio (Carp); Measured

Data for Component: Cumene

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

Partition coefficient, n-octanol/water (log Pow): 3.4 - 3.7 Measured

Bioconcentration Factor (BCF): 35.5; Fish; Measured

Data for Component: Propylene glycol

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

Partition coefficient, n-octanol/water (log Pow): -1.07 Measured

Bioconcentration Factor (BCF): 0.09; Estimated.

Data for Component: Mesitylene; 1,3,5-trimethylbenzene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient, n-octanol/water (log Pow): 3.42 Measured

Bioconcentration Factor (BCF): 161; Pimephales promelas (fathead minnow); Measured

12.4 Mobility in soil

Data for Component: fluoroxypr-meptyl (ISO)

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

Partition coefficient, soil organic carbon/water (Koc): 6,200 - 43,000 Henry's Law Constant (H): 5.5E+00 Pa*m³/mole. Measured

Data for Component: Florasulam (ISO)

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

Partition coefficient, soil organic carbon/water (Koc): 4 - 54 Henry's Law Constant (H): 4.35E-07 Pa*m³/mole.; 20 °C

Data for Component: Solvent naphtha (petroleum), light arom.; Low boiling point naphtha - unspecified

Mobility in soil: For the major component(s); Potential for mobility in soil is low (Koc between 500 and 2000).

Data for Component: 1,2,4-Trimethylbenzene

Mobility in soil: Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient, soil organic carbon/water (Koc): 720 Estimated.

Henry's Law Constant (H): 6.16E-03 atm*m³/mole; 25 °C Measured

Data for Component: Cumene

Mobility in soil: Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient, soil organic carbon/water (Koc): 800 - 2,800 Estimated.

Henry's Law Constant (H): 1.15E-02 atm*m³/mole; 25 °C Measured

Data for Component: Propylene glycol

Mobility in soil: 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, soil organic carbon/water (Koc): < 1 Estimated.

Henry's Law Constant (H): 1.2E-08 atm*m3/mole Measured

Data for Component: Mesitylene: 1,3,5-trimethylbenzene

Mobility in soil: Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient, soil organic carbon/water (Koc): 741.65 Estimated.

Henry's Law Constant (H): 1.97E-02 atm*m3/mole; 25 °C Estimated.

12.5 Results of PBT and vPvB assessment

Data for Component: fluoroxyppy-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).

Data for Component: 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).

Data for Component: Solvent naphtha (petroleum), light arom.: Low boiling point naphtha - unspecified

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

Data for Component: 1,2,4-Trimethylbenzene

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

Data for Component: Cumene

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

Data for Component: 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).

Data for Component: Mesitylene: 1,3,5-trimethylbenzene

Non-classified vPvB substance Non-classified PBT substance

12.6 Other adverse effects

Data for Component: fluoroxyppy-meptyl (ISO)

This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

Data for Component: Florasulam (ISO)

This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

Data for Component: Solvent naphtha (petroleum), light arom.: Low boiling point naphtha - unspecified

This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

Data for Component: 1,2,4-Trimethylbenzene

This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

Data for Component: Cumene

This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

Data for Component: Propylene glycol

This substance is not in Annex I of Regulation (EC) 2037/2000 on substances that deplete the ozone layer.

Data for Component: Mesitylene: 1,3,5-trimethylbenzene

This substance is not in Annex I of Regulation (EC) 2037/2000 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.

Section 14. Transport Information

ADR/RID

14.1 UN number

UN3082

14.2 UN proper shipping name

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: Fluoroxyppy

14.3 Transport hazard class(es)

Hazard Class: 9

14.4 Packing Group

PG III

14.5 Environmental hazards

Environmentally hazardous

14.6 Special precautions for user

Special Provisions: no data available

Hazard identification No:90

ADNR / ADN

14.1 UN number

UN3082

14.2 UN proper shipping name

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: Fluoroxyppy

14.3 Transport hazard class(es)

Hazard Class: 9

14.4 Packing Group

PG III

14.5 Environmental hazards

Environmentally hazardous

14.6 Special precautions for user

no data available

IMDG

14.1 UN number

UN3082

14.2 UN proper shipping name

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: Fluoroxyppy

14.3 Transport hazard class(es)

Hazard Class: 9

14.4 Packing Group

PG III

14.5 Environmental hazards

Environmentally hazardous

14.6 Special precautions for user

EMS Number: F-A,S-F

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

Not applicable

ICAO/IATA

14.1 UN number

UN3082

14.2 UN proper shipping name

Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

Technical Name: Fluroxypyr

14.3 Transport hazard class(es)

Hazard Class: 9

14.4 Packing Group

PG III

14.5 Environmental hazards

Not applicable

14.6 Special precautions for user

no data available

Section 15. Regulatory Information

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

European Inventory of Existing Commercial Chemical Substances (EINECS)

The components of this product are on the EINECS inventory or are exempt from inventory requirements.

Product Registration Number: UK: MAPP 10921/13948/10878/12836/13772 EIRE: PCS No 02075/03749

Registration Information

MAPP 13948

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

Hazard statement in the composition section

H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.

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.

Risk-phrases in the Composition section

R10	Flammable.
R20	Harmful by inhalation.
R36/37/38	Irritating to eyes, respiratory system and skin.
R37	Irritating to respiratory system.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51/53	Toxic to aquatic organisms, 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.

Revision

Identification Number: 63818 / 3027 / Issue Date 2012/09/28 / Version: 5.1

DAS Code: GF-184

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

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SAFETY PRECAUTIONS

Operator protection:

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

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

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

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 yards and roads.

Storage and disposal:

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.



CABADEX®

Product Registration Number: MAPP 13948/PCS No. 03749

A suspension emulsion formulation containing 100 g/litre fluroxypyr and 2.5 g/litre florasulam.

A post-emergence herbicide for use on MANAGED AMENITY TURF, including domestic lawns, and AMENITY GRASSLAND for the control of DAISY, DANDELION, CLOVER, BUTTERCUP, RIBWORT PLANTAIN and other broad-leaved weeds.

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



IRRITANT



DANGEROUS FOR THE ENVIRONMENT

RISK AND SAFETY INFORMATION.

Irritating to eyes and skin.

May cause sensitisation by skin contact.

Vapours may cause drowsiness and dizziness.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Wear suitable gloves.

Avoid contact with skin.

Keep out of reach of children.

Keep away from food, drink and animal feeding stuffs.

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

If swallowed seek medical advice immediately and show this container or label.

This material and its container must be disposed of in a safe way.

Use appropriate containment to avoid environmental contamination.

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

MAPP 13948/PCS No. 03749

IMPORTANT INFORMATION

FOR USE ONLY AS A HORTICULTURAL HERBICIDE

Situation	Maximum Individual Dose	Maximum Number of Applications
Managed amenity turf, lawns, amenity grassland	2.0 litres product per hectare	One per year

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.

Dow AgroSciences Limited

Latchmore Court, Brand Street, Hitchin, Hertfordshire. SG5 1NH.

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24 Hour Emergency Telephone Number: +44 (0) 1553 761 251

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This label is compliant with the CPA Voluntary Initiative Guidance (UK only).



The Voluntary Initiative

READ DIRECTIONS FOR USE ON ATTACHED LEAFLET.

SHAKE WELL BEFORE USE.

PROTECT FROM FROST.

Pack size: 5 Litres

9 UKE 0113 Caba A

Headland Amenity Limited

1010 Cambourne Business Park, Cambourne, Cambridgeshire, CB23 6DP Telephone: +44 (0) 1223 597834

24 Hour Emergency Telephone Number: +44 (0) 1553 761 251