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.

PROFESSIONAL USE ONLY

TRIPLE RINSE CONTAINER, PUNCTURE AND INVERT TO DRY AT TIME OF USE

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

Pack size: 5 Litres

headland
AMENITY PRODUCTS

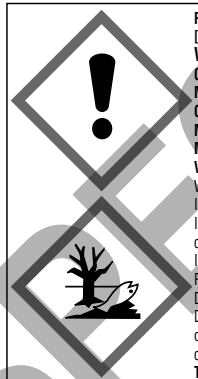
CABADEX®

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).



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

WARNING

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

Wear protective gloves/clothing/eye/face protection.
IF ON SKIN: Wash with plenty of soap and water.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Do NOT induce vomiting.
Dispose of contents/container to a licensed waste disposal contractor or collection site except for empty clean triple rinsed containers which can be disposed of as non-hazardous waste.
To avoid risks to human health and the environment, comply with the instructions for use.

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
CPC2 Capital Park, Fulbourn, Cambridge, CB21 5XE.
Telephone: +44 (0) 1462 457272 Fax: +44 (0) 1462 426605
24 Hour Emergency Telephone Number: +44 (0) 1553 761 251

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

The Voluntary Initiative

P00283090160 8

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

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] Common daisy Common dandelion Common mouse-ear Creeping buttercup Ribwort plantain[1] Slender speedwell White clover Yarrow[1]	2.0	20

[1]Moderate 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 m^2.

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/MIXTURE 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
LATCHMORE COURT
BRAND STREET
HITCHIN
England
SG5 1NH
UNITED KINGDOM

Customer Information Number: SDSQuestion@dow.com

1.4 EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 0031 115 694 982
Local Emergency Contact: 00 31 115 69 4982

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

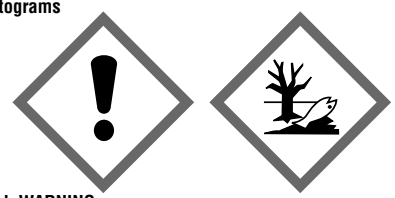
Classification according to Regulation (EU) 1272/2008 :
Skin corrosion/irritation - Category 2 - H315
Serious eye damage/eye irritation - Category 2 - H319
Skin sensitisation - Category 1 - H317
Specific target organ toxicity - single exposure - Category 3 - Respiratory tract irritant. - H335
Specific target organ toxicity - repeated exposure - Category 3 - Narcotic effects. - H336
Acute aquatic toxicity - Category 1 - H400
Chronic aquatic toxicity - Category 1 - H410
For the full text of the H-Statements mentioned in this Section, see Section 16.

Classification according to EU Directives 67/548/EEC or 1999/45/EC:
Irritant - R36/37/38
R43
R67
Dangerous for the environment - R50/53
For the full text of the R-phrases mentioned in this Section, see Section 16.

2.2 Label elements

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

Hazard pictograms



Signal word: WARNING

Hazard statements

H315	Causes skin irritation.
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.

Supplemental Hazard Statements

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

Precautionary statements

P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331	Do NOT induce vomiting.
P501	Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.

Contains Hydrocarbons, C9, aromatics

2.3 Other hazards

no data available

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixture

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 81406-37-3 **EC-No.** 279-752-9 **Index-No.** 607-272-00-5	–	14.5%	fluroxypyr-meptyl (ISO)	Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410
CASRN 145701-23-1 **EC-No.** Not available **Index-No.** 613-230-00-7	–	0.2%	Florasulam (ISO)	Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410
CASRN Not available **EC-No.** 918-668-5 **Index-No.** –	01-2119455851-35	> 30.0 - < 40.0 %	Hydrocarbons, C9, aromatics	Flam. Liq. - 3 - H226 STOT SE - 3 - H336 STOT SE - 3 - H335 Asp. Tox. - 1 - H304 Aquatic Chronic - 2 - H411
CASRN 57-55-6 **EC-No.** 200-338-0 **Index-No.** –	01-2119456809-23	< 5.0 %	Propylene glycol	Not classified

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

CASRN / EC-No. / Index-No.	Concentration	Component	Classification: 67/548/EEC
CASRN 81406-37-3 **EC-No.** 279-752-9 **Index-No.** 607-272-00-5	14.5%	fluroxypyr-meptyl (ISO)	N - R50 - R53
CASRN 145701-23-1 **EC-No.** Not available **Index-No.** 613-230-00-7	0.2%	Florasulam (ISO)	N - R50 - R53
CASRN Not available **EC-No.** 918-668-5 **Index-No.** –	> 30.0 - < 40.0 %	Hydrocarbons, C9, aromatics	R10 Xn - R65 Xi - R37 R66 R67 N - R51/53
CASRN 57-55-6 **EC-No.** 200-338-0 **Index-No.** –	< 5.0 %	Propylene glycol	Not classified

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

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

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

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

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

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

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

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

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Skin contact may aggravate preexisting dermatitis.

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. Alcohol resistant foams (ATC type) are preferred. General purpose synthetic foams (including AFFF) or protein foams may function, but will be less effective.

Unsuitable extinguishing media: no data available

5.2 Special hazards arising from the substance or mixture

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

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

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Burning liquids may be extinguished by dilution with water. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: 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.

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

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling: Keep out of reach of children. Keep away from heat, sparks and flame. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated contact with skin. Avoid breathing vapour or mist. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. Containers, even those that have been emptied, can contain vapours. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

7.2 Conditions for safe storage, including any incompatibilities: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
fluroxypyr-meptyl (ISO)	Dow IHG	TWA	10 mg/m3
Florasulam (ISO)	GB EH40		
Propylene glycol	US WEEL	TWA	10 mg/m3
	GB EH40	TWA	474 mg/m3 150 ppm
	GB EH40	TWA	10 mg/m3

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

8.2 Exposure controls

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

Individual protection measures

Eye/face protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

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

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

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

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

Environmental exposure controls

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

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	
Physical state	Liquid.
Colour	Off-white
Odour	Characteristic
Odour Threshold	No test data available
pH	5.8 1% *CIPAC MT 75.2* (1% aqueous suspension)
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	**closed cup** 61 °C *Pensky-Martens Closed Cup ASTM D 93*
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	no data available
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapour Pressure	No test data available
Relative Vapour Density (air = 1)	No test data available
Relative Density (water = 1)	0.992 at 22 °C / 4 °C *Pyknometer*
Water solubility	emulsifies/suspends
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	at 1,007 mbar *92/69/EEC A15* none below 400 degC
Decomposition temperature	No test data available
Dynamic Viscosity	No test data available
Kinematic Viscosity	No test data available
Explosive properties	No
Oxidizing properties	No

9.2 Other information

Liquid Density	0.992 g/cm3 at 22 °C *Pyknometer*
Molecular weight	no data available
Surface tension	34.5 mN/m at25 °C

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

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity: no data available

10.2 Chemical stability: Stable under recommended storage conditions. See Storage, Section 7.

10.3 Possibility of hazardous reactions: Polymerization will not occur.

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

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

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

SECTION 11. TOXICOLOGICAL INFORMATION

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

11.1 Information on toxicological effects

Acute toxicity

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

As product:
LD50, rat, male, > 2,000 mg/kg No deaths occurred at this concentration.
As product:
LD50, rat, female, > 5,000 mg/kg

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

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

Acute inhalation toxicity
Vapour 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):
LC50, rat, 4 Hour, > 10 mg/l Estimated.

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

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

Sensitization
Has demonstrated the potential for contact allergy in mice.

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

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
May cause respiratory irritation.
May cause drowsiness or dizziness.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
For the active ingredient(s):
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

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.

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

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

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

Based on information for component(s): Has caused birth defects in lab animals only at doses producing severe toxicity in the mother. Has been toxic to the foetus 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.

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

Aspiration Hazard
May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION

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

12.1 Toxicity

Acute toxicity to fish
Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

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

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, 31.7 mg/l

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 9.03 mg/l

ErC50, Lemna gibba, 7 d, Biomass, 0.932 mg/l

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

oral LD50, Colinus virginianus (Bobwhite quail), mortality, > 2000mg/kg bodyweight.

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

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

Toxicity to soil-dwelling organisms
LC50, Eisenia fetida (earthworms), 14 d, 608 mg/kg

12.2 Persistence and degradability

fluroxypyr-meptyl (ISO)
Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.
10-day Window: Fail
Biodegradation: 32 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Theoretical Oxygen Demand: 2.2 mg/mg
Stability in Water (1/2-life)
, half-life, 454 d

Florasulam (ISO)
Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 2 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 0.85 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
	0.012 mg/mg

Stability in Water (1/2-life)
, > 30 d

Hydrocarbons, C9, aromatics
Biodegradability: For the major component(s): Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. For some component(s): Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Propylene glycol
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Biodegradation may occur under anaerobic conditions (in the absence of oxygen).
10-day Window: Pass
Biodegradation: 81 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
10-day Window: Not applicable
Biodegradation: 96 %
Exposure time: 64 d
Method: OECD Test Guideline 306 or Equivalent

12.3 Bioaccumulative potential
Bioaccumulation: No data available.

12.4 Mobility in soil

fluroxypyr-meptyl (ISO)
Expected to be relatively immobile in soil (Koc > 5000).
Partition coefficient(Koc): 6200 - 43000

Florasulam (ISO)
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient(Koc): 4 - 54

Hydrocarbons, C9, aromatics
No relevant data found.

Propylene glycol
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient(Koc): < 1 Estimated.

12.5 Results of PBT and vPvB assessment

fluroxypyr-meptyl (ISO)

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

Florasulam (ISO)

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

Hydrocarbons, C9, aromatics

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

Propylene glycol

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

12.6 Other adverse effects

fluroxypyr-meptyl (ISO)

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

Florasulam (ISO)

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

Hydrocarbons, C9, aromatics

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

Propylene glycol

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

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

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

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

SECTION 14. TRANSPORT INFORMATION

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

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

Classification for SEA transport (IMO-IMDG):

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

Classification for AIR transport (IATA/ICAO):

14.1	**UN number**	UN 3082
14.2	**Proper shipping name**	Environmentally hazardous substance, liquid, n.o.s.(Fluroxypyr)
14.3	**Class**	9
14.4	**Packing group**	III
14.5	**Environmental hazards**	Not applicable
14.6	**Special precautions for user**	No data available.

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

SECTION 15. REGULATORY INFORMATION

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

Other regulations

Registration Number: MAPP 13948

This product contains only components that have been either pre-registered, registered, are exempt from registration or are regarded as registered according to Regulation (EC) No. 1907/2006 (REACH).

The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer´s/user´s responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

15.2 Chemical Safety Assessment

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

SECTION 16. OTHER INFORMATION

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

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

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

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

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

2 - H315 - On basis of test data.
2 - H319 - On basis of test data.
Skin Sens. - 1 - H317 - On basis of test data.
STOT SE - 3 - H335 - Calculation method
STOT RE - 3 - H336 - Calculation method
Aquatic Acute - 1 - H400 - On basis of test data.
Aquatic Chronic - 1 - H410 - Calculation method

Revision

Identification Number: 101194429 / A293 / Issue Date: 12.08.2014 / Version: 7.1
DAS Code: GF-184
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

Dow IHG	Dow Industrial Hygiene Guideline
GB EH40	UK. EH40 WEL - Workplace Exposure Limits
TWA	Long-term exposure limit (8-hour TWA reference period)
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References

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

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

SAFETY PRECAUTIONS

Operator protection:

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

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

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

PROFESSIONAL USE ONLY

TRIPLE RINSE CONTAINER, PUNCTURE AND INVERT TO DRY AT TIME OF USE

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

Pack size: 5 Litres

headland
AMENITY PRODUCTS

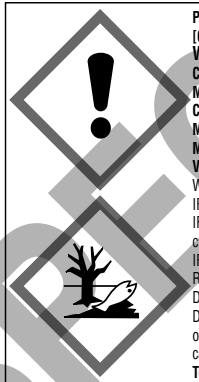
CABADEX®

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).



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

WARNING

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

Wear protective gloves/clothing/eye/face protection.
IF ON SKIN: Wash with plenty of soap and water.
IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Do NOT induce vomiting.
Dispose of contents/container to a licensed waste disposal contractor or collection site except for empty clean triple rinsed containers which can be disposed of as non-hazardous waste.
To avoid risks to human health and the environment, comply with the instructions for use.

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
CPC2 Capital Park, Fulbourn, Cambridge, CB21 5XE.
Telephone: +44 (0) 1462 457272 Fax: +44 (0) 1462 426605
24 Hour Emergency Telephone Number: +44 (0) 1553 761 251

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

The Voluntary Initiative

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