

SAFETY PRECAUTIONS

Operator protection:

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

Operators must wear suitable protective clothing (coveralls), suitable protective gloves and face protection (faceshield) when handling the concentrate.

Operators must wear suitable protective gloves when handling contaminated surfaces. Operators must wear suitable protective clothing (coveralls) when applying by hand-held equipment.

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

WASH ALL PROTECTIVE CLOTHING thoroughly after use, especially the insides of gloves.

WHEN USING DO NOT EAT, DRINK OR SMOKE.

WASH CONCENTRATE from skin or eyes immediately.

DO NOT BREATHE SPRAY.

WASH HANDS AND EXPOSED SKIN before meals and after work.

Consumer protection:

NOT TO BE USED ON FOOD CROPS.

Environmental protection:

KEEP LIVESTOCK OUT of treated areas for at least 7 days following treatment and until poisonous weeds such as ragwort have died and become unpalatable.

DO NOT CONTAMINATE WATER with the product or its container. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads.

LERAP B - Horizontal boom

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

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

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

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

Storage and disposal:

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.

KEEP OUT OF REACH OF CHILDREN.

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.

Dow

Dow AgroSciences

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Pastor[®] PRO

HERBICIDE

Product Registration Number: MAPP 16465

An emulsifiable concentrate formulation containing 50 g/l (5.0% w/w) clopyralid, 75 g/l (7.53% w/w) fluroxypyr (present as 100g/l of fluroxypyr as the 1-methyl heptyl ester) and 100 g/l (10.04% w/w) triclopyr (present as 139 g/l triclopyr as the butoxyethyl ester).

A foliar acting herbicide for the control of THISTLES, NETTLES and DOCKS in ESTABLISHED GRASSLAND.

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

READ DIRECTIONS FOR USE ON ATTACHED LEAFLET.

PROTECT FROM FROST.

2 Litres e

Dow AgroSciences Limited

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

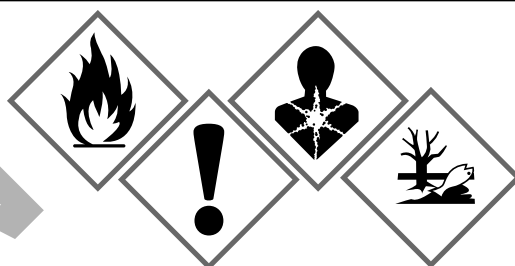
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This label is compliant with the CPA Voluntary Initiative Guidance.



Product Identifier according to Art.18 of Reg. (EC) No 1272/2008 [CLP]: Pastor[®] Pro; Triclopyr-2-butoxyethyl ester; Hydrocarbons, C9, aromatics; 3-(Isodecyl)oxy-1-propanamine Solvent naphtha (petroleum), heavy aromatic

DANGER

FLAMMABLE LIQUID AND VAPOUR.

MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.

MAY CAUSE AN ALLERGIC SKIN REACTION.

CAUSES SERIOUS EYE IRRITATION.

MAY CAUSE RESPIRATORY IRRITATION.

MAY CAUSE DROWSINESS OR DIZZINESS.

VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

Keep away from heat, hot surfaces, sparks, open flame and other ignition sources. No smoking. Avoid breathing vapours or spray

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

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

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Do NOT induce vomiting.

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

Repeated exposure may cause skin dryness or cracking.

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

IMPORTANT INFORMATION.

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

Crops/Situations: Grassland

Maximum Individual Dose: 4.0 litres product per hectare

Maximum Total Dose 4.0 litres product per hectare/annum

Latest Time of Application: 7 days before grazing or harvest

Other specific restrictions:

- (1) Livestock must be kept out of treated areas for at least 7 days following treatment and until poisonous weeds such as ragwort have died or become unpalatable.
- (2) Applications must not be made outside the period of 1st March to 31st October.

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.

P 1 1 1 0 0 3 4 1 1 4 0 9



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.

WARNINGS

Grass and weeds must be actively growing to ensure good weed control and minimal check to the grass.

Do not roll or harrow grass for 10 days before or 7 days after application.

To allow maximum translocation do not cut grass for 4 weeks after application.

Do not spray in drought, very hot or very cold weather.

Control may be reduced if rain falls within 2 hours of application.

PASTOR PRO is safe to grass. Very occasionally some yellowing of the sward may occur; this is transient and quickly outgrown.

Clover will be killed or severely checked by PASTOR PRO.

DO NOT sow kale, swedes, turnips or grass mixtures containing clover by direct drilling or minimum cultivation techniques within 6 weeks of applying PASTOR PRO.

PASTOR PRO residues in plant tissues (including manure and digestate) which have not completely decayed may affect succeeding susceptible crops e.g. peas, beans and other legumes, carrots and umbelliferae, potatoes and tomatoes, lettuce and other compositae.

Do not plant susceptible autumn-sown crops (e.g. winter beans) in the same year as treatment with PASTOR PRO. Where susceptible crops are to be planted in the spring, do not apply PASTOR PRO later than the end of July of the previous year. Following good agronomic practice ensure that plant remains have completely decayed before planting susceptible crops.

Do not use any plant material treated with PASTOR PRO for composting or mulching.

Do not use manure from animals fed on crops treated with PASTOR PRO for composting.

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

Do not apply directly to, or allow spray drift to come into contact with agricultural or horticultural crops, amenity plantings or gardens, ponds, lakes or water courses.

In hot conditions, vapour drift may occur, making it particularly important to assess the risk to neighbouring vegetation.

All conifers, especially pine and larch, are very sensitive to spray drift.

Wash out spray equipment thoroughly with water and detergent immediately after use. Spray out, fill with clean water and leave overnight. Spray out again before storing or using another product. Traces of PASTOR PRO could cause harm to susceptible crops sprayed later.

Do not use on sports or amenity turf.

Grazing Interval

Exclude livestock during treatment and do not allow livestock to graze treated grassland for at least 7 days following treatment, and until foliage of any poisonous weeds which may have been affected by application has died or become unpalatable.

ESTABLISHED GRASSLAND

PASTOR PRO may be used in established grassland, which is under the non-rotational set-aside arrangements.

WEEDS CONTROLLED

Weed	Rate of Use litres product/ha	Optimum timing of application
Curled dock Broad-leaved dock	2.0 + 2.0 Spring + Autumn	At the rosette stage up to 250 mm tall or across
Common chickweed	2.0	Actively growing 2 true leaves to 100 mm diameter
Common nettle	3.0	Actively growing but preferably before flowering
Broad-leaved dock Curled dock Creeping thistle Perennial sow-thistle* Spear thistle	4.0	At the rosette stage up to 250 mm tall or across

*Moderately susceptible

RATE OF USE

Apply PASTOR PRO at 3.0 to 4.0 litres/ha in 300 to 400 litres of water as an overall treatment for the control of perennial broad-leaved weeds or 2.0 litres/ha in 300 to 400 litres of water for the control of common chickweed. Alternatively PASTOR PRO may be applied in a programme of 2.0 litres/ha in the spring followed by a second application of 2.0 litres/ha in the autumn for the control of docks.

Use the higher volume of water where the weeds are large at the time of application and where the grass is dense.

TIMING

PASTOR PRO may be applied either in the spring or in the autumn depending on weeds present at application. Alternatively PASTOR PRO may be applied in a programme of 2.0 litres/ha in the spring, followed by a second application of 2.0 litres/ha in the autumn for the control of docks.

Application timing is crucial for good control, and must be made when the weeds and grass are actively growing, to ensure good weed control and minimal check to the grass.

If the grass (and hence the weeds) has been cut or grazed, leave for 2 to 3 weeks to allow sufficient regrowth to occur before spraying. It is important that there is sufficient leaf area for the uptake of the herbicide particularly on well-established docks and thistles which will have an extensive tap root but which early in the spring or soon after cutting may only have a few small leaves. On large well-established docks, and where there is a large reservoir of seed in the soil, a further control programme in the following year may be required.

APPLICATION EQUIPMENT

PASTOR PRO should be applied through a tractor-mounted hydraulic sprayer provided it is in good working order and has been calibrated according to the manufacturers' recommendations.

MIXING

Fill the spray tank half full with water and add the required amount of PASTOR PRO. Continue filling with water and maintain agitation during filling and while spraying. Mix only sufficient spray volume for the area to be treated and use the spray immediately.

SPRAY QUALITY

Apply PASTOR PRO as a MEDIUM spray as defined by the BCPC system.

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: PASTOR® PRO 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 :

Flammable liquids - Category 3 - H226

Serious eye damage/eye irritation - Category 2 - H319

Skin sensitisation - Category 1B - H317

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

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

Aspiration toxicity - Category 1 - H304

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:

R10

Harmful - R65

Irritant - R37/38

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: DANGER

Hazard statements

H226

Flammable liquid and vapour.

H319

Causes serious eye irritation.

H317

May cause an allergic skin reaction.

H335

May cause respiratory irritation.

H336

May cause drowsiness or dizziness.

H304

May be fatal if swallowed and enters airways.

H410

Very toxic to aquatic life with long lasting effects.

Supplemental Hazard Statements

EUH066

Repeated exposure may cause skin dryness or cracking.

EUH401

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

Precautionary statements

P210

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P261

Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

P280

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

P301 + P310

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

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

Triclopyr-2-butoxyethyl ester; Hydrocarbons, C9, aromatics; 3-(Isodecyloxy)-1-propanamine; kerosine - unspecified

2.3 Other hazards

no data available

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Mixture

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 64700-56-7 EC-No. 265-024-8 Index-No. -	-	14.0%	Triclopyr-2-butoxyethyl ester	Acute Tox. - 4 - H302 Skin Sens. - 1B - H317 Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410
CASRN 81406-37-3 EC-No. 279-752-9 Index-No. 607-272-00-5	-	10.9%	fluroxypyr-meptyl (ISO)	Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410
CASRN 1702-17-6 EC-No. 216-935-4 Index-No. 607-231-00-1	-	5.0%	clopyralid (ISO)	Eye Dam. - 1 - H318
CASRN Not available EC-No. 918-668-5 Index-No. -	01-2119455851-35	> 50.0 - < 60.0 %	Hydrocarbons, C9, aromatics	Flam. Liq. - 3 - H226 STOT SE - 3 - H336 STOT SE - 3 - H335 Asp. Tox. - 1 - H304 Aquatic Chronic - 2 - H411
CASRN 34590-94-8 EC-No. 252-104-2 Index-No. -	01-2119450011-60	< 10.0 %	Dipropylene glycol monomethyl ether	Not classified
CASRN 57-55-6 EC-No. 200-338-0 Index-No. -	01-2119456809-23	< 5.0 %	Propylene glycol	Not classified
CASRN 30113-45-2 EC-No. 250-056-7 Index-No. -	-	< 5.0 %	3-(Isodecylloxy)-1-propanamine	Acute Tox. - 4 - H302 Skin Corr. - 1B - H314 Eye Dam. - 1 - H318 Aquatic Acute - 1 - H400 Aquatic Chronic - 1 - H410

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
CASRN 68953-96-8 EC-No. 273-234-6 Index-No. -	-	< 5.0 %	Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	Skin Irrit. - 2 - H315 Eye Dam. - 1 - H318
CASRN 64742-94-5 EC-No. 265-198-5 Index-No. 649-424-00-3	01-2119451097-39	< 5.0 %	kerosine - unspecified	Asp. Tox. - 1 - H304 Aquatic Chronic - 2 - H411

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 64700-56-7 EC-No. 265-024-8 Index-No. -	14.0%	Triclopyr-2-butoxyethyl ester	Xn - R22 R43 N - R50/53
CASRN 81406-37-3 EC-No. 279-752-9 Index-No. 607-272-00-5	10.9%	fluroxypyr-meptyl (ISO)	N - R50 - R53
CASRN 1702-17-6 EC-No. 216-935-4 Index-No. 607-231-00-1	5.0%	clopyralid (ISO)	Xi - R41
CASRN Not available EC-No. 918-668-5 Index-No. -	> 50.0 - < 60.0 %	Hydrocarbons, C9, aromatics	R10 Xn - R65 Xi - R37 R66 R67 N - R51/53
CASRN 34590-94-8 EC-No. 252-104-2 Index-No. -	< 10.0 %	Dipropylene glycol monomethyl ether	Not classified

CASRN / EC-No. / Index-No.	Concentration	Component	Classification: 67/548/EEC
CASRN 57-55-6 EC-No. 200-338-0 Index-No. -	< 5.0 %	Propylene glycol	Not classified
CASRN 30113-45-2 EC-No. 250-056-7 Index-No. -	< 5.0 %	3-(Isodecyloxy)-1-propanamine	C - R34 Xn - R22 N - R50/53
CASRN 68953-96-8 EC-No. 273-234-6 Index-No. -	< 5.0 %	Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	Xi - R38 - R41
CASRN 64742-94-5 EC-No. 265-198-5 Index-No. 649-424-00-3	< 5.0 %	kerosine - unspecified	Xn - R65 R66 N - R51/53

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 available in work area.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

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: Maintain adequate ventilation and oxygenation of the patient. May cause asthma-like (reactive airways) symptoms. Bronchodilators, expectorants, antitussives and corticosteroids may be of help. If lavage is performed, suggest endotracheal and/or

esophageal control. Danger from lung aspiration should be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control centre or doctor, or going for treatment. Skin contact may aggravate preexisting dermatitis.

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media: Water fog or fine spray. 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. Water fog or fine spray. Dry chemical fire extinguishers. Foam.

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. Carbon dioxide. During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Vapours are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur.

5.3 Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discolouration of the container. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. 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). If protective equipment is not available or not used, fight fire from a protected location or safe distance. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

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 personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Vapour explosion hazard. Keep out of sewers. 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. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

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

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling: Keep out of reach of children. Keep away from heat, sparks and flame. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapour or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. No smoking, open flames or sources of ignition in handling and storage area. Electrically ground and bond all equipment. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Vapours are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

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.

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. Minimize sources of ignition, such as static build-up, heat, spark or flame.

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
Triclopypyr-2-butoxyethyl ester	Dow IHG	TWA	2 mg/m ³
fluoroxypyr-meptyl (ISO)	Dow IHG	TWA	10 mg/m ³
clopyralid (ISO)	Dow IHG	TWA	10 mg/m ³
Dipropylene glycol monomethyl ether	ACGIH	TWA	100 ppm
	ACGIH	STEL	150 ppm
	ACGIH	TWA	Absorbed via skin
	ACGIH	STEL	Absorbed via skin
	2000/39/EC	TWA	308 mg/m ³ 50 ppm
	2000/39/EC	TWA	Absorbed via skin
	GB EH40	TWA	Absorbed via skin
	GB EH40	TWA	308 mg/m ³ 50 ppm
Propylene glycol	US WEEL	TWA	10 mg/m ³
	GB EH40	TWA	474 mg/m ³ 150 ppm
	GB EH40	TWA	10 mg/m ³

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.

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: Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Styrene/butadiene rubber. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. 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

Colour

Odour

Odour Threshold

pH

Melting point/range

Freezing point

Boiling point (760 mmHg)

Flash point

Evaporation Rate (Butyl Acetate = 1)

Flammability (solid, gas)

Lower explosion limit

Upper explosion limit

Vapour Pressure

Relative Vapour Density (air = 1)

Relative Density (water = 1)

Water solubility

Partition coefficient: n-octanol/water

Auto-ignition temperature

Decomposition temperature

Dynamic Viscosity

Kinematic Viscosity

Explosive properties

Oxidizing properties

9.2 Other information

Liquid Density

Molecular weight

Surface tension

Liquid.

Tan

Gasoline-like

No test data available

2.74 pH *Electrode* (1% aqueous suspension)

Not applicable

No test data available

No test data available

Pensky-Martens closed cup 52 °C

No test data available

No

No test data available

No test data available

No test data available

No test data available

1.0043

No test data available

no data available

> 400 °C

No test data available

5.25 mPa.s at 20 °C 3.12 mPa.s at 40 °C

4.89 mm²/s at 20 °C 3.0 mm²/s at 40 °C

No

No significant increase (>5C) in temperature.

1.0043 g/cm³ at 20 °C

no data available

28.0 mN/m at 40 °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: Unstable at elevated temperatures.

10.3 Possibility of hazardous reactions: Polymerization will not occur.

10.4 Conditions to avoid: Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid. Avoid direct sunlight.

10.5 Incompatible materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

10.6 Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon monoxide. Carbon dioxide.

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

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

As product:

LD50, rat, female, > 2,000 - < 5,000 mg/kg

Acute dermal toxicity

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

As product:

LD50, rat, male and female, > 5,000 mg/kg

Acute inhalation toxicity

Product test data not available.

Skin corrosion/irritation

Brief contact may cause slight skin irritation with local redness.

May cause drying and flaking of the skin.

Serious eye damage/eye irritation

May cause moderate eye irritation.

May cause slight corneal injury.

Sensitization

Has demonstrated the potential for contact allergy in mice.

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):

Triclopyr butoxyethyl ester.

In animals, effects have been reported on the following organs:

Kidney.

Liver.

For the solvent(s):

In animals, effects have been reported on the following organs:

Blood.

Eye.

Kidney.

Liver.

Respiratory tract.

For the minor component(s):

In animals, effects have been reported on the following organs:

Gastrointestinal tract.

Urinary tract.

Lung.

Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Carcinogenicity

For the active ingredient(s): Clopyralid. For similar active ingredient(s). Triclopyr. Fluroxypyr-meptyl. 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.

Teratogenicity

Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected during normal exposure. For the active ingredient(s): Triclopyr butoxyethyl ester. Fluroxypyr 1-methylheptyl ester. Has been toxic to the foetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

For the solvent(s): Has been toxic to the foetus in laboratory animals at doses toxic to the mother. Has caused birth defects in lab animals only at doses producing severe toxicity in the mother.

Reproductive toxicity

For similar active ingredient(s). Triclopyr. For the solvent(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Mutagenicity

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

Aspiration Hazard

May be fatal if swallowed and enters airways.

COMPONENTS INFLUENCING TOXICOLOGY:

Triclopyr-2-butoxyethyl ester

Acute inhalation toxicity

Prolonged exposure is not expected to cause adverse effects. Based on the available data, narcotic effects were not observed.

Based on the available data, respiratory irritation was not observed.

LC50, rat, 4 Hour, dust/mist, > 4.8 mg/l The LC50 value is greater than the Maximum Attainable Concentration.

fluroxypyr-meptyl (ISO)

Acute inhalation toxicity

Prolonged exposure is not expected to cause adverse effects. Dust may cause irritation to upper respiratory tract (nose and throat).

Maximum attainable concentration. LC50, rat, male and female, 4 Hour, dust/mist, > 1.16 mg/l No deaths occurred at this concentration.

clopyralid (ISO)

Acute inhalation toxicity

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

As product: LC50, rat, 4 Hour, Dust, > 1 mg/l

No deaths occurred at this concentration., The LC50 value is greater than the Maximum Attainable Concentration.

Hydrocarbons, C9, aromatics

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.

LC50, rat, 4 Hour, > 10.2 mg/l

Dipropylene glycol monomethyl ether

Acute inhalation toxicity

LC50, rat, 7 Hour, vapour, 3.35 mg/l No deaths occurred at this concentration.

Propylene glycol

Acute inhalation toxicity

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

3-(Isodecyloxy)-1-propanamine

Acute inhalation toxicity

The LC50 has not been determined.

Benzenesulfonic acid, mono-C11-13-branched alkyl deriv., calcium salts

Acute inhalation toxicity

The LC50 has not been determined.

kerosine - unspecified

Acute inhalation toxicity

For similar material(s): LC0, rat, 4 Hour, dust/mist, > 4.778 mg/l

SECTION 12. ECOLOGICAL INFORMATION

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

12.1 Toxicity

Triclopyr-2-butoxyethyl ester

Acute toxicity to fish

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

LC50, Lepomis macrochirus (Bluegill sunfish), flow-through test, 96 Hour, 0.36 mg/l

LC50, Fish, 96 Hour, 0.310 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, 2.9 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate inhibition, > 3.00 mg/l, OECD Test Guideline 201

EbC50, diatom Navicula sp., 120 Hour, Biomass, 0.193 mg/l

EbC50, Lemna gibba, Biomass, 2.2 mg/l

Chronic toxicity to fish

NOEC, Rainbow trout (Oncorhynchus mykiss), 0.0263 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), 21 d, number of offspring, 1.6 mg/l

LOEC, Daphnia magna (Water flea), 21 d, number of offspring, 5.1 mg/l

MATC (Maximum Acceptable Toxicant Level), Daphnia magna (Water flea), 21 d, number of offspring, 2.9 mg/l

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

Material is slightly toxic to birds on a dietary basis (LC50 between 1001 and 5000 ppm).

oral LD50, Colinus virginianus (Bobwhite quail), 21 d, 735 mg/kgmg/kg bodyweight.

dietary LC50, Colinus virginianus (Bobwhite quail), 8 d, 1,890 mg/kgmg/kg bodyweight.

oral LD50, Apis mellifera (bees), 48 Hour, mortality, > 110µg/bee

contact LD50, Apis mellifera (bees), 48 Hour, mortality, > 100µg/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, > 521 mg/kg

fluroxypyr-meptyl (ISO)

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), semi-static test, 96 Hour, > 0.225 mg/l, OECD Test Guideline 203 or Equivalent

Toxicity to aquatic species occurs at concentrations above material's water solubility.

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, > 0.183 mg/l, OECD Test Guideline 202 or Equivalent

Toxicity to aquatic species occurs at concentrations above material's water solubility.

Acute toxicity to algae/aquatic plants

ErC50, diatom Navicula sp., static test, 72 Hour, 0.24 mg/l, OECD Test Guideline 201 or Equivalent

EbC50, alga Scenedesmus sp., 72 Hour, > 0.47 mg/l

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 1.410 mg/l

EC50, Lemna gibba, 14 d, > 2.31 mg/l

Chronic toxicity to fish

NOEC, Rainbow trout (Oncorhynchus mykiss), 0.32 mg/l

Toxicity to Above Ground Organisms

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

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50, Colinus virginianus (Bobwhite quail), 5 d, > 2000mg/kg bodyweight.

dietary LC50, Colinus virginianus (Bobwhite quail), > 5000mg/kg diet.

oral LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee

contact LD50, Apis mellifera (bees), 48 Hour, > 100micrograms/bee

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), > 1,000 mg/kg

clopyralid (ISO)

Acute toxicity to fish

Material is harmful to aquatic organisms (LC50/EC50/IC50 between 10 and 100 mg/L in the most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, > 99.9 mg/l

LC50, Lepomis macrochirus (Bluegill sunfish), 96 Hour, > 102 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, > 99 mg/l

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, 30.0 mg/l

EC50, blue-green alga Anabaena flos-aquae, 120 Hour, 37.1 mg/l

EC50, Lemna gibba, 14 d, 89 mg/l

Toxicity to bacteria

Bacteria, > 100 mg/l

Chronic toxicity to fish

NOEC, Pimephales promelas (fathead minnow), 34 d, Other, 10.8 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), static test, 21 d, 17 mg/l

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50, *Anas platyrhynchos* (Mallard duck), 1465mg/kg bodyweight.
dietary LC50, *Colinus virginianus* (Bobwhite quail), 8 d, > 5000mg/kg diet.
oral LD50, *Apis mellifera* (bees), 48 Hour, mortality, > 100micrograms/bee
contact LD50, *Apis mellifera* (bees), > 98.1micrograms/bee
oral LD50, *Apis mellifera* (bees), 48 Hour, mortality, > 98.1micrograms/bee

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 14 d, survival, > 1,000 mg/kg

Hydrocarbons, C9, aromatics

Acute toxicity to fish

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).
LC50, *Oncorhynchus mykiss* (rainbow trout), static test, 96 Hour, 9.22 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, saltwater mysid *Mysidopsis bahia*, 96 Hour, 2.0 mg/l

Acute toxicity to algae/aquatic plants

For similar material(s):
ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, 2.9 mg/l

Toxicity to Above Ground Organisms

Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).
Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).
dietary LC50, *Colinus virginianus* (Bobwhite quail), 8 d, > 6500mg/kg diet.
oral LD50, *Colinus virginianus* (Bobwhite quail), 21 d, > 2150mg/kg bodyweight.

Dipropylene glycol monomethyl ether

Acute toxicity to fish

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

LC50, *Poecilia reticulata* (guppy), static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, *Daphnia magna* (Water flea), static test, 48 Hour, 1,919 mg/l, OECD Test Guideline 202 or Equivalent
LC50, *Crangon crangon* (shrimp), semi-static test, 96 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), static test, 96 Hour, Biomass, > 969 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC10, *Pseudomonas putida*, 18 Hour, 4,168 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna* (Water flea), flow-through test, 22 d, > 0.5 mg/l
LOEC, *Daphnia magna* (Water flea), flow-through test, 22 d, > 0.5 mg/l
MATC (Maximum Acceptable Toxicant Level), *Daphnia magna* (Water flea), flow-through test, 22 d, > 0.5 mg/l

Propylene glycol

Acute toxicity to fish

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

LC50, *Oncorhynchus mykiss* (rainbow trout), static test, 96 Hour, 40,613 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

LC50, *Ceriodaphnia Dubia* (water flea), static test, 48 Hour, 18,340 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

ErC50, *Pseudokirchneriella subcapitata* (green algae), 96 Hour, Growth rate inhibition, 19,000 mg/l, OECD Test Guideline 201

Toxicity to bacteria

NOEC, *Pseudomonas putida*, 18 Hour, > 20,000 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Ceriodaphnia Dubia* (water flea), semi-static test, 7 d, number of offspring, 13,020 mg/l

3-(Isodecylloxy)-1-propanamine

Acute toxicity to fish

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

For similar material(s):
LC50, 96 Hour, 0.16 mg/l

Acute toxicity to aquatic invertebrates

For similar material(s):
EC50, 48 Hour, 0.132 mg/l

Chronic toxicity to fish

For analogous substance
NOEC, 30 d, 0.05 mg/l

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

Acute toxicity to fish

No relevant data found.

kerosine - unspecified

Acute toxicity to fish

For similar material(s):
Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).
EC50, *Oncorhynchus mykiss* (rainbow trout), 96 Hour, 3.6 mg/l

Acute toxicity to aquatic invertebrates

For similar material(s):
EC50, *Daphnia magna* (Water flea), semi-static test, 48 Hour, 1.1 mg/l

Acute toxicity to algae/aquatic plants

For similar material(s):
EC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, 7.9 mg/l

12.2 Persistence and degradability

Triclopvr-2-butoxyethyl ester

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

10-day Window: Fail

Biodegradation: 18 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 1.21 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
	0.004 mg/mg

Stability in Water (1/2-life)

Hydrolysis, half-life, 8.7 d, pH 7, Half-life Temperature 25 °C

fluoroxypyr-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

clopyralid (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: 5 - 10 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 0.71 mg/mg

Stability in Water (1/2-life)

Hydrolysis, pH 4 - 9, Half-life Temperature, Stable

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.

Dipropylene glycol monomethyl ether

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Pass

Biodegradation: 75 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

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

3-(Isodecyloxy)-1-propanamine

Biodegradability: 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.

Biodegradation: 45 %

Exposure time: 28 d

Method: OECD Test Guideline 301B

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

Biodegradability: No relevant data found.

kerosine - unspecified

Biodegradability: For similar material(s): Biodegradation may occur under aerobic conditions (in the presence of oxygen). 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.

12.3 Bioaccumulation

Triclopyr-2-butoxyethyl ester

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

Partition coefficient: n-octanol/water(log Pow): 4.62

Bioconcentration factor (BCF): 110 Fish

fluroxypyr-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

clopyralid (ISO)

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

Partition coefficient: n-octanol/water(log Pow): -2.63

Bioconcentration factor (BCF): < 1 Fish Measured

Hydrocarbons, C9, aromatics

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).

Dipropylene glycol monomethyl ether

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

Partition coefficient: n-octanol/water(log Pow): 1.01 Measured

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.

3-(Isodecyloxy)-1-propanamine

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

Partition coefficient: n-octanol/water(log Pow): 3.92

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

Bioaccumulation: No relevant data found.

kerosine - unspecified

Bioaccumulation: For similar material(s): Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

12.4 Mobility in soil

Triclopyr-2-butoxyethyl ester

Calculation of meaningful sorption data was not possible due to very rapid degradation in the soil.

For the degradation product:

Triclopyr.

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

fluroxypyr-meptyl (ISO)

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

Partition coefficient(Koc): 6200 - 43000

clopyralid (ISO)

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

Partition coefficient(Koc): 4.9

Hydrocarbons, C9, aromatics

No relevant data found.

Dipropylene glycol monomethyl ether

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): 0.28 Estimated.

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.

3-(Isodecyloxy)-1-propanamine

No relevant data found.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

No relevant data found.

kerosine - unspecified

No data available.

12.5 Results of PBT and vPvB assessment

Triclopyr-2-butoxyethyl ester

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).

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).

clopyralid (ISO)

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is considered to be very persistent and very bioaccumulating (vPvB).

Hydrocarbons, C9, aromatics

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

Dipropylene glycol monomethyl ether

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).

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).

3-(Isodecyloxy)-1-propanamine

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).

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

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

kerosine - unspecified

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

Triclopyr-2-butoxyethyl ester

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

fluroxypyr-meptyl (ISO)

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

clopyralid (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.

Dipropylene glycol monomethyl ether

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.

3-(Isodecyloxy)-1-propanamine

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

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

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

kerosine - unspecified

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 1993
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S.(Solvent naphtha (petroleum), heavy aromatic, Triclopyr-2-butoxyethyl ester)
14.3 Class	3
14.4 Packing group	III
14.5 Environmental hazards	Triclopyr-2-butoxyethyl ester
14.6 Special precautions for user	Special Provision 640E Hazard identification No: 30

Classification for SEA transport (IMO-IMDG):

14.1 UN number	UN 1993
14.2 Proper shipping name	FLAMMABLE LIQUID, N.O.S.(Solvent naphtha (petroleum), heavy aromatic, Triclopyr-2-butoxyethyl ester)
14.3 Class	3
14.4 Packing group	III
14.5 Environmental hazards	Triclopyr-2-butoxyethyl ester
14.6 Special precautions for user	EmS: F-E, S-E
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 1993
14.2 Proper shipping name	Flammable liquid, n.o.s.(Solvent naphtha (petroleum), heavy aromatic, Triclopyr-2-butoxyethyl ester)
14.3 Class	3

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 16465

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.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H400	Very toxic to aquatic life.
H410	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.
R22	Harmful if swallowed.
R34	Causes burns.
R37	Irritating to respiratory system.
R37/38	Irritating to respiratory system and skin.
R38	Irritating to skin.
R41	Risk of serious damage to eyes.

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)

Flam. Liq. - 3 - H226 - On basis of test data.
 2 - H319 - On basis of test data.
 Skin Sens. - 1B - H317 - On basis of test data.
 STOT SE - 3 - H335 - Calculation method
 STOT SE - 3 - H336 - Calculation method
 Asp. Tox. - 1 - H304 - Calculation method
 Aquatic Acute - 1 - H400 - Calculation method
 Aquatic Chronic - 1 - H410 - Calculation method

Revision

Identification Number: 101267220 / A293 / Issue Date: 13.08.2014 / Version: 2.1
 DAS Code: GF-2953

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

Legend

2000/39/EC	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
Absorbed via skin	Absorbed via skin
ACGIH	USA. ACGIH Threshold Limit Values (TLV)
Dow IHG	Dow Industrial Hygiene Guideline
GB EH40	UK. EH40 WEL - Workplace Exposure Limits
STEL	Short-term exposure limit
TWA	8-hour, time-weighted average
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:
Operators must wear suitable protective clothing (coveralls), suitable protective gloves and face protection (faceshield) when handling the concentrate.
Operators must wear suitable protective gloves when handling contaminated surfaces.
Operators must wear suitable protective clothing (coveralls) when applying by hand-held equipment.

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

WASH ALL PROTECTIVE CLOTHING thoroughly after use, especially the insides of gloves.

WHEN USING DO NOT EAT, DRINK OR SMOKE.

WASH CONCENTRATE from skin or eyes immediately.

DO NOT BREATHE SPRAY.

WASH HANDS AND EXPOSED SKIN before meals and after work.

Consumer protection:

NOT TO BE USED ON FOOD CROPS.

Environmental protection:

KEEP LIVESTOCK OUT of treated areas for at least 7 days following treatment and until poisonous weeds such as ragwort have died and become unpalatable.

DO NOT CONTAMINATE WATER with the product or its container. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads.

LERAP B - Horizontal boom

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

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

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

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

Storage and disposal:

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.

KEEP OUT OF REACH OF CHILDREN.

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.



Dow AgroSciences



Pastor[®] PRO

HERBICIDE

Product Registration Number: MAPP 16465

An emulsifiable concentrate formulation containing 50 g/l (5.0% w/w) clopyralid, 75 g/l (7.53% w/w) fluroxypyr (present as 100g/l of fluroxypyr as the 1-methyl heptyl ester) and 100 g/l (10.04% w/w) triclopyr (present as 139 g/l triclopyr as the butoxyethyl ester).

A foliar acting herbicide for the control of THISTLES, NETTLES and DOCKS in ESTABLISHED GRASSLAND.

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

READ DIRECTIONS FOR USE ON ATTACHED LEAFLET.

PROTECT FROM FROST.

2 Litres e

Dow AgroSciences Limited

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

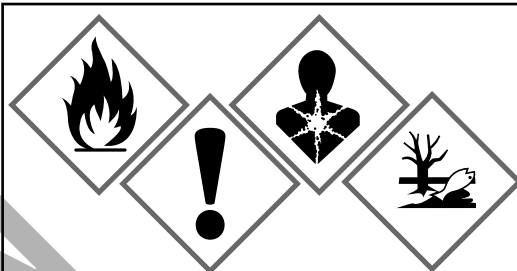
Telephone: Hitchin (01462) 457272 Fax: (01462) 426605

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

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This label is compliant with the CPA Voluntary Initiative Guidance.



Product Identifier according to Art.18 of Reg. (EC) No 1272/2008 (CLP): Pastor[®] Pro: Triclopyr-2-butoxyethyl ester; Hydrocarbons, C9, aromatics; 3-(Isodecyloxy)-1-propanamine Solvent naphtha (petroleum), heavy aromatic

DANGER

FLAMMABLE LIQUID AND VAPOUR.

MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.

MAY CAUSE AN ALLERGIC SKIN REACTION.

CAUSES SERIOUS EYE IRRITATION.

MAY CAUSE RESPIRATORY IRRITATION.

MAY CAUSE DROWSINESS OR DIZZINESS.

VERY TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.

Keep away from heat, hot surfaces, sparks, open flame and other ignition sources. No smoking.

Avoid breathing vapours or spray

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

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

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

DO NOT induce vomiting.

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

Repeated exposure may cause skin dryness or cracking.

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

IMPORTANT INFORMATION.

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

Crops/Situations: Grassland

Maximum Individual Dose: 4.0 litres product per hectare

Maximum Total Dose 4.0 litres product per hectare/annum

Latest Time of Application: 7 days before grazing or harvest

Other specific restrictions:

- (1) Livestock must be kept out of treated areas for at least 7 days following treatment and until poisonous weeds such as ragwort have died or become unpalatable.
 - (2) Applications must not be made outside the period of 1st March to 31st October.
- 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.**