

Olupal

syngenta®

GROUP 1 HERBICIDE

Product registration number: MAPP 19849
UFI: N1M4-J0KV-4009-3YP3

Emulsifiable concentrate containing 55 g/l pinoxaden, 13.75 g/l cloquintocet-mexyl and methyl-2,4-pentanediol.

Controls wild oats and ryegrasses in winter and spring wheat and winter and spring barley. Can contribute to the control of blackgrass in winter and spring barley as part of an integrated control strategy.

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

**In case of toxic or transport emergency ring
 +44 (0)1484 538444 any time**

Syngenta UK Limited, CPC 4, Capital Park, Cambridge CB21 5XE
 Tel: Cambridge (01223) 883400

SHAKE WELL BEFORE USE. PROTECT FROM FROST.

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3 litres

This product label is compliant with the CPA Voluntary Initiative (VI) guidance.



The
**Voluntary
 Initiative**

SAFETY PRECAUTIONS

(a) Operator protections

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

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS) AND SUITABLE PROTECTIVE GLOVES when handling the concentrate.

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

WASH SPLASHES from skin immediately.

WASH HANDS AND EXPOSED SKIN before meals and after work.

(b) 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 farmyards and roads.

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

(c) Storage and disposal

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.

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



L1086282 GBRI/02A PPE 4155399

OLUPAL

An emulsifiable concentrate containing
55 g/l pinoxaden

Warning

Causes skin irritation.

May cause an allergic skin reaction.

Suspected of damaging the unborn child.

Toxic to aquatic life with long lasting effects.

Obtain special instructions before use.

Avoid breathing mist or vapours.

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

IF exposed or concerned: Get medical advice/ attention.

Collect spillage.

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

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

MAPP No. 19849

UFI: N1M4-J0KV-4009-3YP3

**IMPORTANT INFORMATION**

FOR USE ONLY AS AN AGRICULTURAL HERBICIDE

Crop	Maximum total dose (litres/hectare/crop)	Maximum no. of applications	Latest time of application
Wheat	0.82	One per crop	Before flag leaf sheath extending stage (GS41)
Barley	1.1	One per crop	Before flag leaf sheath extending stage (GS41)

Other Specific Restrictions:

To avoid the build up of resistance do not apply products containing an ACCase inhibitor herbicide more than twice to any crop. In addition, do not use this product in mixture or sequence with any other product containing pinoxaden.

This product may only be applied after 1st February in the year of harvest.

Do not apply by hand-held equipment.

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

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.

This leaflet is part of the approved product label.

DIRECTIONS FOR USE

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

RESTRICTIONS

Do not use on oats

Do not spray crops under stress or to crops suffering from waterlogging, pest attack, disease or frost

Do not spray crops undersown with grass mixtures

Rain within one hour after application may reduce grass-weed control

Do not allow spray to drift onto neighbouring crops of oats, ryegrass or maize

Avoid the use of hormone-containing herbicides in mixture or sequence with OLUPAL.

When OLUPAL is applied first, leave 7 days before applying hormone herbicides. If hormone-containing products are applied first, leave 21 days before OLUPAL is applied.

GENERAL INFORMATION

OLUPAL is a foliar acting grass-weed killer for the control of wild oats, Italian rye-grass and perennial rye-grass (from seed) in winter and spring wheat and winter and spring barley. It is an ACCase inhibitor, also classified by the Herbicide Resistance Action Committee as 'Group A'. OLUPAL can contribute to the control of blackgrass in winter and spring barley as part of an integrated control strategy.

WEEDS CONTROLLED

OLUPAL controls wild oats, Italian rye-grass and perennial rye-grass (from seed) in winter and spring wheat and winter and spring barley. In winter and spring barley OLUPAL can contribute to control of blackgrass as part of an integrated control programme.

RESISTANCE MANAGEMENT

This product contains pinoxaden which is an ACCase inhibitor, also classified by the Herbicide Resistance Action Committee as 'Group A'.

Use only as part of a resistance management strategy that includes cultural methods of control and does not use ACCase inhibitors as the sole chemical method of grass-weed control.

Applying a second product containing an ACCase inhibitor to a crop will increase the risk of resistance development; only use a second ACCase inhibitor to control different weeds at a different timing.

Strains of some annual grasses (e.g. black-grass, wild-oats, and Italian rye-grass) have developed resistance to herbicides which may lead to poor control. A strategy for preventing and managing such resistance should be adopted. Guidelines have been produced by the Weed Resistance Action Group and copies are available from AHDB, CPA, your distributor, crop advisor or product manufacturer.

Key aspects of the OLUPAL resistance management strategy are:

- Always follow WRAG guidelines for preventing and managing herbicide resistant grass weeds.
- Do not use OLUPAL or any other ACCase inhibitor as the sole means of grass weed control in successive crops.
- Use grassweed herbicides with different modes of action throughout the cropping rotation.
- To reduce the risk of developing resistance, applications should be made to young, actively growing weeds.
- Use tank/product mixes or sequences of herbicides with different modes of action within individual crops, or successive crops.
- Monitor weed control effectiveness and investigate any odd patches of poor grass weed control. If unexplained, contact your agronomist who may consider a resistance test appropriate.
- Use crop rotation and other cultural control measures to prevent and manage herbicide resistant grass weeds.
- Only apply OLUPAL once per crop.
- Where resistant biotypes are present control from OLUPAL will be unacceptable.

OLUPAL has no residual activity. Optimum weed control will only be achieved when all grass weeds have emerged.

The activity of OLUPAL is not affected by soil type, organic matter or straw residues.

OLUPAL does not control broad-leaved weeds and if these are present a specific broad-leaved weed herbicide will be required.

OLUPAL is not recommended for the control of black grass in winter or spring wheat.

CROP SPECIFIC INFORMATION

Crops

OLUPAL can be used on all varieties of winter and spring wheat and winter and spring barley.

Timing

Spray after 1st February to before flag leaf sheath extending stage (GS41) of the crop. Spraying should be done when the majority of weeds have germinated, but before weed competition reduces yield.

Rates of use

Apply OLUPAL at 0.5 - 1.1 litres per hectare. The dose rate of OLUPAL depends on target grass species and season.

WEED CONTROL

Winter and spring wheat and winter and spring barley

Wild oats – apply 0.82 litres per hectare OLUPAL from 1st leaf unfolded to flag leaf ligule visible.

Italian rye-grass and perennial rye-grass (from seed) – apply 0.82 litres per hectare OLUPAL from 1st leaf unfolded to flag leaf ligule visible. Where applications are made to ryegrasses no larger than the 2 tiller stage (GS22) a dose of 0.55 litres per hectare may give acceptable levels of control. Always use as part of a weed control programme including other products active against ryegrasses.

Winter and spring barley

Black grass – as part of an integrated control strategy – apply 1.1 litres per hectare OLUPAL after 1st February up to the 7 tiller stage (GS27). Always use in sequence with other products with different modes of action that are active against black grass and as part of an integrated weed control programme. Where resistant biotypes are present control will be unacceptable.

FOLLOWING CROPS

There are no restrictions on succeeding crops in a normal rotation. In the event of a crop failure after application of OLUPAL, 4 weeks should elapse after application before ryegrass, maize, oats or broad-leaved crops are planted as replacement crops.

MIXING AND SPRAYING

Mixing Procedure

Make sure the sprayer is set to give an even application at the correct volume. Fill the spray tank with half the required volume of water and begin agitation. Add the required amount of OLUPAL to the spray tank and mix thoroughly. Add the rest of the water and continue to agitate until spraying operation is complete.

Spray Quality

Apply OLUPAL using a conventional fan nozzle producing a spray quality at the finer end of the medium range as defined by the British Crop Protection Council. A spray pressure of 2-3 bars is recommended.

Spray Volume

Spray OLUPAL in 100 - 400 litres of water per hectare.

TANK CLEANING PROCEDURE

Immediately after use, clean the spray equipment thoroughly. Drain the system completely and rinse spray tank, boom and nozzles two to three times with clean water until the foam and all traces of product have been removed.

Section 6 of the Health and Safety at Work Act
Additional Product Safety Information (UK Only)

(This section does not form part of the product label under the Plant Protection Products Regulations 1995.)

The product label provides information on a specific pesticidal use of the product; do not use otherwise, unless you have assessed any potential hazard involved, the safety measures required and that the particular use has 'Extension of Use' approval or is otherwise permitted under the Plant Protection Products Regulations.

The information on this label is based on the best available information including data from test results.

SAFETY DATA SHEET - V1.3

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

1.1 Product identifier

Trade name: OLUPAL

Design code: A21796A

Product Registration Number : MAPP 19849

Unique Formula Identifier (UFI): N1M4-J0KV-4009-3YP3

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

Use of the Substance/Mixture: Herbicide

Recommended restrictions on use: professional use

1.3 Details of the supplier of the safety data sheet Company

Company Syngenta UK Ltd
CPC4, Capital Park,
Fulbourn, Cambridge
CB21 5XE

Telephone +44 (0) 1223 883400

Telefax +44 (0) 1223 882195

E-mail address of person responsible for the SDS: customer.services@syngenta.com

1.4 Emergency telephone number

Emergency telephone number +44 (0) 1484 538444

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Skin irritation, Category 2 - H315: Causes skin irritation.

Skin sensitisation, Sub-category 1A - H317: May cause an allergic skin reaction.

Reproductive toxicity, Category 2 - H361d: Suspected of damaging the unborn child.

Long-term (chronic) aquatic hazard, Category 2 - H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms



Signal Word Warning

Hazard	H315	Causes skin irritation.
Statements	H317	May cause an allergic skin reaction.
	H361d	Suspected of damaging the unborn child.
Precautionary	H411	Toxic to aquatic life with long lasting effects
	P201	Obtain special instructions before use.
Statements	P261	Avoid breathing mist or vapours.
	P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.
	P308 + P313	IF exposed or concerned: Get medical advice/ attention.
	P391	Collect spillage.
	P501	Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty triple rinsed clean containers which can be disposed of as non-hazardous waste.

Hazardous components which must be listed on the label:

- pinoxaden (ISO)
- cloquintocet-mexyl

Additional Labelling

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

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Components

Chemical Name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
hydrocarbons, C10-C13, aromatics, <1% naphthalene	Not Assigned 922-153-0 01-2119451097-39	Asp. Tox. 1; H304 Aquatic Chronic 2; H411	>= 25 - < 30
2-methylpentane-2,4-diol	107-41-5 203-489-0 603-053-00-3 01-2119539582-35	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319	>= 20 - < 30

Chemical Name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
pinoxaden (ISO)	243973-20-8 607-726-00-2	Acute Tox. 4; H302 Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1A; H317 Repr. 2 ; H361d STOT SE 3; H335 Aquatic Acute 1 ;H400 Aquatic Chronic 3;H412 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 3 - < 10
cloquintocet-mexyl	99607-70-2 01-2119381871-32	Acute Tox. 4; H332 Skin Sens. 1; H317 STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 1 - < 2.5
naphthalene	91-20-3 202-049-5 601-052-00-2	Flam. Sol. 2; H228 Acute Tox. 4; H302 Carc. 2; H351 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	>= 0.25 - < 1

For explanation of abbreviations see section 16.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice: Have the product container, label or Material Safety Data Sheet with you when calling the Syngenta emergency number, a poison control centre or physician, or going for treatment.

If inhaled: Move the victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or poison control centre immediately.

In case of skin contact: Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.

In case of eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

If swallowed: If swallowed, seek medical advice immediately and show this container or label. Do **NOT** induce vomiting: contains petroleum distillates and/or aromatic solvents.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms: Aspiration may cause pulmonary oedema and pneumonitis.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: There is no specific antidote available. Treat symptomatically. Do **NOT** induce vomiting: contains petroleum distillates and/or aromatic solvents.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:

Extinguishing media - small fires

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Extinguishing media - large fires

Use alcohol-resistant foam or water spray.

Unsuitable extinguishing media:

Do not use a solid water stream as it may scatter and spread fire.

5.2 Specific hazards arising from the substance or mixture

Specific hazards during firefighting: As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

Special protective equipment for firefighters: Wear full protective clothing and self-contained breathing apparatus.

Further information: Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Clean contaminated surface thoroughly. Clean with detergents. Avoid solvents. Retain and dispose of contaminated wash water.

6.4 Reference to other sections

For disposal considerations see section 13., Refer to protective measures listed in sections 7 and 8.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling: No special protective measures against fire required. Avoid contact with skin and eyes. When using, do not eat, drink or smoke. For personal protection see section 8.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs.

7.3 Specific end use(s)

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

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
hydrocarbons, C10-C13, aromatics, <1% naphthalene	Not Assigned	TWA	8 ppm 50 mg/m ³	Supplier
2-methylpentane-2,4-diol	107-41-5	TWA	25 ppm 123 mg/m ³	GB EH40
	107-41-5	STEL	25 ppm 123 mg/m ³	GB EH40
pinoxaden (ISO)	243973-20-8	TLV-C	0.1 mg/m ³	Syngenta
cloquintocet-mexyl	99607-70-2	TWA	5 mg/m ³	Syngenta
naphthalene	91-20-3	TWA	10 ppm 50 mg/m ³	91/322/EEC
	Further information: Indicative			

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Sampling time	Basis
naphthalene	91-20-3	1-hydroxypyrene: 4 µmol/mol creatinine (Urine)	After shift	GB EH40 BAT

Derived No Effect Level (DNEL):

Substance name	End Use	Exposure routes	Potential health effects	Value
tris(2-ethylhexyl) phosphate	Workers	Inhalation	Long-term systemic effects	350 mg/m ³
	Workers	Inhalation	Acute systemic effects	2800 mg/m ³
	Workers	Dermal	Long-term systemic effects	50 mg/kg
	Workers	Dermal	Acute systemic effects	40 mg/kg
	Consumers	Dermal	Acute systemic effects	200 mg/kg
	Consumers	Dermal	Long-term systemic effects	25 mg/kg
	Consumers	Inhalation	Acute systemic effects	500 mg/m ³
	Consumers	Inhalation	Long-term systemic effects	62.5 mg/m ³
	Consumers	Oral	Acute systemic effects	200 mg/kg
	Consumers	Oral	Long-term systemic effects	25 mg/kg
2-methylpentane-2,4-diol	Workers	Inhalation	Short-term exposure, Local effects	98 mg/m ³
	Workers	Inhalation	Long-term systemic effects	14 mg/m ³
	Workers	Inhalation	Long-term local effects	49 mg/m ³
	Workers	Dermal	Long-term systemic effects	2 mg/kg
	Consumers	Inhalation	Short-term exposure, Local effects	49 mg/m ³
	Consumers	Inhalation	Long-term systemic effects	3.5 mg/m ³
	Consumers	Inhalation	Long-term local ef-fects	25 mg/m ³
	Consumers	Oral	Long-term systemic effects	1 mg/kg
	Consumers	Dermal	Long-term systemic effects	1 mg/kg
	hydrocarbons, C10-C13, aromatics, <1% naphthalene	Workers	Inhalation	Long-term systemic effects
Workers		Dermal	Long-term systemic effects	12.5 mg/kg
Consumers		Inhalation	Long-term systemic effects	32 mg/m ³
Consumers		Dermal	Long-term systemic effects	7.5 mg/kg
Consumers		Oral	Long-term systemic effects	7.5 mg/kg
castor oil, ethoxylated	Workers	Inhalation	Long-term systemic effects	16.4 mg/m ³
	Workers	Dermal	Long-term systemic effects	4.67 mg/kg bw/day

Substance name	End Use	Exposure routes	Potential health effects	Value
	Consumers	Inhalation	Long-term systemic effects	2.9 mg/m ³
	Consumers	Dermal	Long-term systemic effects	1.67 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	1.67 mg/kg bw/day
cloquintocet-mexyl	Industrial use	Dermal	Long-term exposure, Systemic effects	3.33 mg/kg
	Industrial use	Inhalation	Long-term exposure, Systemic effects	0.303 mg/m ³
naphthalene	Workers	Inhalation	Long-term systemic effects	25 mg/m ³
	Workers	Inhalation	Long-term local effects	25 mg/m ³
	Workers	Dermal	Long-term systemic effects	3.57 mg/kg

Predicted No Effect Concentration (PNEC):

Substance name	Environmental Compartment	Value
tris(2-ethylhexyl) phosphate	Sewage treatment plant	1 mg/l
2-methylpentane-2,4-diol	Fresh water	0.429 mg/l
	Marine water	0.0429 mg/l
	Fresh water sediment	1.79 mg/kg
	Marine sediment	0.179 mg/kg
	Soil	0.11 mg/kg
castor oil, ethoxylated	Fresh water sediment	0.0129 mg/kg dry weight (d.w.)
	Marine sediment	0.00129 mg/kg dry weight (d.w.)
	Soil	0.00258 mg/kg dry weight (d.w.)
cloquintocet-mexyl	Fresh water	0.0018 mg/l
	Fresh water sediment	0.934 mg/kg dry weight (d.w.)
	Marine water	0.00018 mg/l
	Marine sediment	0.0934 mg/kg dry weight (d.w.)
	Soil	0.463 mg/kg dry weight (d.w.)
naphthalene	Fresh water	0.0024 mg/l
	Marine water	0.0024 mg/l
	Sewage treatment plant	2.9 mg/l
	Fresh water sediment	0.0672 mg/kg
	Marine sediment	0.0672 mg/kg
	Soil	0.0533 mg/kg

8.2 Exposure controls

Engineering measures

Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use. Maintain air concentrations below occupational exposure standards. Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Eye protection : No special protective equipment required.

Hand protection

Material : Nitrile rubber

Break through time : > 480 min

Glove thickness : 0.5 mm

Remarks : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.

Remove and wash contaminated clothing before re-use.

Wear as appropriate: Impervious clothing

Respiratory protection : No personal respiratory protective equipment normally required. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Protective measures : The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	clear to opalescent
Colour :	light yellow
Odour :	aromatic
Odour Threshold :	No data available
pH :	3 - 7
	Concentration: 1 % w/v
Melting point/range :	No data available
Boiling point/boiling range :	No data available
Flash point :	104 °C
	Method: Pensky-Martens closed cup

Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Upper explosion limit / Upper flammability limit:	No data available
Lower explosion limit / Lower flammability limit:	No data available
Vapour pressure:	No data available
Relative vapour density:	No data available
Density:	0.95 - 0.99 g/cm ³ (20 °C)
Solubility(ies)	
Solubility in other solvents:	No data available
Partition coefficient: n-octanol/water:	No data available
Auto-ignition temperature:	370 °C
Decomposition temperature:	No data available
Viscosity	
Viscosity, kinematic :	22.7 mm ² /s (40 °C)
Explosive properties:	Not explosive
Oxidizing properties:	The substance or mixture is not classified as oxidizing.

9.2 Other Information

Particle size : No data available

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

None reasonably foreseeable.

10.2 Chemical stability

Stable under normal conditions

10.3 Possibility of hazardous reactions

Hazardous reactions: No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid : No decomposition if used as directed.

10.5 Incompatible materials

Materials to avoid : None known

10.6 Hazardous decomposition products

Hazardous decomposition products: No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Information on likely routes of exposure: Ingestion, Inhalation, Skin contact, Eye contact

Acute toxicity

Product:

Acute oral toxicity: LD50 (Rat, female): > 2,000 mg/kg

Assessment: The substance or mixture has no acute oral toxicity
Remarks: Based on data from similar materials

Acute inhalation toxicity : Acute toxicity estimate: > 5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

Acute dermal toxicity: LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

Components:

2-methylpentane-2,4-diol:

Acute oral toxicity: LD50 Oral (Rat): 2,000 mg/kg
Acute dermal toxicity: LD50 Dermal (Rat): 2,000 mg/kg

pinoxaden (ISO):

Acute oral toxicity: LD50 (Rat, male and female): > 5,000 mg/kg
Acute toxicity estimate: 500 mg/kg
Method: Acute toxicity estimate according to Regulation (EC) No. 1272/2008

Acute inhalation toxicity: LC50 (Rat, male): 4.63 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Acute toxicity estimate: 4.63 mg/l
Test atmosphere: dust/mist
Method: Acute toxicity estimate according to Regulation (EC) No. 1272/2008

Acute dermal toxicity: LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

cloquintocet-mexyl:

Acute oral toxicity: LD50 (Rat, male and female): > 5,000 mg/kg
Acute inhalation toxicity: LC50 (Rat, male and female): > 0.935 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The component/mixture is moderately toxic after short term inhalation.
Remarks: Highest attainable concentration

Acute dermal toxicity: LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

naphthalene:

Acute oral toxicity: Assessment: The component/mixture is moderately toxic after single ingestion.

Skin corrosion/irritation

Product:

Species: Rabbit

Result: Irritating to skin.

Result : Repeated exposure may cause skin dryness or cracking.

Components:

hydrocarbons, C10-C13, aromatics, <1% naphthalene:

Result : Repeated exposure may cause skin dryness or cracking.

2-methylpentane-2,4-diol:

Species: Rabbit

Result: Irritating to skin.

pinoxaden (ISO):

Method: Based on Human Evidence

Result: Irritating to skin.

cloquintocet-mexyl:

Species: Rabbit

Result: No skin irritation

Serious eye damage/eye irritation

Product:

Species: Rabbit

Result: No eye irritation

Components:

2-methylpentane-2,4-diol:

Species: Rabbit

Result: Irritation to eyes, reversing within 21 days

pinoxaden (ISO):

Species: Rabbit

Result: Irritation to eyes, reversing within 21 days

cloquintocet-mexyl:

Species: Rabbit

Result: No eye irritation

Respiratory or skin sensitisation

Product:

Test Type: Buehler Test

Species: Guinea pig

Result: The product is a skin sensitiser, sub-category 1A.

Components:

pinoxaden (ISO):

Test Type: mouse lymphoma cells

Species: Mouse

Result: The product is a skin sensitiser, sub-category 1A.

Test Type: Respiratory sensitisation

Result: Does not cause respiratory sensitisation.

Remarks: Experience with human exposure

cloquintocet-mexyl:

Species: Guinea pig

Result: May cause sensitisation by skin contact.

Germ cell mutagenicity

Components:

2-methylpentane-2,4-diol:

Germ cell mutagenicity- Assessment: In vitro tests did not show mutagenic effects

pinoxaden (ISO):

Germ cell mutagenicity- Assessment: Animal testing did not show any mutagenic effects.

cloquintocet-mexyl:

Germ cell mutagenicity- Assessment: Animal testing did not show any mutagenic effects.

Carcinogenicity

Components:

2-methylpentane-2,4-diol:

Carcinogenicity - Assessment: Weight of evidence does not support classification as a carcinogen

pinoxaden (ISO):

Carcinogenicity - Assessment: No evidence of carcinogenicity in animal studies.

cloquintocet-mexyl:

Carcinogenicity - Assessment: No evidence of carcinogenicity in animal studies.

naphthalene:

Carcinogenicity - Assessment: Limited evidence of carcinogenicity in animal studies.

Reproductive toxicity

Components:

2-methylpentane-2,4-diol:

Reproductive toxicity - Assessment: No toxicity to reproduction

pinoxaden (ISO):

Reproductive toxicity - Assessment: No toxicity to reproduction

cloquintocet-mexyl:

Reproductive toxicity - Assessment: No toxicity to reproduction

STOT - single exposure

Components:

pinoxaden (ISO):

Assessment: Based on Human Evidence, The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. Remarks: Breathing difficulties Cough Acute irritation of the respiratory system leading to tightness of the chest and an asthmatic condition.

cloquintocet-mexyl:

Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT - repeated exposure

Components:

pinoxaden (ISO):

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

cloquintocet-mexyl:

Target Organs : Urinary system, Liver

Assessment: The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Aspiration toxicity**Components:**

hydrocarbons, C10-C13, aromatics, <1% naphthalene:

May be fatal if swallowed and enters airways.

SECTION 12. ECOLOGICAL INFORMATION**12.1 Toxicity****Product:**

Toxicity to fish:	LC50 (<i>Oncorhynchus mykiss</i> (rainbow trout)): 19 mg/l Exposure time: 96 h Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates:	EC50 (<i>Daphnia magna</i> (Water flea)): 1.8 mg/l Exposure time: 48 h Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants:	ErC50 (<i>Raphidocelis subcapitata</i> (green algae)): 32 mg/l Exposure time: 72h Remarks: Based on data from similar materials NOEC (<i>Raphidocelis subcapitata</i> (green algae)): 5.5 mg/l End point: Growth rate Exposure time: 72 h Remarks: Based on data from similar materials

Components:

hydrocarbons, C10-C13, aromatics, <1% naphthalene:

Toxicity to fish :	LL50 (<i>Oncorhynchus mykiss</i> (rainbow trout)): 3.6 mg/l Exposure time: 96 h Remarks: Information given is based on data obtained from similar substances.
Toxicity to daphnia and other aquatic invertebrates:	EL50 (<i>Daphnia magna</i> (Water flea)): 1.1 mg/l Exposure time: 48 h Remarks: Information given is based on data obtained from similar substances.
Toxicity to algae/aquatic plants:	EL50 (<i>Raphidocelis subcapitata</i> (freshwater green alga)): 7.9 mg/l End point: Growth rate Exposure time: 72 h Remarks: Information given is based on data obtained from similar substances.

NOELR (*Raphidocelis subcapitata* (freshwater green alga)): 0.22 mg/l
End point: Growth rate
Exposure time: 72 h
Remarks: Information given is based on data obtained from similar substances.

Ecotoxicology Assessment

Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

pinoxaden (ISO):

Toxicity to fish: LC50 (*Oncorhynchus mykiss* (rainbow trout)): 10.3 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (*Daphnia magna* (Water flea)): 52 mg/l
Exposure time: 48 h

Toxicity to algae: ErC50 (*Raphidocelis subcapitata* (freshwater green alga)): 3.6 mg/l
Exposure time: 72 h
ErC50 (*Skeletonema costatum* (marine diatom)): 1.72 mg/l
Exposure time: 72 h
NOEC (*Skeletonema costatum* (marine diatom)): 0.94 mg/l
End point: Growth rate
Exposure time: 96 h
NOEC (*Lemna gibba* (gibbous duckweed)): 0.73 mg/l
End point: Growth rate
Exposure time: 7 d

M-Factor

(Acute aquatic toxicity):

1

Toxicity to fish (Chronic toxicity): NOEC: 6.6 mg/l

Exposure time: 28 d

Species: *Oncorhynchus mykiss* (rainbow trout)

cloquintocet-mexyl:

Toxicity to fish: LC50 (*Oncorhynchus mykiss* (rainbow trout)): > 0.97 mg/l
Exposure time: 96 h
LC50 (*Gobiocypris rarus* (rare gudgeon)): 0.102 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (*Daphnia magna* (Water flea)): > 0.82 mg/l
Exposure time: 48 h

Toxicity to algae: ErC50 (*Desmodesmus subspicatus* (green algae)): > 2.2 mg/l
Exposure time: 72 h
NOEC (*Desmodesmus subspicatus* (green algae)): 0.12 mg/l

End point: Growth rate
Exposure time: 72 h
M-Factor (Acute aquatic toxicity): 1
Toxicity to microorganisms: EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):
NOEC: > 0.437 mg/l
Exposure time: 21 d
Species: Daphnia (water flea)

naphthalene:

Ecotoxicology Assessment

Acute aquatic toxicity: Very toxic to aquatic life.
Chronic aquatic toxicity: Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

Components:

hydrocarbons, C10-C13, aromatics, <1% naphthalene:

Biodegradability : Result: Readily biodegradable.

2-methylpentane-2,4-diol:

Biodegradability: Result: Readily biodegradable.

pinoxaden (ISO):

Biodegradability: Result: rapidly degradable

Stability in water: Degradation half life: 0.3 d

Remarks: Product is not persistent.

cloquintocet-mexyl:

Biodegradability: Result: Not readily biodegradable.

Stability in water: Degradation half life: 0.4 d

Remarks: Product is not persistent.

12.3 Bioaccumulative potential

Components:

pinoxaden (ISO):

Bioaccumulation: Remarks: Low bioaccumulation potential.

cloquintocet-mexyl:

Bioaccumulation: Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water: log Pow: 5.24 (25 °C)

12.4 Mobility in soil

Components:

pinoxaden (ISO):

Distribution among environmental compartments: Remarks: Moderately mobile in soils

Stability in soil: Dissipation time: 0.1 - 1.8 d

Percentage dissipation: 50 % (DT50)

Remarks: Product is not persistent.

cloquintocet-mexyl:

Distribution among environmental compartments: Remarks: immobile

Stability in soil: Dissipation time: 2.4 d

Percentage dissipation: 50 % (DT50)

Remarks: Product is not persistent.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:

2-methylpentane-2,4-diol:

Assessment : 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).

pinoxaden (ISO):

Assessment : 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).

cloquintocet-mexyl:

Assessment : 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).

naphthalene:

Assessment : 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

Product:

Endocrine disrupting potential: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product: Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Empty remaining contents. Triple rinse containers. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

14.1 UN number

ADR : UN 3082

RID : UN 3082

IMDG : UN 3082

IATA : UN 3082

14.2 UN proper shipping name

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(CLOQUINTOCET-MEXYL AND SOLVENT NAPHTHA)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(CLOQUINTOCET-MEXYL AND SOLVENT NAPHTHA)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(CLOQUINTOCET-MEXYL AND SOLVENT NAPHTHA)

IATA : Environmentally hazardous substance, liquid, n.o.s.
(CLOQUINTOCET-MEXYL AND SOLVENT NAPHTHA)

14.3 Transport hazard class(es)

ADR : 9

RID : 9

IMDG : 9

IATA : 9

14.4 Packing group

ADR

Packing group : III

Classification Code : M6

Hazard Identification Number : 90

Labels : 9

Tunnel restriction code : (-)

RID

Packing group : III

Classification Code : M6

Hazard Identification Number : 90

Labels : 9

IMDG

Packing group : III

Labels : 9

EmS Code : F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft): 964

Packing instruction (LQ): Y964

Packing group: III

Labels: Class 9 - Miscellaneous dangerous substances and articles

IATA (Passenger)

Packing instruction (passenger aircraft): 964

Packing instruction (LQ): Y964

Packing group: III

Labels: Class 9 - Miscellaneous dangerous substances and articles

14.5 Environmental hazards

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

IATA (Passenger)

Environmentally hazardous: yes

IATA (Cargo)

Environmentally hazardous: yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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

Not applicable for product as supplied.

SECTION 15. REGULATORY INFORMATION

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

Relevant EU provisions transposed through retained EU law

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII): Conditions of restriction for the following entries should be considered: Number on list 3

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast): naphthalene
UK REACH List of substances subject to authorisation (Annex XIV): Not applicable
GB Export and import of hazardous chemicals - Prior Informed Consent (PIC) Regulation: Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

	Quantity 1	Quantity 2
E2 ENVIRONMENTAL HAZARDS	200 t	500 t

15.2 Chemical Safety Assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

SECTION 16. OTHER INFORMATION

Full text of H-Statements

- H228: Flammable solid.
- H302: Harmful if swallowed.
- 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.
- H332: Harmful if inhaled.
- H335: May cause respiratory irritation.
- H351: Suspected of causing cancer.
- H361d: Suspected of damaging the unborn child.
- H373: May cause damage to organs through prolonged or repeated exposure.
- 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.
- H412: Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

- Acute Tox.: Acute toxicity
- Aquatic Acute: Acute aquatic toxicity
- Aquatic Chronic: Chronic aquatic toxicity
- Asp. Tox.: Aspiration hazard
- Carc.: Carcinogenicity
- Eye Irrit.: Eye irritation
- Flam. Sol.: Flammable solids
- Repr. : Reproductive toxicity
- Skin Irrit.: Skin irritation

Skin Sens.:	Skin sensitisation
STOT RE:	Specific target organ toxicity - repeated exposure
STOT SE:	Specific target organ toxicity - single exposure
91/322/EEC:	Europe. Commission Directive 91/322/EEC on establishing indicative limit values
GB EH40:	UK. EH40 WEL - Workplace Exposure Limits
GB EH40 BAT :	UK. Biological monitoring guidance values
91/322/EEC / TWA:	Limit Value - eight hours
GB EH40 / TWA:	Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL:	Short-term exposure limit (15-minute reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information**Classification of the mixture:**

Skin Irrit. 2	H315
Skin Sens. 1A	H317
Repr. 2	H361d
Aquatic Chronic 2	H411

Classification procedure:

Based on product data or assessment
Based on product data or assessment
Calculation method
Calculation method

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification.

The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.