SAFETY DATA SHEET
according to Regulation (EC) No. 1907/2006, Annex II and its amendments.

PIXXARO™ EC

Version	Revision Date:	SDS Number:	Date of last issue: 05.04.2024
1.1	09.04.2024	800080005295	Date of first issue: 05.04.2024

Corteva Agriscience™ encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container. This Safety Data Sheet adheres to the standards and regulatory requirements of Ireland and may not meet the regulatory requirements in other countries.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : PIXXARO™ EC

Unique Formula Identifier (UFI) : W1T7-D064-C00N-EVH4

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

Use of the Substance/Mixture : Plant Protection Product, Herbicide

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION
Manufacturer/importer
Corteva Agriscience UK Limited
Melbourn Science Park - Cambridge Road - Unit H4, Building H
Melbourn Cambridgeshire - SG8 6HB
UNITED KINGDOM

Customer Information Number : +44 8006 89 8899
E-mail address : SDS@corteva.com

1.4 Emergency telephone number

SGS : +353 818 663 627

National Poisons Information Centre (Beaumont Hospital): 01 809 2166 (8 AM - 10 PM)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitisation, Sub-category 1B	H317: May cause an allergic skin reaction.
Specific target organ toxicity - single ex-	H335: May cause respiratory irritation.

posure, Category 3, Respiratory system	
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Warning

Hazard statements :
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P261 Avoid breathing mist/vapours/spray.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P391 Collect spillage.

Disposal:

P501 Dispose of contents/container to a licensed waste disposal contractor or collection site except for empty clean triple rinsed containers which can be disposed of as non-hazardous waste.

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.

Ecological information: 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.

Toxicological information: 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 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. REACH Registration number	Classification	Concentration (% w/w)
fluroxypyr-meptyl (ISO)	81406-37-3 279-752-9 607-272-00-5	Aquatic Acute 1; H400 Aquatic Chronic 1; H410	38.94
Halauxifen-methyl	943831-98-9	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 _____ M-Factor (Acute aquatic toxicity): 1,000 M-Factor (Chronic aquatic toxicity): 1,000	1.21
Cloquintocet-mexyl	99607-70-2 01-2119381871-32-0002, 01-2119381871-32-0003, 01-2119403579-35-0000	Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	1.18
Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide	Not Assigned 909-125-3 01-2119974115-37	Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335 (Respiratory system)	>= 40 - < 50
Ethylhexanol	104-76-7 203-234-3 01-2119487289-20	Acute Tox. 4; H332 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 (Respiratory system)	>= 1 - < 3
Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts	90194-26-6 290-635-1	Skin Irrit. 2; H315 Eye Dam. 1; H318 Aquatic Chronic 3; H412	>= 1 - < 2.5
N-methyl-2-pyrrolidone	872-50-4 212-828-1	Skin Irrit. 2; H315 Eye Irrit. 2; H319	>= 0.1 - < 0.3

	606-021-00-7 01-2119472430-46	Repr. 1B; H360D STOT SE 3; H335 (Respiratory system) _____ specific concentration limit STOT SE 3; H335 >= 10 % STOT SE 3; H335 >= 10 %	

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

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

In case of skin contact : Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.
Suitable emergency safety shower facility should be available in work area.

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

If swallowed : Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor.
Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : 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 center or doctor, or going for treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting : Exposure to combustion products may be a hazard to health.
Do not allow run-off from fire fighting to enter drains or water courses.

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:
Sulphur oxides
Nitrogen oxides (NOx)
Carbon oxides
Hydrogen chloride gas
Hydrogen fluoride

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Ensure adequate ventilation.
Use personal protective equipment.
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions

Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.
Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
Prevent from entering into soil, ditches, sewers,underwater.
See Section 12, Ecological Information.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Clean up remaining materials from spill with suitable absorbant.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped,
Recovered material should be stored in a vented container.
The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to overpressurization of the container.
Keep in suitable, closed containers for disposal.
Wipe up with absorbent material (e.g. cloth, fleece).
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
See Section 13, Disposal Considerations, for additional information.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Local/Total ventilation : Use with local exhaust ventilation.
Advice on safe handling : Avoid formation of aerosol.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
Provide sufficient air exchange and/or exhaust in work rooms.
Do not breathe vapours/dust.
Do not smoke.
Handle in accordance with good industrial hygiene and safety

practice.
Avoid exposure - obtain special instructions before use.
Smoking, eating and drinking should be prohibited in the application area.
Do not get on skin or clothing.
Do not breathe vapours or spray mist.
Do not swallow.
Do not get in eyes.
Avoid contact with skin and eyes.
Keep container tightly closed.
Take care to prevent spills, waste and minimize release to the environment.
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in a closed container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in properly labelled containers. Store in accordance with the particular national regulations.

Advice on common storage : Strong oxidizing agents

Packaging material : Unsuitable material: None known.

7.3 Specific end use(s)

Specific use(s) : Plant protection products subject to Regulation (EC) No 1107/2009.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Ethylhexanol	104-76-7	Limit Value - eight hours	1 ppm 5.4 mg/m3	2017/164/EU
	Further information: Indicative			
		Occupational exposure limit value (8-hour reference period)	1 ppm 5.4 mg/m3	IE OEL
		8-hr TWA	2 ppm	Corteva OEL
N-methyl-2-pyrrolidone	872-50-4	Limit Value - eight hours	10 ppm 40 mg/m3	2009/161/EU
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		Short term exposure limit	20 ppm 80 mg/m3	2009/161/EU
	Further information: Identifies the possibility of significant uptake through the			

	skin, Indicative			
		Occupational exposure limit value (8-hour reference period)	10 ppm 40 mg/m3	IE OEL
	Further information: Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body			
		Occupational exposure limit value (15-minute reference period)	20 ppm 80 mg/m3	IE OEL
	Further information: Substances which have the capacity to penetrate intact skin when they come in contact with it, and be absorbed into the body			
		Long term exposure limit	10 ppm 40 mg/m3	2004/37/EC
	Further information: Skin, Carcinogens or mutagens			
		Short term exposure limit	20 ppm 80 mg/m3	2004/37/EC
	Further information: Skin, Carcinogens or mutagens			

Contains no substances with European regional occupational exposure limits.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Ethylhexanol	Workers	Inhalation	Long-term systemic effects	12.8 mg/m3
	Workers	Inhalation	Long-term local effects	53.2 mg/m3
	Workers	Inhalation	Acute local effects	53.2 mg/m3
	Workers	Skin contact	Long-term systemic effects	23 mg/kg bw/day
	Workers	Inhalation	Acute local effects	106.4 mg/m3
	Consumers	Inhalation	Long-term systemic effects	2.3 mg/m3
	Consumers	Inhalation	Long-term local effects	26.6 mg/m3
	Consumers	Inhalation	Acute local effects	26.6 mg/m3
	Consumers	Skin contact	Long-term systemic effects	11.4 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	1.1 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Ethylhexanol	Fresh water	0.017 mg/l
	Intermittent use/release	0.17 mg/l
	Marine water	0.002 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	0.284 mg/kg dry weight (d.w.)
	Marine sediment	0.028 mg/kg dry weight (d.w.)

	Soil	0.047 mg/kg dry weight (d.w.)
	Oral (Secondary Poisoning)	55 mg/kg food

8.2 Exposure controls

Engineering measures

Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.
Local exhaust ventilation may be necessary for some operations.

Personal protective equipment

Eye/face protection : Use chemical goggles.
Chemical goggles should be consistent with EN 166 or equivalent.

Hand protection

Remarks : Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Chlorinated polyethylene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: 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. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. 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.

Skin and body 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, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	Liquid.
Colour	:	Yellow
Odour	:	Mild
Odour Threshold	:	Not applicable
Melting point/range	:	Not applicable
Freezing point		No data available
Boiling point/boiling range	:	No data available
Flammability	:	Non-flammable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	> 100 °C Method: closed cup
Auto-ignition temperature	:	350 °C
pH	:	5.16 (23 °C) Method: pH Electrode 1% Aqueous solution
Viscosity		
Viscosity, dynamic	:	58.7 mPa,s (20 °C)
Viscosity, kinematic	:	No data available
Solubility(ies)		

Water solubility	:	No data available
Vapour pressure	:	No data available
Relative density	:	No data available
Density	:	1.04 g/cm3 (20 °C)
Relative vapour density	:	No data available

9.2 Other information

Explosives	:	Not explosive
Oxidizing properties	:	No significant increase (>5C) in temperature. Reference substance: Monoammonium phosphate
Evaporation rate	:	No data available
Surface tension	:	29.5 mN/m, 25 °C

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

No decomposition if stored and applied as directed.
Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions	:	Stable under recommended storage conditions. No hazards to be specially mentioned. None known.

10.4 Conditions to avoid

Conditions to avoid	:	None known.

10.5 Incompatible materials

Materials to avoid	:	Strong acids Strong bases

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:
Sulphur oxides
Carbon oxides
Nitrogen oxides (NOx)

Hydrogen fluoride
Hydrogen chloride gas

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product:

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

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.80 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 Dermal (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 402
Symptoms: No deaths occurred at this concentration.

Components:

fluroxypyr-meptyl (ISO):

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male and female): > 1.16 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Maximum attainable concentration.

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

Halauxifen-methyl:

Acute oral toxicity : LD50 (Rat, female): > 5,000 mg/kg

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg

Cloquintocet-mexyl:

Acute oral toxicity	:	LD50 (Rat, female): > 2,000 mg/kg Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5.42 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rat, male and female): > 5,000 mg/kg

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 3.551 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rat): > 2,000 mg/kg

Ethylhexanol:

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg Target Organs: Central nervous system
Acute inhalation toxicity	:	LC50 (Rat): 2.17 mg/l Exposure time: 4 h Test atmosphere: dust/mist LC50 (Rat): 1.5 mg/l Exposure time: 4 h Test atmosphere: dust/mist
Acute dermal toxicity	:	LD50 (Rabbit): > 3,000 mg/kg Method: OECD Test Guideline 402

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Acute oral toxicity	:	LD50 (Rat, female): 4,445 mg/kg
Acute dermal toxicity	:	LD50 (Rat, male and female): > 2,000 mg/kg Assessment: The substance or mixture has no acute dermal toxicity

N-methyl-2-pyrrolidone:

Acute oral toxicity	:	LD50 (Rat, male and female): 4,150 mg/kg Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.1 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Symptoms: No deaths occurred at this concentration.

Acute dermal toxicity : LD50 (Rat, male and female): > 5,000 mg/kg
Method: OECD Test Guideline 402

Skin corrosion/irritation

Product:

Species : Rabbit
Result : No skin irritation

Components:

fluroxypyr-meptyl (ISO):

Species : Rabbit
Result : No skin irritation

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Species : Rabbit
Result : Skin irritation

Ethylhexanol:

Species : Rabbit
Result : Skin irritation

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Result : Skin irritation

N-methyl-2-pyrrolidone:

Species : Rabbit
Result : Skin irritation

Serious eye damage/eye irritation

Product:

Species : Rabbit
Result : Mild eye irritation

Components:

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Species : Rabbit
Result : Corrosive

Ethylhexanol:

Species : Rabbit
Result : Eye irritation

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Result : Corrosive

N-methyl-2-pyrrolidone:

Species : Rabbit
Result : Eye irritation

Respiratory or skin sensitisation

Product:

Species : Mouse
Assessment : The product is a skin sensitiser, sub-category 1B.

Components:

fluroxypyr-meptyl (ISO):

Species : Guinea pig
Assessment : Does not cause skin sensitisation.

Halauxifen-methyl:

Remarks : Did not demonstrate the potential for contact allergy in mice.

Remarks : For respiratory sensitization:
No relevant data found.

Cloquintocet-mexyl:

Species : Guinea pig
Assessment : May cause sensitisation by skin contact.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Species : Guinea pig
Assessment : Does not cause skin sensitisation.
Remarks : For similar material(s):

Ethylhexanol:

Test Type : HRIPT (human repeat insult patch test)
Species : human
Assessment : Does not cause skin sensitisation.

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Remarks : For skin sensitization:
Did not cause allergic skin reactions when tested in guinea

pigs.

Remarks : For respiratory sensitization:
No relevant data found.

N-methyl-2-pyrrolidone:

Species : Guinea pig
Assessment : Does not cause skin sensitisation.

Germ cell mutagenicity

Components:

fluroxypyr-meptyl (ISO):

Germ cell mutagenicity- Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

Halauxifen-methyl:

Germ cell mutagenicity- Assessment : In vitro genetic toxicity studies were negative.

Cloquintocet-mexyl:

Germ cell mutagenicity- Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Germ cell mutagenicity- Assessment : In vitro genetic toxicity studies were negative.

Ethylhexanol:

Germ cell mutagenicity- Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Germ cell mutagenicity- Assessment : In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

N-methyl-2-pyrrolidone:

Germ cell mutagenicity- Assessment : In vitro genetic toxicity studies were negative in some cases and positive in other cases., Animal genetic toxicity studies were negative.

Carcinogenicity

Components:

fluroxypyr-meptyl (ISO):

Carcinogenicity - Assessment : For similar active ingredient(s)., Fluroxypyr., Did not cause cancer in laboratory animals.

Halauxifen-methyl:

Carcinogenicity - Assessment : For similar active ingredient(s)., Halauxifen., Did not cause cancer in laboratory animals.

Cloquintocet-mexyl:

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

Ethylhexanol:

Carcinogenicity - Assessment : In laboratory animals, evidence of carcinogenic activity was observed., There is no evidence that these findings are relevant to humans.

N-methyl-2-pyrrolidone:

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

Reproductive toxicity

Product:

Reproductive toxicity - Assessment : No toxicity to reproduction

Components:

fluroxypyr-meptyl (ISO):

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.

Halauxifen-methyl:

Reproductive toxicity - Assessment : For similar active ingredient(s)., Halauxifen., In animal studies, did not interfere with reproduction.
Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.

Cloquintocet-mexyl:

Reproductive toxicity - Assessment : Did not cause birth defects or any other fetal effects in laboratory animals.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Reproductive toxicity - Assessment : For similar material(s):, Did not cause birth defects or any other fetal effects in laboratory animals.

Ethylhexanol:

Reproductive toxicity - As- : Has caused birth defects in laboratory animals only at doses

sessment		toxic to the mother., Has been toxic to the fetus in laboratory animals at doses toxic to the mother., These concentrations exceed relevant human dose levels.

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Reproductive toxicity - Assessment	:	In animal studies, did not interfere with reproduction. Did not cause birth defects or any other fetal effects in laboratory animals.

N-methyl-2-pyrrolidone:

Reproductive toxicity - Assessment	:	Clear evidence of adverse effects on development, based on animal experiments. N-methyl pyrrolidone has caused toxic effects to the fetus in laboratory animals at high dose levels with either mild or undetectable maternal toxicity.

STOT - single exposure

Product:

Exposure routes	:	Inhalation
Assessment	:	May cause respiratory irritation.

Components:

Halauxifen-methyl:

Assessment	:	Available data are inadequate to determine single exposure specific target organ toxicity.

Cloquintocet-mexyl:

Assessment	:	Available data are inadequate to determine single exposure specific target organ toxicity.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Exposure routes	:	Inhalation
Assessment	:	May cause respiratory irritation.

Ethylhexanol:

Exposure routes	:	Inhalation
Target Organs	:	Respiratory Tract
Assessment	:	May cause respiratory irritation.

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Assessment	:	Evaluation of available data suggests that this material is not an STOT-SE toxicant.

N-methyl-2-pyrrolidone:

Exposure routes	:	Inhalation

Target Organs : Respiratory Tract
Assessment : May cause respiratory irritation.

Repeated dose toxicity

Components:

fluroxypyr-meptyl (ISO):
Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Halauxifen-methyl:
Remarks : In animals, effects have been reported on the following organs:
Kidney.
Liver.
Thyroid.

Cloquintocet-mexyl:
Remarks : In animals, effects have been reported on the following organs:
Liver.
Kidney.
Thymus.
Thyroid.
Bladder.
Bone marrow.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:
Remarks : For similar material(s):
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Ethylhexanol:
Remarks : In animals, effects have been reported on the following organs:
Blood.
Kidney.
Liver.
Spleen.

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:
Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

N-methyl-2-pyrrolidone:
Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Aspiration toxicity

Product:
May be harmful if swallowed and enters airways.

Components:

fluroxypyr-meptyl (ISO):
Based on physical properties, not likely to be an aspiration hazard.

Halauxifen-methyl:
Based on physical properties, not likely to be an aspiration hazard.

Cloquintocet-mexyl:
Based on physical properties, not likely to be an aspiration hazard.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:
May be harmful if swallowed and enters airways.

Ethylhexanol:
May be harmful if swallowed and enters airways.

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:
Based on available information, aspiration hazard could not be determined.

N-methyl-2-pyrrolidone:
Based on physical properties, not likely to be an aspiration hazard.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	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 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 12.2 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 15 mg/l Exposure time: 48 h Test Type: semi-static test Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Myriophyllum spicatum): 0.0235 mg/l End point: Growth inhibition Exposure time: 14 d Test Type: Growth inhibition EC50 (Pseudokirchneriella subcapitata (green algae)): 0.166 mg/l Exposure time: 72 h
Toxicity to soil dwelling organisms	:	LC50: > 1,000 mg/kg Exposure time: 14 d Species: Eisenia fetida (earthworms) NOEC: 80 mg/kg Exposure time: 56 d Species: Eisenia fetida (earthworms)
Toxicity to terrestrial organisms	:	oral LD50: > 2000 mg/kg bodyweight. Species: Colinus virginianus (Bobwhite quail) contact LD50: > 200.0 µg/bee Exposure time: 48 h Species: Apis mellifera (bees) oral LD50: > 191.0 µg/bee Exposure time: 48 h Species: Apis mellifera (bees)

Ecotoxicology Assessment

Acute aquatic toxicity	:	Very toxic to aquatic life.

Components:

fluroxypyr-meptyl (ISO):

Toxicity to fish	:	Remarks: Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive spe-

cies).

LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.225 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 0.183 mg/l
Exposure time: 48 h
Test Type: semi-static test
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : ErC50 (diatom Navicula sp.): 0.24 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201 or Equivalent

EbC50 (alga Scenedesmus sp.): > 0.47 mg/l
Exposure time: 72 h

ErC50 (Selenastrum capricornutum (green algae)): > 1.410 mg/l
Exposure time: 96 h

ErC50 (Myriophyllum spicatum): 0.075 mg/l
Exposure time: 14 d

NOEC (Myriophyllum spicatum): 0.031 mg/l
Exposure time: 14 d

Toxicity to fish (Chronic toxicity) : NOEC: 0.32 mg/l
Species: Rainbow trout (Oncorhynchus mykiss)

Toxicity to soil dwelling organisms : LC50: > 1,000 mg/kg
Species: Eisenia fetida (earthworms)

Toxicity to terrestrial organisms : Remarks: 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: > 2000 mg/kg bodyweight.
Exposure time: 5 d
Species: Colinus virginianus (Bobwhite quail)

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

oral LD50: > 100 micrograms/bee
Exposure time: 48 h
Species: Apis mellifera (bees)

contact LD50: > 100 micrograms/bee

Exposure time: 48 h
Species: Apis mellifera (bees)

Halauxifen-methyl:

Toxicity to fish	:	Remarks: Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species). LC50 (Rainbow trout (Oncorhynchus mykiss)): 2.01 mg/l Exposure time: 96 h Test Type: static test LC50 (Pimephales promelas (fathead minnow)): > 3.22 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2.12 mg/l Exposure time: 48 h Test Type: static test Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 3.0 mg/l Exposure time: 96 h ErC50 (Myriophyllum spicatum): 0.000393 mg/l End point: Growth rate inhibition Exposure time: 14 d
M-Factor (Acute aquatic toxicity)	:	1,000
Toxicity to microorganisms	:	EC50 (activated sludge): > 981 mg/l Exposure time: 1 d
Toxicity to fish (Chronic toxicity)	:	NOEC: 0.259 mg/l End point: Other Species: Pimephales promelas (fathead minnow) Test Type: flow-through test NOEC: 0.00272 mg/l Exposure time: 36 d Species: Cyprinodon variegatus (sheepshead minnow) Test Type: flow-through test
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.484 mg/l End point: number of offspring Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test
M-Factor (Chronic aquatic toxicity)	:	1,000

Toxicity to soil dwelling organisms	:	LC50: > 1,000 mg/kg Exposure time: 14 d End point: mortality Species: Eisenia fetida (earthworms)
Toxicity to terrestrial organisms	:	Remarks: 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: > 5,620 ppm Exposure time: 5 d Species: Colinus virginianus (Bobwhite quail) Method: Other guidelines dietary LC50: > 5,620 ppm Exposure time: 5 d Species: Anas platyrhynchos (Mallard duck) Method: Other guidelines oral LD50: > 2250 mg/kg bodyweight. End point: mortality Species: Colinus virginianus (Bobwhite quail) contact LD50: > 98.1 µg/bee Exposure time: 48 h End point: mortality Species: Apis mellifera (bees) oral LD50: > 108 µg/bee Exposure time: 48 h End point: mortality Species: Apis mellifera (bees)

Ecotoxicology Assessment

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

Cloquintocet-mexyl:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.97 mg/l Exposure time: 96 h Test Type: flow-through test Method: Method Not Specified. Remarks: As the ester active substance.
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 0.82 mg/l Exposure time: 48 h Test Type: flow-through test Method: Method Not Specified.
Toxicity to algae/aquatic	:	EbC50 (alga Scenedesmus sp.): 0.63 mg/l

plants		End point: Biomass Exposure time: 96 h Method: Method Not Specified. EbC50 (Lemna minor (duckweed)): > 0.42 mg/l End point: Biomass Exposure time: 14 d Method: Method Not Specified.
Toxicity to soil dwelling organisms	:	LC50: > 1,000 mg/kg Species: Eisenia fetida (earthworms)
Toxicity to terrestrial organisms	:	oral LD50: > 2000 mg/kg bodyweight. Species: Anas platyrhynchos (Mallard duck) dietary LC50: > 5200 mg/kg diet. Exposure time: 8 d Species: Anas platyrhynchos (Mallard duck) oral LD50: > 100 micrograms/bee Exposure time: 48 h Species: Apis mellifera (bees) contact LD50: > 100 micrograms/bee Exposure time: 48 h Species: Apis mellifera (bees)

Ecotoxicology Assessment

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

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Toxicity to fish	:	LC50 (Danio rerio (zebra fish)): 14.8 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 7.7 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 16.06 mg/l Exposure time: 72 h

Ecotoxicology Assessment

Acute aquatic toxicity	:	Toxic to aquatic life.

Ethylhexanol:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 32 - 37 mg/l Exposure time: 96 h

LC50 (Fathead minnow (Pimephales promelas)): 28.2 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 35.2 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

EC50 (Daphnia magna (Water flea)): 39 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 11.5 mg/l
End point: Growth rate inhibition
Exposure time: 72 h
Method: OECD Test Guideline 201 or Equivalent

Toxicity to microorganisms : EC50 (Bacteria): 256 - 320 mg/l
Exposure time: 16 h

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Toxicity to fish : Remarks: Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

Remarks: Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

LC50 (Fish): > 1 - 10 mg/l
Exposure time: 96 h
Test Type: Static

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 2.9 mg/l
Exposure time: 48 h
Test Type: Static

Toxicity to algae/aquatic plants : EC50 (Algae): 29 mg/l
Exposure time: 96 h
Test Type: Static

Toxicity to microorganisms : EC50 (Bacteria): 550 mg/l
Exposure time: 3 h

Toxicity to fish (Chronic toxicity) : 0.23 mg/l
Exposure time: 72 d
Species: Fish
Test Type: flow-through

Toxicity to daphnia and other aquatic invertebrates (Chron- : 1.18 mg/l
Exposure time: 21 d

ic toxicity) Species: Daphnia magna (Water flea)
Test Type: flow-through test

Ecotoxicology Assessment

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

N-methyl-2-pyrrolidone:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 5,000 mg/l
Exposure time: 96 h
Test Type: static test

LC50 (Pimephales promelas (fathead minnow)): 1,072 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l
End point: Growth rate inhibition
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201 or Equivalent

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 12.5 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: semi-static test
Method: OECD Test Guideline 211 or Equivalent

12.2 Persistence and degradability

Components:

fluroxypyr-meptyl (ISO):

Biodegradability : Result: Not biodegradable
Remarks: Material is not readily biodegradable according to OECD/EEC guidelines.

Biodegradation: 32 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Fail

ThOD : 2.2 kg/kg

Stability in water : Test Type: Hydrolysis
Degradation half life: 454 d

Halauxifen-methyl:

Biodegradability : Result: Not biodegradable
Remarks: For similar active ingredient(s).
Halauxifen.
Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Biodegradation: 7.7 %
Exposure time: 28 d
Method: OECD Test Guideline 310 or Equivalent
Remarks: 10-day Window: Not applicable

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

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

Result: Readily biodegradable.
Biodegradation: > 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
Remarks: 10-day Window: Pass

Chemical Oxygen Demand (COD) : 2.890 mg/g

Ethylhexanol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: > 95 %
Exposure time: 5 d
Method: OECD Test Guideline 302B or Equivalent
Remarks: 10-day Window: Not applicable

Biodegradation: 68 %
Exposure time: 17 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Pass

Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitiser: OH radicals
Rate constant: 1.32E-11 cm3/s
Method: Estimated.

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

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

Result: Readily biodegradable.
Biodegradation: 100 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Pass

N-methyl-2-pyrrolidone:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 91 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Pass

Concentration: 30 mg/l
Biodegradation: 73 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent
Remarks: 10-day Window: Not applicable

Biodegradation: > 90 %
Exposure time: 8 d
Method: OECD Test Guideline 302B or Equivalent
Remarks: 10-day Window: Not applicable

12.3 Bioaccumulative potential

Components:

fluroxypyr-meptyl (ISO):

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Bioconcentration factor (BCF): 26
Method: Measured

Partition coefficient: n-octanol/water :

log Pow: 5.04
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Halauxifen-methyl:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Exposure time: 42 d
Temperature: 21.8 °C
Concentration: 0.00194 mg/l
Bioconcentration factor (BCF): 233

Partition coefficient: n-octanol/water : log Pow: 3.76
Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Cloquintocet-mexyl:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 122 - 621

Partition coefficient: n-octanol/water : log Pow: 5.2 (25 °C)
pH: 7

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Partition coefficient: n-octanol/water : log Pow: < 3.44 (20 °C)
Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Ethylhexanol:

Partition coefficient: n-octanol/water : log Pow: 3.1
Method: Measured
Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Bioaccumulation : Bioconcentration factor (BCF): 2 - 1,000

Partition coefficient: n-octanol/water : log Pow: 2.89
Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

N-methyl-2-pyrrolidone:

Partition coefficient: n-octanol/water : log Pow: -0.38
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

12.4 Mobility in soil

Components:

fluroxypyr-meptyl (ISO):

Distribution among environmental compartments : Koc: 6200 - 43000
Remarks: Expected to be relatively immobile in soil (Koc > 5000).

Halauxifen-methyl:

Distribution among environmental compartments : Koc: 5684
Remarks: Expected to be relatively immobile in soil (Koc > 5000).

Cloquintocet-mexyl:

Distribution among environmental compartments : Koc: 38070
Method: Estimated.
Remarks: Expected to be relatively immobile in soil (Koc > 5000).

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Distribution among environmental compartments : Koc: 527.3
Remarks: Potential for mobility in soil is low (Koc between 500 and 2000).

Ethylhexanol:

Distribution among environmental compartments : Koc: 800
Method: Estimated.
Remarks: Potential for mobility in soil is low (Koc between 500 and 2000).

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Distribution among environmental compartments : Remarks: No relevant data found.

N-methyl-2-pyrrolidone:

Distribution among environmental compartments : Koc: 21
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).
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.

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:

fluroxypyr-meptyl (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).

Halauxifen-methyl:

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).

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

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).

Ethylhexanol:

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).

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

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

N-methyl-2-pyrrolidone:

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 Endocrine disrupting properties

Product:

Assessment : 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.

12.7 Other adverse effects

Components:

fluroxypyr-meptyl (ISO):

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Halauxifen-methyl:

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Cloquintocet-mexyl:

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Reaction mass of N,N-dimethyldecan-1-amide and N,N-dimethyloctanamide:

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Ethylhexanol:

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Benzenesulfonic Acid, 4-C10-14-Alkyl Derivs., Calcium Salts:

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

N-methyl-2-pyrrolidone:

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

SECTION 14: Transport information

14.1 UN number or ID 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.
(Fluroxypyr, Halauxifen-methyl)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Fluroxypyr, Halauxifen-methyl)

IMDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fluroxypyr, Halauxifen-methyl)
IATA	:	Environmentally hazardous substance, liquid, n.o.s. (Fluroxypyr, Halauxifen-methyl)

14.3 Transport hazard class(es)

		Class	Subsidiary risks
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
Remarks	:	Stowage category A

IATA (Cargo)

Packing instruction (cargo aircraft)	:	964
Packing instruction (LQ)	:	Y964
Packing group	:	III
Labels	:	Miscellaneous

IATA (Passenger)

Packing instruction (passenger aircraft)	:	964
Packing instruction (LQ)	:	Y964
Packing group	:	III
Labels	:	Miscellaneous

14.5 Environmental hazards

ADR

Environmentally hazardous	:	yes

RID
Environmentally hazardous : yes

IMDG
Marine pollutant : yes(Fluroxypyr, Halauxifen-methyl)

14.6 Special precautions for user

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA Special provision A197, and ADR/RID special provision 375.

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 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	N-methyl-2-pyrrolidone
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	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.	E1	ENVIRONMENTAL HAZARDS

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.
The mixture is evaluated within the frame of the provisions of Regulation (EC) No. 1107/2009.
Refer to the label for exposure assessment information.

SECTION 16: Other information

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.

Full text of H-Statements

H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H332	:	Harmful if inhaled.
H335	:	May cause respiratory irritation.
H360D	:	May damage the unborn child.
H400	:	Very toxic to aquatic life.
H410	:	Very 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	:	Short-term (acute) aquatic hazard
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Repr.	:	Reproductive toxicity
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT SE	:	Specific target organ toxicity - single exposure
2004/37/EC	:	Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
2009/161/EU	:	Europe. COMMISSION DIRECTIVE 2009/161/EU establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC
2017/164/EU	:	Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
Corteva OEL	:	Corteva Occupational Exposure Limit
IE OEL	:	List of Chemical Agents and Carcinogens with Occupational Exposure Limit Values - Code of Practice, Schedule 1 and 2
2004/37/EC / STEL	:	Short term exposure limit
2004/37/EC / TWA	:	Long term exposure limit
2009/161/EU / TWA	:	Limit Value - eight hours
2009/161/EU / STEL	:	Short term exposure limit
2017/164/EU / TWA	:	Limit Value - eight hours
Corteva OEL / TWA	:	8-hr TWA
IE OEL / OELV - 8 hrs (TWA)	:	Occupational exposure limit value (8-hour reference period)
IE OEL / OELV - 15 min (STEL)	:	Occupational exposure limit value (15-minute reference period)

ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; ASTM - American Society for the Testing of Materials; ECx - Concentration associated with x% response; EmS - Emergency Schedule; ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; 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; NOEC - Non-Observed Effective Concentration; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; (Q)SAR - (Quantitative) Structure Activity Relationship; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SDS - Safety Data Sheet; UN - United Nations.
EC-Number - European Community number REACH - Regulation (EC) No 1907/2006 of the European Parliament and of Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.

Further information

Classification of the mixture:		**Classification procedure:**
Eye Irrit. 2	H319	Based on product data or assessment
Skin Sens. 1B	H317	Based on product data or assessment
STOT SE 3	H335	Based on product data or assessment
Aquatic Acute 1	H400	Based on product data or assessment
Aquatic Chronic 1	H410	Calculation method

Product code: GF-2819

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.

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