SAFETY DATA SHEET
according to the Hazardous Products Regulations

EXTINGUISH XL HERBICIDE

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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 Canada and may not meet the regulatory requirements in other countries.

SECTION 1. IDENTIFICATION

Product name : EXTINGUISH XL HERBICIDE
Other means of identification : No data available

Manufacturer or supplier's details

COMPANY IDENTIFICATION

Manufacturer/importer : CORTEVA AGRISCIENCE CANADA COMPANY
SUITE 240, 115 QUARRY PARK RD. SE
CALGARY AB, T2C 5G9
CANADA

Customer Information Number : 800-667-3852
E-mail address : solutions@corteva.com

Emergency telephone number : Corteva Canada Solutions: 1-800-667-3852

Recommended use of the chemical and restrictions on use

Recommended use : End use herbicide product

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the Hazardous Products Regulations

Flammable liquids : Category 4

Serious eye damage : Category 1

Skin sensitisation : Sub-category 1B

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H227 Combustible liquid.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.

Precautionary statements :

Prevention:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing mist or vapours.

P272 Contaminated work clothing should not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P403 Store in a well-ventilated place.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	Common Name/Synonym	CAS-No.	Concentration (% w/w)
2,4-D 2-ethylhexyl ester	2,4-D 2-ethylhexyl ester	1928-43-4	42.69
Cloquintocet-mexyl	Cloquintocet-mexyl	99607-70-2	0.57
florasulam (ISO)	florasulam (ISO)	145701-23-1	0.57
Halauxifen-methyl	Halauxifen-methyl	943831-98-9	0.59
2-methylpentane-2,4-diol	2-methylpentane-2,4-diol	107-41-5	>= 20 - < 25 *
propylene carbonate	propylene carbonate	108-32-7	>= 10 - < 20 *
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5	>= 3 - < 10 *
Fatty alcohol ethoxylate	Fatty alcohol ethoxylate	68002-96-0	>= 1 - < 3 *
2,4-D (ISO)	2,4-D (ISO)	94-75-7	>= 0.1 - < 0.3 *

* Actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

If inhaled	:	Move person to fresh air; if effects occur, consult a physician.
In case of skin contact	:	Wash off with plenty of water.
In case of eye contact	:	Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.
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.
Most important symptoms and effects, both acute and delayed	:	None known.
Protection of first-aiders	:	First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Notes to physician	:	No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray Alcohol-resistant foam
Unsuitable extinguishing media	:	None known.
Specific hazards during firefighting	:	Exposure to combustion products may be a hazard to health.
Hazardous combustion products	:	During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon oxides Hydrogen chloride gas
Specific extinguishing methods	:	Remove undamaged containers from fire area if it is safe to do so. Evacuate area. Use water spray to cool unopened containers.
Further information	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
Environmental precautions	:	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.
Methods and materials for containment and 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). See Section 13, Disposal Considerations, for additional information.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice. Smoking, eating and drinking should be prohibited in the application area. 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.
Conditions for safe storage	:	Store in a closed container. Keep in properly labelled containers. Store in accordance with the particular national regulations.
Materials to avoid	:	Strong oxidizing agents
Packaging material	:	Unsuitable material: None known.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
2,4-D 2-ethylhexyl ester	1928-43-4		10 mg/m3	Dow IHG
		TWA	10 mg/m3	CA BC OEL
		STEL	20 mg/m3	CA BC OEL
2-methylpentane-2,4-diol	107-41-5	STEL (Aerosol)	10 mg/m3	Dow IHG
		TLV-C (Vapour)	25 ppm	Dow IHG
		(c)	25 ppm 121 mg/m3	CA AB OEL
		C	25 ppm 121 mg/m3	CA QC OEL

		TWA (Vapour)	25 ppm	ACGIH
		STEL (Vapour)	50 ppm	ACGIH
		STEL (Inhalable fraction, Aerosol only)	10 mg/m3	ACGIH
Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified	64742-94-5	TWA	100 mg/m3	Corteva OEL
		STEL	300 mg/m3	Corteva OEL
		TWA	200 mg/m3 (total hydrocarbon vapor)	CA AB OEL
		TWA	200 mg/m3 (total hydrocarbon vapor)	ACGIH
2,4-D (ISO)	94-75-7	TWA	10 mg/m3	CA AB OEL
		TWAEV	10 mg/m3	CA QC OEL
		TWA	10 mg/m3	CA BC OEL
		STEL	20 mg/m3	CA BC OEL
		TWA (Inhalable particulate matter)	10 mg/m3	ACGIH

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

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, in dusty atmospheres, use an approved particulate respirator.

Hand protection

Remarks : Use gloves chemically resistant to this material. When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 (breakthrough time greater than 120 minutes) is recommended When only brief contact is expected, a glove with a protection class of 2 or higher (breakthrough time greater than 30 minutes)is recommended. Specific properties of gloves such as length, thickness and material barrier shall be adapted to the specific product nature and task. For manufacturing processes refer to site local occupational health guidance and procedures, for farmer use refer to

labels and/or gloves manufacturer's, supplier's recommendations.

Eye protection	:	Use chemical goggles.
Skin and body protection	:	No precautions other than clean body-covering clothing should be needed. When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	yellow
Odour	:	Mild aromatic
Odour Threshold	:	No data available
pH	:	3.3 Concentration: 1 % Method: CIPAC MT 75.3
Melting point/range	:	Not applicable
Freezing point		No data available
Boiling point/boiling range	:	No data available
Flash point	:	84 °C Method: EC Method A9, closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Not applicable to liquids
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
Relative density	:	1.06 Method: EC Method A3
Density	:	1.06 g/mL
Bulk density	:	No data available
Solubility(ies)		
Water solubility	:	No data available
Auto-ignition temperature	:	341 °C Method: EC Method A15

Viscosity

Viscosity, dynamic	:	33 mPa.s (20 °C) Method: OECD 114 14 mPa.s (40 °C) Method: OECD 114
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive Method: EC Method A.14
Oxidizing properties	:	The substance or mixture is not classified as oxidizing. Method: EC Method A.21
Surface tension	:	30.5 mN/m, 20 °C, EC Method A5

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Not classified as a reactivity hazard.
Chemical stability	:	No decomposition if stored and applied as directed. Stable under normal conditions.
Possibility of hazardous reactions	:	Stable under recommended storage conditions. No hazards to be specially mentioned. None known.
Conditions to avoid	:	None known.
Incompatible materials	:	None.
Hazardous decomposition products	:	Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Carbon oxides Hydrogen chloride gas

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	LD50 (Rat, female): > 2,500 mg/kg Method: OECD Test Guideline 423 Assessment: The substance or mixture has no acute oral toxicity
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5.28 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 436 Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rat, female): > 2,000 mg/kg Method: OECD Test Guideline 402 Assessment: The substance or mixture has no acute dermal toxicity

Components:

2,4-D 2-ethylhexyl ester:

Acute oral toxicity	:	LD50 (Rat): 896 mg/kg

Acute inhalation toxicity	:	Remarks: No adverse effects are anticipated from single exposure to vapor. No adverse effects are anticipated from single exposure to mist. For respiratory irritation and narcotic effects: Relevant data not available. LC50 (Rat): > 5.39 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity
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

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

florasulam (ISO):

Acute oral toxicity	:	LD50 (Rat): > 6,000 mg/kg LD50 (Mouse): > 5,000 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): > 5.0 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity
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

2-methylpentane-2,4-diol:

Acute oral toxicity	:	LD50 (Rat): 3,600 - 4,700 mg/kg
Acute inhalation toxicity	:	Remarks: Vapor from heated material may cause respiratory irritation.

No deaths occurred following exposure to a saturated atmosphere.

Acute dermal toxicity : LD50 (Rabbit): 13,200 mg/kg

propylene carbonate:

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

Acute dermal toxicity : LD50 (Rabbit): > 3,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
Remarks: For similar material(s):

Acute inhalation toxicity : LC50 (Rat): > 4.688 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: For similar material(s):
Maximum attainable concentration.

Acute dermal toxicity : LD50 (Rabbit): > 3,160 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: For similar material(s):

Fatty alcohol ethoxylate:

Acute inhalation toxicity : LC50 (Rat): estimated > 0.25 - 0.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

2,4-D (ISO):

Acute oral toxicity : LD50 (Rat): 639 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 1.79 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, male and female): > 5,000 mg/kg

Skin corrosion/irritation

Product:

Species : Rabbit
Method : OECD Test Guideline 404
Result : No skin irritation

Components:

2-methylpentane-2,4-diol:

Result : Skin irritation

propylene carbonate:

Result : No skin irritation

2,4-D (ISO):

Species : Rabbit
Result : No skin irritation

Serious eye damage/eye irritation

Product:

Result : Corrosive
Method : OECD Test Guideline 437

Components:

2-methylpentane-2,4-diol:

Result : Eye irritation

propylene carbonate:

Result : Eye irritation

2,4-D (ISO):

Species : Rabbit
Result : Corrosive

Respiratory or skin sensitisation

Product:

Test Type : Local lymph node assay
Species : Mouse
Assessment : The product is a skin sensitiser, sub-category 1B.
Method : OECD Test Guideline 429

Components:

2,4-D 2-ethylhexyl ester:

Assessment : May cause sensitisation by skin contact.
Remarks : Has caused allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:
No relevant data found.

Cloquintocet-mexyl:

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

florasulam (ISO):

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

Remarks : For respiratory sensitization:
No relevant data found.

Halauxifen-methyl:

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

Remarks : For respiratory sensitization:
No relevant data found.

2-methylpentane-2,4-diol:

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

Skin contact may cause an allergic skin reaction in a small proportion of individuals.

Remarks : For respiratory sensitization:
No relevant data found.

propylene carbonate:

Assessment : Does not cause skin sensitisation.
Remarks : Did not cause allergic skin reactions when tested in humans.

Remarks : For respiratory sensitization:
No relevant data found.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Remarks : For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:
No relevant data found.

2,4-D (ISO):

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

Germ cell mutagenicity

Components:

2,4-D 2-ethylhexyl ester:

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

Cloquintocet-mexyl:

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

florasulam (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.

2-methylpentane-2,4-diol:

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

propylene carbonate:

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

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Germ cell mutagenicity - Assessment : For similar material(s):, In vitro genetic toxicity studies were negative., Animal genetic toxicity studies were negative.

2,4-D (ISO):

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

Carcinogenicity

Components:

2,4-D 2-ethylhexyl ester:

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

Cloquintocet-mexyl:

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

florasulam (ISO):

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

Halauxifen-methyl:

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

propylene carbonate:

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

2,4-D (ISO):

Carcinogenicity - Assessment	:	There is no evidence of carcinogenicity in laboratory animal toxicity studies. While some epidemiological studies report a positive association between 2,4-D exposure and cancer, a weight of evidence analysis of the epidemiology data across studies reveals no indication that 2,4-D causes cancer in humans.

Reproductive toxicity

Components:

2,4-D 2-ethylhexyl ester:

Reproductive toxicity - Assessment	:	Has been toxic to the fetus in laboratory animal tests., There is no evidence that these findings are relevant to humans., 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.

florasulam (ISO):

Reproductive toxicity - Assessment	:	In animal studies, did not interfere with reproduction. Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

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.

2-methylpentane-2,4-diol:

Reproductive toxicity - Assessment	:	In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals., In animal studies, did not interfere with fertility. Did not cause birth defects in laboratory animals.

propylene carbonate:

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

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

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

2,4-D (ISO):

Reproductive toxicity - Assessment	:	In laboratory animals, excessive doses toxic to the parent animals caused decreased weight and survival of offspring. Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.

STOT - single exposure

Product:

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

Components:

Cloquintocet-mexyl:

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

Halauxifen-methyl:

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

2-methylpentane-2,4-diol:

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

propylene carbonate:

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

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Exposure routes	:	Inhalation
Assessment	:	May cause drowsiness or dizziness.

Fatty alcohol ethoxylate:

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

2,4-D (ISO):

Exposure routes	:	Inhalation
Assessment	:	May cause respiratory irritation.

STOT - repeated exposure

Product:

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

Repeated dose toxicity

Components:

2,4-D 2-ethylhexyl ester:

Remarks	:	Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Cloquintocet-mexyl:

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

florasulam (ISO):

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

Halauxifen-methyl:

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

2-methylpentane-2,4-diol:

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

propylene carbonate:

Remarks : Repeated skin application to laboratory animals did not produce systemic toxicity.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Fatty alcohol ethoxylate:

Remarks : No relevant data found.

2,4-D (ISO):

Remarks : In animals, effects have been reported on the following organs:
Liver.
Kidney.
Gastrointestinal tract.
Muscles.
Observations in animals include:
Gastrointestinal irritation.
Vomiting.

Aspiration toxicity

Product:

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

Components:

2,4-D 2-ethylhexyl ester:

Based on available information, aspiration hazard could not be determined.

Cloquintocet-mexyl:

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

florasulam (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.

2-methylpentane-2,4-diol:

Based on available information, aspiration hazard could not be determined.

propylene carbonate:

Based on available information, aspiration hazard could not be determined.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

May be fatal if swallowed and enters airways.

Fatty alcohol ethoxylate:

Based on available information, aspiration hazard could not be determined.

2,4-D (ISO):

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

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): 615.2 mg/kg Exposure time: 14 d Method: OECD Test Guideline 207
Toxicity to terrestrial organisms	:	LD50 (Apis mellifera (bees)): > 200 µg/bee Exposure time: 24 h End point: Acute contact toxicity Method: OECD Test Guideline 214 LD50 (Apis mellifera (bees)): > 200 µg/bee Exposure time: 24 h End point: Acute contact toxicity Method: OECD Test Guideline 214 LD50 (Apis mellifera (bees)): > 216.4 µg/bee Exposure time: 24 h End point: Acute oral toxicity Method: OECD Test Guideline 213 LD50 (Apis mellifera (bees)): > 216.4 µg/bee Exposure time: 28 h End point: Acute oral toxicity Method: OECD Test Guideline 213 LD50 (Colinus virginianus (Bobwhite quail)): > 2,000 mg/kg Method: OECD Test Guideline 223

Components:

2,4-D 2-ethylhexyl ester:

Toxicity to fish	:	Remarks: Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested). LC50 (tidewater silverside (Menidia beryllina)): > 1.9 mg/l

Exposure time: 96 h
Test Type: flow-through test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 5 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : EbC50 (Skeletonema costatum (marine diatom)): 0.23 mg/l
End point: Biomass
Exposure time: 5 d
Test Type: static test
Method: OECD Test Guideline 201 or Equivalent

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.015 mg/l
End point: weight
Exposure time: 21 d
Test Type: flow-through test

Toxicity to terrestrial organisms : Remarks: Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg)., Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50 (Anas platyrhynchos (Mallard duck)): 663 mg/kg bodyweight.
dietary LC50 (Anas platyrhynchos (Mallard duck)): > 5620 mg/kg diet.
Exposure time: 5 d

oral LD50 (Apis mellifera (bees)): > 100 micrograms/bee

contact LD50 (Apis mellifera (bees)): > 100 micrograms/bee

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 plants : EbC50 (alga Scenedesmus sp.): 0.63 mg/l
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 (Eisenia fetida (earthworms)): > 1,000 mg/kg

Toxicity to terrestrial organisms : oral LD50 (Anas platyrhynchos (Mallard duck)): > 2000 mg/kg bodyweight.

dietary LC50 (Anas platyrhynchos (Mallard duck)): > 5200 mg/kg diet.
Exposure time: 8 d

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

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

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

florasulam (ISO):

Toxicity to fish : Remarks: Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 mg/L in the most sensitive species).

LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 292 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.00894 mg/l
End point: Growth rate inhibition
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201 or Equivalent

EC50 (Myriophyllum spicatum): > 0.305 mg/l
End point: Growth inhibition
Exposure time: 14 d

M-Factor (Acute aquatic toxicity) : 100

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 119 mg/l
End point: mortality
Exposure time: 28 d
Test Type: flow-through test

NOEC (Pimephales promelas (fathead minnow)): > 2.9 mg/l
End point: Other
Exposure time: 33 d
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 38.90 mg/l
End point: growth
Exposure time: 21 d
Test Type: semi-static test

MATC (Maximum Acceptable Toxicant Level) (Daphnia magna (Water flea)): 50.2 mg/l
End point: growth
Exposure time: 21 d
Test Type: semi-static test

M-Factor (Chronic aquatic toxicity) : 100

Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): > 1,320 mg/kg
Exposure time: 14 d

Toxicity to terrestrial organisms : Remarks: Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg)., Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50 (Coturnix japonica (Japanese quail)): 1047 mg/kg bodyweight.

dietary LC50 (Anas platyrhynchos (Mallard duck)): > 5,000 ppm
Exposure time: 8 d

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

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

Halauxifen-methyl:

Toxicity to fish : Remarks: Material is very highly toxic to aquatic organisms on an acute basis (LC50/EC50 <0.1 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 fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 0.259 mg/l
End point: Other
Test Type: flow-through test

NOEC (Cyprinodon variegatus (sheepshead minnow)): 0.00272 mg/l
Exposure time: 36 d
Test Type: flow-through test

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.484 mg/l
End point: number of offspring
Exposure time: 21 d
Test Type: semi-static test

M-Factor (Chronic aquatic toxicity) : 1,000

Toxicity to microorganisms : EC50 (activated sludge): > 981 mg/l
Exposure time: 1 d

Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg
Exposure time: 14 d
End point: mortality

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 (Colinus virginianus (Bobwhite quail)): > 5,620 ppm
Exposure time: 5 d
Method: Other guidelines

dietary LC50 (Anas platyrhynchos (Mallard duck)): > 5,620 ppm
Exposure time: 5 d
Method: Other guidelines

oral LD50 (Colinus virginianus (Bobwhite quail)): > 2250 mg/kg bodyweight.
End point: mortality

contact LD50 (Apis mellifera (bees)): > 98.1 µg/bee
Exposure time: 48 h
End point: mortality

oral LD50 (Apis mellifera (bees)): > 108 µg/bee
Exposure time: 48 h
End point: mortality

Ecotoxicology Assessment

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

2-methylpentane-2,4-diol:

Toxicity to fish	:	Remarks: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). LC50 (Oncorhynchus mykiss (rainbow trout)): 9,450 mg/l Exposure time: 96 h Test Type: flow-through test Method: OECD Test Guideline 203 or Equivalent
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna): 3,200 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 or Equivalent
Toxicity to algae/aquatic plants	:	ErC50 (Selenastrum capricornutum (green algae)): > 429 mg/l End point: Growth rate inhibition Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (Bacteria): > 5,000 mg/l Exposure time: 16 h Method: hUCC

propylene carbonate:

Toxicity to fish	:	Remarks: Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested). LC50 (Cyprinus carpio (Carp)): > 1,000 mg/l Exposure time: 96 h Test Type: semi-static test
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 or Equivalent
Toxicity to algae/aquatic plants	:	EC50 (alga Scenedesmus sp.): > 900 mg/l End point: Biomass Exposure time: 72 h Method: Method Not Specified.
Toxicity to microorganisms	:	EC50 (activated sludge): > 800 mg/l Exposure time: 30 min Method: OECD 209 Test

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Toxicity to fish	:	Remarks: For similar material(s): 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). LC50 (Oncorhynchus mykiss (rainbow trout)): 2 - 5 mg/l

Exposure time: 96 h
Remarks: For similar material(s):

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3 - 10 mg/l
Exposure time: 48 h
Remarks: For similar material(s):

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 11 mg/l
Exposure time: 72 h
Remarks: For similar material(s):

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

Ecotoxicology Assessment

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

Fatty alcohol ethoxylate:

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

2,4-D (ISO):

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 133 - 320 mg/l
Exposure time: 96 h
Test Type: static test

LC50 (Poecilia reticulata (guppy)): 8.4 - 70.7 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 25 - 262 mg/l
Exposure time: 48 h
Test Type: static test

LC50 (stonefly Pteronarcys californica): 1.6 - 15 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 24.2 mg/l
Exposure time: 96 h

EC50 (Lemna gibba): 0.58 mg/l
Exposure time: 14 d

ErC50 (Myriophyllum spicatum): 0.373 mg/l
Exposure time: 14 d

NOEC (Myriophyllum spicatum): 0.0305 mg/l
Exposure time: 14 d

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 63.4 mg/l
End point: growth
Exposure time: 32 d

LOEC (Pimephales promelas (fathead minnow)): 100.9 mg/l
End point: growth
Exposure time: 32 d

MATC (Maximum Acceptable Toxicant Level) (Pimephales promelas (fathead minnow)): 80 mg/l
End point: growth
Exposure time: 32 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 46.2 mg/l
End point: number of offspring
Exposure time: 21 d

Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): 0.0616 mg/cm2
Exposure time: 48 d

NOEC (Eisenia fetida (earthworms)): 50.0 mg/kg
Exposure time: 56 d
End point: Other
Method: Other guidelines
GLP: yes

Toxicity to terrestrial organisms : dietary LC50 (Colinus virginianus (Bobwhite quail)): > 5620 mg/kg diet.

oral LD50 (Anas platyrhynchos (Mallard duck)): > 500 mg/kg bodyweight.

oral LD50 (Apis mellifera (bees)): 94 micrograms/bee

Persistence and degradability

Components:

2,4-D 2-ethylhexyl ester:

Biodegradability : Remarks: Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%). Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Result: Not biodegradable
Biodegradation: 77 %
Exposure time: 29 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Fail

Biochemical Oxygen Demand (BOD) : 0.84 %
Incubation time: 5 d

0.92 %
Incubation time: 10 d

1.32 %
Incubation time: 20 d

florasulam (ISO):

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

Biodegradation: 2 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Fail

Biochemical Oxygen Demand (BOD) : 0.012 kg/kg
Incubation time: 5 d

ThOD : 0.85 kg/kg

Stability in water : Degradation half life: > 30 d

Photodegradation : Rate constant: 7.04E-11 cm3/s
Method: Estimated.

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

2-methylpentane-2,4-diol:

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

Biodegradation: 81 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
Remarks: 10-day Window: Pass

Biochemical Oxygen Demand (BOD) : 2 %
Incubation time: 5 d

29 %
Incubation time: 10 d

48 %
Incubation time: 20 d

ThOD : 2.30 kg/kg

propylene carbonate:

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

Biodegradation: 94 %
Exposure time: 28 d

Method: OECD Test Guideline 301E or Equivalent
Remarks: 10-day Window: Pass

Biodegradation: > 97 %
Exposure time: 28 d
Method: OECD Test Guideline 302B or Equivalent
Remarks: 10-day Window: Not applicable

ThOD : 1.25 kg/kg

Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitiser: OH radicals
Concentration: 1,500,000 1/cm3
Rate constant: 3.79E-12 cm3/s
Method: Estimated.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Biodegradability : Result: Not rapidly biodegradable
Remarks: Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).

Fatty alcohol ethoxylate:

Biodegradability : Result: Readily biodegradable.
Remarks: Material is expected to be readily biodegradable.

2,4-D (ISO):

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

Biochemical Oxygen Demand (BOD) : 65 %
Incubation time: 5 d

66 %
Incubation time: 10 d

85 %
Incubation time: 20 d

Chemical Oxygen Demand (COD) : 1.09 kg/kg

Stability in water : Degradation half life (half-life): 2 - 4 d pH: 5

Photodegradation :

Bioaccumulative potential

Components:

2,4-D 2-ethylhexyl ester:

Bioaccumulation : Bioconcentration factor (BCF): 10

Partition coefficient: n-octanol/water : log Pow: 0.83 (25 °C)
pH: 7
Method: Measured
Remarks: For similar active ingredient(s).
2,4-Dichlorophenoxyacetic acid.
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Cloquintocet-mexyl:

Bioaccumulation : Species: Fish

Bioconcentration factor (BCF): 122 - 621

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

florasulam (ISO):

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 0.8
Exposure time: 28 d
Temperature: 13 °C
Method: Measured

Partition coefficient: n-octanol/water :

log Pow: -1.22
pH: 7.0
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Halauxifen-methyl:

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

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).

2-methylpentane-2,4-diol:

Bioaccumulation : Bioconcentration factor (BCF): 3
Method: Calculated.

Partition coefficient: n-octanol/water : log Pow: 0.58
Method: Estimated.
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

propylene carbonate:

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

log Pow: -0.41
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Partition coefficient: n-octanol/water : Remarks: For similar material(s):
Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Fatty alcohol ethoxylate:

Partition coefficient: n-octanol/water : Remarks: No relevant data found.

2,4-D (ISO):

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 10
Exposure time: 3 d

Partition coefficient: n-octanol/water : log Pow: -0.83
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Mobility in soil

Components:

2,4-D 2-ethylhexyl ester:

Distribution among environmental compartments : Remarks: Calculation of meaningful sorption data was not possible due to very rapid degradation in the soil.
For the degradation product:
2,4-Dichlorophenoxyacetic acid.
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).

florasulam (ISO):

Distribution among environmental compartments : Koc: 4 - 54
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

Stability in soil : Dissipation time: 0.7 - 4.5 d

Halauxifen-methyl:

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

2-methylpentane-2,4-diol:

Distribution among environmental compartments : Koc: 1
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

propylene carbonate:

Distribution among environmental compartments : Koc: 15
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.

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

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

Fatty alcohol ethoxylate:

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

2,4-D (ISO):

Distribution among environmental compartments	:	Koc: 5 - 212 Method: Measured Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).
Stability in soil	:	Test Type: Photolysis Dissipation time: 68 d Method: Estimated. Test Type: aerobic degradation Dissipation time: 1.7 - 4 d Method: Measured Test Type: anaerobic degradation Dissipation time: 66.2 d Method: Measured

Other adverse effects

Components:

2,4-D 2-ethylhexyl ester:

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

Cloquintocet-mexyl:

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

florasulam (ISO):

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

Halauxifen-methyl:

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

2-methylpentane-2,4-diol:

Results of PBT and vPvB assessment	:	This substance is not considered to be very persistent and very bioaccumulating (vPvB).
Ozone-Depletion Potential	:	Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

propylene carbonate:

Results of PBT and vPvB assessment	:	This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

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

Solvent naphtha (petroleum), heavy arom.; Kerosine — unspecified:

Results of PBT and vPvB 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).

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

Fatty alcohol ethoxylate:

Results of PBT and vPvB 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).

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

2,4-D (ISO):

Results of PBT and vPvB 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).

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

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : 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

International Regulations

UNRTDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Halauxifen-methyl, 2,4-D Ester)
Class	:	9
Packing group	:	III
Labels	:	9
Environmentally hazardous	:	Yes

IATA-DGR

UN/ID No.	:	UN 3082
Proper shipping name	:	Environmentally hazardous substance, liquid, n.o.s. (Halauxifen-methyl, 2,4-D Ester)
Class	:	9
Packing group	:	III
Labels	:	Miscellaneous
Packing instruction (cargo aircraft)	:	964
Packing instruction (passenger aircraft)	:	964

IMDG-Code

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Halauxifen-methyl, 2,4-D Ester)
Class	:	9
Packing group	:	III
Labels	:	9
EmS Code	:	F-A, S-F
Marine pollutant	:	yes(Halauxifen-methyl, 2,4-D Ester)
Remarks	:	Stowage category A

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

Not applicable for product as supplied.

National Regulations

TDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Halauxifen-methyl, 2,4-D Ester)
Class	:	9
Packing group	:	III
Labels	:	9
ERG Code	:	171
Marine pollutant	:	yes(Halauxifen-methyl, 2,4-D Ester)

Further information

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.

For Canadian Ground transportation TDG Exemption: 1.45.1 Marine Pollutants (Part 3, Documentation, and Part 4, Dangerous Goods Safety Marks, do not apply if they are in transport solely on land by road vehicle or railway vehicle).

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.

SECTION 15. REGULATORY INFORMATION

The components of this product are reported in the following inventories:

DSL : This product contains components that are not listed on the Canadian DSL nor NDSL.

Pest Control Products Act (PCPA) Registration Number : 35112

Read the PCPA label, authorized under the Pest Control Products Act, prior to using or handling this pest control product.
This chemical is a pest control product registered by Health Canada Pest Management Regulatory Agency and is subject to certain labelling requirements under the Pest Control Products Act (PCPA). There are Canada-specific environmental requirements for handling, use, and disposal of this pest control product that are indicated on the label. These requirements differ from the classification criteria and hazard information required for GHS-consistent safety data sheets. Following is the hazard information required on the pest control products label:
PCPA Label Hazard Communications:
Read the label and booklet before using. Keep out of reach of children.

DANGER CORROSIVE TO EYES
POTENTIAL SKIN SENSITIZER

This product is toxic to:
Aquatic organisms
Non-target terrestrial plants
Birds
Small wild mammals

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 other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
CA AB OEL	:	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
CA BC OEL	:	Canada. British Columbia OEL
CA QC OEL	:	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
Corteva OEL	:	Corteva Occupational Exposure Limit
Dow IHG	:	Dow Industrial Hygiene Guideline
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
CA AB OEL / TWA	:	8-hour Occupational exposure limit
CA AB OEL / (c)	:	ceiling occupational exposure limit
CA BC OEL / TWA	:	8-hour time weighted average
CA BC OEL / STEL	:	short-term exposure limit
CA QC OEL / TWAEV	:	Time-weighted average exposure value
CA QC OEL / C	:	Ceiling
Corteva OEL / STEL	:	Short term exposure limit
Corteva OEL / TWA	:	Time weighted average
Dow IHG / STEL	:	Short term exposure limit
Dow IHG / TLV-C	:	Ceiling Limit Value

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.

Revision Date	:	03/11/2024
Date format	:	mm/dd/yyyy

Product code: A6F-2-17

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