

SAFETY DATA SHEET



CURTAIL™

Version 1.0 Revision Date: 01/13/2022 SDS Number: 800080003181 Date of last issue: -
Date of first issue: 01/13/2022

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 the United States and may not meet the regulatory requirements in other countries.

SECTION 1. IDENTIFICATION

Product name : CURTAIL™

Manufacturer or supplier's details

COMPANY IDENTIFICATION

Manufacturer/importer : CORTEVA AGRISCIENCE LLC
9330 ZIONSVILLE RD
INDIANAPOLIS, IN, 46268-1053
UNITED STATES

Customer Information Number : 800-992-5994

E-mail address : customerinformation@corteva.com

Emergency telephone : INFOTRAC (CONTRACT 84224).
800-992-5994 or 317-337-6009

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 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious eye damage : Category 1

Specific target organ toxicity - repeated exposure (Inhalation) : Category 2 (Respiratory Tract)

GHS label elements

Hazard pictograms :



Signal Word : Danger

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- Hazard Statements : H318 Causes serious eye damage.
H373 May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.
- Precautionary Statements : **Prevention:**
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P280 Wear eye protection/ face protection.
- Response:**
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.
P314 Get medical advice/ attention if you feel unwell.
- 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	CAS-No.	Concentration (% w/w)
salts of 2,4-D	18584-79-7	38.94
Clopyralid monoethanolamine salt	57754-85-5	5.16
1,1',1'-nitritotripropan-2-ol	122-20-3	>= 1 - < 3
edetic acid	60-00-4	>= 1 - < 3
Balance	Not Assigned	> 40

Actual concentration is withheld as a trade secret

SECTION 4. 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. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
- 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 treat-

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ment 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.

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 : Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist.
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. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Water spray
Alcohol-resistant foam

Unsuitable extinguishing media : None known.

Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.
Do not allow run-off from firefighting 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:
Nitrogen oxides (NOx)
Hydrogen chloride gas
Carbon oxides

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.

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

SECTION 6. ACCIDENTAL RELEASE MEASURES

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- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
- 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.
- Methods and materials for containment and cleaning up : Clean up remaining materials from spill with suitable absorbent.
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 over-pressurization 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.

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : To avoid spills during handling keep bottle on a metal tray.
Do not breathe vapors/dust.
Do not smoke.
Handle in accordance with good industrial hygiene and safety practice.
Smoking, eating and drinking should be prohibited in the application area.
Avoid inhalation of vapor or mist.
Do not swallow.
Do not get in eyes.
Avoid contact with skin and eyes.
Avoid prolonged or repeated contact with skin.
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.

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- Conditions for safe storage : Store in a closed container.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Keep in properly labeled 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

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
salts of 2,4-D	18584-79-7	TWA	10 mg/m ³	Dow IHG
1,1',1'-nitritolotripropan-2-ol	122-20-3	TWA	10 mg/m ³	Dow IHG
edetic acid	60-00-4	TWA	10 mg/m ³	Dow IHG

- 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, if discomfort is experienced, use an approved air-purifying respirator.

Hand protection

- Remarks : Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). 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.

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Eye protection : Use chemical goggles.
Skin and body protection : Wear clean, body-covering clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid.

Color : Red to brown

Odor : Mild

Odor Threshold : No data available

pH : 6.78 (74.5 °F / 23.6 °C)
Method: pH Electrode

Melting point/range : Not applicable

Freezing point : No data available

Boiling point/boiling range : No data available

Flash point : > 212 °F / > 100 °C
Method: closed cup

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapor density : No data available

Density : 1.15 g/cm³ (68 °F / 20 °C)

Solubility(ies)
Water solubility : No data available

Partition coefficient: n-octanol/water : Based on information for component(s): Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Autoignition temperature : No data available

Viscosity
Viscosity, dynamic : 19.7 cP (68.2 °F / 20.1 °C)

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8.4 cP (103.8 °F / 39.9 °C)

Explosive properties : No

Oxidizing properties : No significant increase (>5C) in temperature.

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:
Nitrogen oxides (NOx)
Hydrogen chloride gas
Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Product:**

Acute oral toxicity : LD50 (Rat, male): 3,730 mg/kg
LD50 (Rat, female): 2,830 mg/kg
Acute inhalation toxicity : LC50 (Rat, male and female): > 5.03 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
Acute dermal toxicity : LD50 (Rabbit, male and female): > 4,000 mg/kg
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

Components:**salts of 2,4-D:**

Acute oral toxicity : LD50 (Rat): 1,074 mg/kg
LD50 (Rat, male): 1,220 mg/kg

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Acute inhalation toxicity : Remarks: No adverse effects are anticipated from single exposure to mist.
Based on the available data, respiratory irritation was not observed.

LC50 (Rat, male): > 0.84 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Assessment: The substance or mixture has no acute inhalation toxicity

Remarks: Maximum attainable concentration.
No deaths occurred at this concentration.

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

Clopyralid monoethanolamine salt:

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

Acute inhalation toxicity : LC50 (Rat): > 2.6 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
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

1,1',1'-nitriлотripropan-2-ol:

Acute oral toxicity : LD50 (Rat): 4,000 mg/kg

Acute inhalation toxicity : (Rat): Exposure time: 8 h
Symptoms: No deaths occurred following exposure to a saturated atmosphere.
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

edetic acid:

Acute oral toxicity : LD50 (Rat, male and female): 4,500 mg/kg

Acute inhalation toxicity : Remarks: Prolonged excessive exposure to dust may cause adverse effects.
For narcotic effects:
No relevant data found.

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LC50 (Rat, male): > 1 mg/l
Exposure time: 6 h
Test atmosphere: dust/mist
Assessment: The component/mixture is moderately toxic after short term inhalation.

Skin corrosion/irritation**Product:**

Species : Rabbit
Result : No skin irritation

Components:**1,1',1'-nitriлотripropan-2-ol:**

Result : No skin irritation

edetic acid:

Result : No skin irritation

Serious eye damage/eye irritation**Product:**

Species : Rabbit
Result : Corrosive

Components:**salts of 2,4-D:**

Result : Corrosive

Clopyralid monoethanolamine salt:

Species : Rabbit
Result : No eye irritation

1,1',1'-nitriлотripropan-2-ol:

Result : Eye irritation

edetic acid:

Result : Eye irritation

Respiratory or skin sensitization**Components:****salts of 2,4-D:**

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

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pigs.

Remarks : For respiratory sensitization:
No relevant data found.

Clopyralid monoethanolamine salt:

Species : Mouse
Assessment : Does not cause skin sensitization.

1,1',1'-nitrilotripropan-2-ol:

Assessment : Does not cause skin sensitization.
Remarks : Did not cause allergic skin reactions when tested in guinea pigs.
Did not cause allergic skin reactions when tested in humans.

Remarks : For respiratory sensitization:
No relevant data found.

edetic acid:

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

Remarks : For respiratory sensitization:
No relevant data found.

Germ cell mutagenicity**Components:****salts of 2,4-D:**

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

Clopyralid monoethanolamine salt:

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

1,1',1'-nitrilotripropan-2-ol:

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

edetic acid:

Germ cell mutagenicity - Assessment : Most data indicate that EDTA and its salts are not mutagenic. Minimal effects reported are likely due to trace metal deficiencies resulting from chelating by EDTA.

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Carcinogenicity**Components:****salts of 2,4-D:**

Carcinogenicity - Assessment : For similar active ingredient(s), 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.

Clopyralid monoethanolamine salt:

Carcinogenicity - Assessment : Similar formulations did not cause cancer in laboratory animals.

1,1',1'-nitriлотripropan-2-ol:

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

edetic acid:

Carcinogenicity - Assessment : The trisodium salt of EDTA did not cause cancer in laboratory animals.

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity**Components:****salts of 2,4-D:**

Reproductive toxicity - Assessment : For similar active ingredient(s), 2,4-Dichlorophenoxyacetic acid., 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., Has caused birth defects in laboratory animals only at doses producing severe toxicity in the mother.

Clopyralid monoethanolamine salt:

Reproductive toxicity - Assessment : In animal studies, active ingredient did not interfere with reproduction.
Clopyralid caused birth defects in test animals, but only at greatly exaggerated doses that were severely toxic to the mothers. No birth defects were observed in animals given clopyralid at doses several times greater than those expected

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during normal exposure.

1,1',1'-nitriлотripropan-2-ol:

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

edetic acid:

Reproductive toxicity - Assessment : Limited data in laboratory animals suggest that the material does not affect reproduction. EDTA and its sodium salts have been reported to cause birth defects in laboratory animals only at exaggerated doses that were toxic to the mother. These effects are likely associated with zinc deficiency due to chelation.

STOT-single exposure**Product:**

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

Components:**Clopyralid monoethanolamine salt:**

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

1,1',1'-nitriлотripropan-2-ol:

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

edetic acid:

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

STOT-repeated exposure**Components:****edetic acid:**

Routes of exposure : Inhalation
 Target Organs : Respiratory Tract
 Assessment : May cause damage to organs through prolonged or repeated exposure.

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Repeated dose toxicity

Components:

salts of 2,4-D:

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

Clopyralid monoethanolamine salt:

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

1,1',1'-nitrilotripropan-2-ol:

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

edetic acid:

Remarks : Based on information for a similar material:
In animals, effects have been reported on the following organs:
Respiratory tract.

Aspiration toxicity

Product:

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

Components:

salts of 2,4-D:

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

Clopyralid monoethanolamine salt:

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

1,1',1'-nitrilotripropan-2-ol:

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

edetic acid:

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

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity**Components:****salts of 2,4-D:**

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).

LC50 (Oncorhynchus mykiss (rainbow trout)): 317 mg/l
 Exposure time: 96 h
 Test Type: static test
 Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 748 mg/l
 Exposure time: 48 h
 Test Type: static test

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 103 mg/l
 Exposure time: 5 d

EC50 (Lemna minor (duckweed)): 2.37 mg/l
 Exposure time: 14 d

Toxicity to terrestrial organisms : Remarks: Material is moderately toxic to birds on an acute basis (LD50 between 51 and 500 mg/kg)., Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).

oral LD50 (Colinus virginianus (Bobwhite quail)): 405 mg/kg

dietary LC50 (Colinus virginianus (Bobwhite quail)): > 5,620 ppm

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

Clopyralid monoethanolamine salt:

Toxicity to fish : 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)): > 100 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)): 30 mg/l
 Exposure time: 72 h

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ErC50 (Myriophyllum spicatum): > 3 mg/l
 Exposure time: 14 d
 Remarks: For similar material(s):

NOEC (Myriophyllum spicatum): 0.0089 mg/l
 Exposure time: 14 d
 Remarks: For similar material(s):

M-Factor (Chronic aquatic toxicity) : 10

Toxicity to terrestrial organisms : oral LD50 (Anas platyrhynchos (Mallard duck)): 1465 - 2000 mg/kg bodyweight.
 Exposure time: 14 d
 Remarks: For similar active ingredient(s).

dietary LC50 (Colinus virginianus (Bobwhite quail)): > 5000 mg/kg diet.
 Exposure time: 8 d
 Remarks: For similar active ingredient(s).

contact LD50 (Apis mellifera (bees)): > 100 micrograms/bee
 Exposure time: 48 d
 Remarks: For similar active ingredient(s).

oral LD50 (Apis mellifera (bees)): > 98.1 micrograms/bee
 Exposure time: 48 d
 Remarks: For similar active ingredient(s).

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

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

1,1',1'-nitriлотripropan-2-ol:

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 (Leuciscus idus (Golden orfe)): 3,158.4 mg/l
 Exposure time: 96 h
 Test Type: static test
 Method: DIN 38412

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 500 mg/l
 Exposure time: 48 h
 Test Type: static test
 Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : EC50 (alga Scenedesmus sp.): 710 mg/l
 End point: Growth rate inhibition
 Exposure time: 72 h
 Test Type: static test
 Method: EU Method C.3 (Algal Inhibition test)

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Toxicity to microorganisms : EC10 (activated sludge): > 1,195 mg/l
Exposure time: 30 min

edetic acid:

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 (Fish): 1,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 113 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202 or Equivalent

Persistence and degradability

Components:

salts of 2,4-D:

Biodegradability : Result: Readily biodegradable.
Remarks: For similar active ingredient(s).
2,4-Dichlorophenoxyacetic acid.
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Clopyralid monoethanolamine salt:

Biodegradability : Result: Not biodegradable.
Remarks: For similar active ingredient(s).
Clopyralid.

1,1',1'-nitriлотripropan-2-ol:

Biodegradability : Remarks: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%).
Biodegradation rate may increase in soil and/or water with acclimation.
Material is not readily biodegradable according to OECD/EEC guidelines.

aerobic
Result: Not biodegradable.
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
Remarks: 10-day Window: Fail

ThOD : 2.35 kg/kg

Photodegradation : Test Type: Half-life (indirect photolysis)

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Sensitizer: OH radicals
Rate constant: 1.2E-10 cm³/s
Method: Estimated.

edetic acid:

Biodegradability : Remarks: Material is inherently biodegradable (reaches > 20% biodegradation in OECD test(s) for inherent biodegradability).

aerobic
Biodegradation: 37 %
Exposure time: 14 d
Method: OECD Test Guideline 302B or Equivalent
Remarks: 10-day Window: Not applicable

Biodegradation: 0 %
Exposure time: 30 d
Method: OECD Test Guideline 301D or Equivalent
Remarks: 10-day Window: Fail

ThOD : 1.37 kg/kg

Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Rate constant: 1.81E-10 cm³/s
Method: Estimated.

Bioaccumulative potential

Components:

salts of 2,4-D:

Partition coefficient: n-octanol/water : Remarks: No bioconcentration is expected because of the relatively high water solubility.

Remarks: For similar active ingredient(s).
2,4-Dichlorophenoxyacetic acid.
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Clopyralid monoethanolamine salt:

Partition coefficient: n-octanol/water : Remarks: For similar active ingredient(s).
Clopyralid.
Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

1,1',1'-nitrilotripropan-2-ol:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): < 0.57
Exposure time: 42 d
Method: Measured

Partition coefficient: n-octanol/water : log Pow: -0.015 (73 °F / 23 °C)
Method: Measured

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

edetic acid:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 1.1
Exposure time: 28 d
Method: Measured

Partition coefficient: n-octanol/water : log Pow: -3.86 (77 °F / 25 °C)
Method: Estimated.
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Balance:

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

Mobility in soil

Components:

salts of 2,4-D:

Distribution among environmental compartments : Remarks: For similar active ingredient(s).
2,4-Dichlorophenoxyacetic acid.
Potential for mobility in soil is very high (Koc between 0 and 50).

Clopyralid monoethanolamine salt:

Distribution among environmental compartments : Remarks: For similar active ingredient(s).
Clopyralid.
Potential for mobility in soil is very high (Koc between 0 and 50).

1,1',1'-nitriлотripropan-2-ol:

Distribution among environmental compartments : Koc: 10
Method: Estimated.
Remarks: Potential for mobility in soil is very high (Koc between 0 and 50).

edetic acid:

Distribution among environmental compartments : Koc: 98
Remarks: Potential for mobility in soil is high (Koc between 50 and 150).

Balance:

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

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Other adverse effects**Components:****salts of 2,4-D:**

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.

Clopyralid monoethanolamine salt:

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.

1,1',1'-nitriлотripropan-2-ol:

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.

edetic acid:

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.

Balance:

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.

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 other-

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wise 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.
(2,4-D Salt)
Class : 9
Packing group : III
Labels : 9

IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(2,4-D Salt)
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.
(2,4-D Salt)
Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : yes
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.

Domestic regulation

49 CFR

UN/ID/NA number : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(2,4-D Salt)
Class : 9
Packing group : III

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Labels : CLASS 9
ERG Code : 171
Marine pollutant : no

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 5L 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.

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

SARA 311/312 Hazards : Specific target organ toxicity (single or repeated exposure)
Serious eye damage or eye irritation

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Pennsylvania Right To Know

1,1',1'-nitriлотрипропан-2-ол	122-20-3
edetic acid	60-00-4

California Prop. 65

WARNING: This product can expose you to chemicals including sulphuric acid, hexachlorobenzene, which is/are known to the State of California to cause cancer, and hexachlorobenzene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

The following substance(s) is/are subject to a Significant New Use Rule:
4,5,6-Trichloro-2-pyridinecarboxylic acid 496849-77-5
pentachlorobenzene 608-93-5

No substances are subject to TSCA 12(b) export notification requirements.

Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number : 62719-048

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This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

DANGER

Corrosive
Causes irreversible eye damage
Harmful if absorbed through skin or inhaled
Harmful if swallowed

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

Dow IHG : Dow Industrial Hygiene Guideline
Dow IHG / TWA : Time Weighted Average (TWA):
Dow IHG / TWA : Time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund

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Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 01/13/2022

Product code: XRM-5167

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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