

SAFETY DATA SHEET



GRAZON® P+D

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	12/01/2022	800080004295	Date of first issue: 12/01/2022

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 : GRAZON® P+D

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).
+1 800-992-5994 or +1 317-337-6009

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)

Eye irritation : Category 2A

Skin sensitization : Category 1

GHS label elements

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Hazard pictograms :



Signal Word : Warning

Hazard Statements : H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

Precautionary Statements :

Prevention:

P261 Avoid breathing mist or vapors.
P264 Wash skin thoroughly after handling.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.

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	39.6
Picloram triisopropanolamine salt	6753-47-5	10.2
Alkylphenol alkoxylate	69029-39-6	>= 3 - < 10
propan-2-ol	67-63-0	>= 1 - < 3
1,1',1'-nitritotripropan-2-ol	122-20-3	>= 1 - < 3
Balance	Not Assigned	> 30

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

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

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

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

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

 - 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.
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.
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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 fire fighting to enter drains or water courses.

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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
Nitrogen oxides (NOx)
Hydrogen chloride gas

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.

Further information : 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

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-

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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 : Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.
 Do not breathe vapors/dust.
 Do not smoke.
 Handle in accordance with good industrial hygiene and safety practice.
 Avoid exposure - obtain special instructions before use.
 Smoking, eating and drinking should be prohibited in the application area.
 Do not get on skin or clothing.
 Avoid inhalation of vapor or mist.
 Do not swallow.
 Do not get in eyes.
 Avoid contact with skin and eyes.
 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.
 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
Alkylphenol alkoxylate	69029-39-6	TWA	2 mg/m ³	Dow IHG
propan-2-ol	67-63-0	TWA	150 ppm	Dow IHG
		STEL	300 ppm	Dow IHG
		TWA	200 ppm	ACGIH

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		STEL	400 ppm	ACGIH
		TWA	400 ppm 980 mg/m3	OSHA Z-1
		STEL	500 ppm 1,225 mg/m3	OSHA P0
		TWA	400 ppm 980 mg/m3	OSHA P0
1,1',1'-nitrotripropan-2-ol	122-20-3	TWA	10 mg/m3	Dow IHG

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sam-pling time	Permissible concentra-tion	Basis
propan-2-ol	67-63-0	Acetone	Urine	End of shift at end of work-week	40 mg/l	ACGIH BEI

Engineering measures : Use engineering controls to maintain airborne level below exposure limit requirements or guidelines.
 If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation.
 Local exhaust ventilation may be necessary for some operations.

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, use an approved respirator.
 Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material.
 For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

Hand protection

Remarks : Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). 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.

Eye protection : Use chemical goggles.

Skin and body protection : Use protective clothing chemically resistant to this material.
 Selection of specific items such as face shield, boots, apron,

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or full body suit will depend on the task.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid.

Color : Yellow to brown

Odor : Alcohols

Odor Threshold : No data available

pH : 6.8 - 7.8
Method: pH Electrode

Melting point/range : Not applicable

Freezing point : No data available

Boiling point/boiling range : 180 °F / 82 °C

Flash point : > 212 °F / > 100 °C
Method: Setaflash Closed Cup ASTM D3828, closed cup

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : 32 hPa (68 °F / 20 °C)

Relative vapor density : Not applicable

Relative density : 1.143 (68 °F / 20 °C)

Density : 1.149 g/cm³ (68 °F / 20 °C)

Solubility(ies)
Water solubility : Soluble

Autoignition temperature : No data available

Viscosity
Viscosity, dynamic : No data available

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Viscosity, kinematic : No data available
Explosive properties : No data available
Oxidizing properties : No data available

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
Nitrogen oxides (NOx)
Hydrogen chloride gas

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat): 2,598 mg/kg
Remarks: For similar material(s):
Acute inhalation toxicity : LC50 (Rat): > 1.38 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: For similar material(s):
Maximum attainable concentration.
Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg
Remarks: For similar material(s):

Components:

salts of 2,4-D:

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

Picloram triisopropanolamine salt:

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
- Acute inhalation toxicity : Remarks: Vapors are unlikely due to physical properties.
No adverse effects are anticipated from single exposure to dust.
Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

LC50 (Rat): > 0.07 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Symptoms: The LC50 value is greater than the Maximum Attainable Concentration., No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute inhalation toxicity
- 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

Alkylphenol alkoxyate:

- Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg
- Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,000 mg/kg

propan-2-ol:

- Acute oral toxicity : LD50 (Rat): 5,840 mg/kg

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Method: OECD 401 or equivalent

Acute inhalation toxicity : LC50 (Rat, male and female): > 10000 ppm
Exposure time: 6 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): > 12,800 mg/kg

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

Skin corrosion/irritation

Components:

Alkylphenol alkoxyolate:

Species : Rabbit
Result : No skin irritation

propan-2-ol:

Species : Rabbit
Result : No skin irritation

1,1',1'-nitriлотripropan-2-ol:

Result : No skin irritation

Serious eye damage/eye irritation

Product:

Result : Eye irritation

Components:

salts of 2,4-D:

Result : Corrosive

Alkylphenol alkoxyolate:

Species : Rabbit
Result : No eye irritation

propan-2-ol:

Species : Rabbit

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Result : Eye irritation

1,1',1'-nitritotripropan-2-ol:

Result : Eye irritation

Respiratory or skin sensitization

Product:

Remarks : For similar material(s):

Components:

salts of 2,4-D:

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

Picloram triisopropanolamine salt:

Assessment : The product is a skin sensitizer, sub-category 1B.
Remarks : Has caused allergic skin reactions when tested in guinea pigs.

Remarks : For respiratory sensitization:
No relevant data found.

Alkylphenol alkoxyate:

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

propan-2-ol:

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

1,1',1'-nitritotripropan-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.

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.

Picloram triisopropanolamine salt:

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Germ cell mutagenicity - Assessment : In vitro genetic toxicity studies were negative., The following information is based on limited data and/or screening studies., Animal genetic toxicity studies were negative.

Alkylphenol alkoxyate:

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

propan-2-ol:

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.

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.

Picloram triisopropanolamine salt:

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

propan-2-ol:

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

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

Carcinogenicity - Assessment : 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.

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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.

Picloram triisopropanolamine salt:

Reproductive toxicity - Assessment : For similar active ingredient(s), Picloram acid., 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.

Alkylphenol alkoxyate:

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

propan-2-ol:

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction., In animal studies, did not interfere with fertility.
Isopropanol has been toxic to the fetus in laboratory animals at doses toxic to the mother.

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.

STOT-single exposure**Product:**

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

Components:**Alkylphenol alkoxyate:**

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

propan-2-ol:

Routes of exposure : Ingestion

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Target Organs : Central nervous system
Assessment : May cause drowsiness or dizziness.

1,1',1'-nitritotripropan-2-ol:

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

Repeated dose toxicity

Components:

salts of 2,4-D:

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

Picloram triisopropanolamine salt:

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

Alkylphenol alkoxyate:

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

propan-2-ol:

Remarks : In animals, effects have been reported on the following organs:
Kidney.
Liver.
Kidney effects have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.
Observations in animals include:
Lethargy.

1,1',1'-nitritotripropan-2-ol:

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

Aspiration toxicity

Product:

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

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

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

Picloram triisopropanolamine salt:

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

Alkylphenol alkoxyate:

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

propan-2-ol:

Aspiration into the lungs may occur during ingestion or vomiting, resulting in rapid absorption and injury to other body systems.

1,1',1'-nitrotripropan-2-ol:

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

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

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

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

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

Picloram triisopropanolamine salt:

Toxicity to fish : Remarks: Based on information for a similar material: 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 (Oncorhynchus mykiss (rainbow trout)): 51 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 125 mg/l
Exposure time: 48 h
Test Type: static test

Toxicity to algae/aquatic plants : ErC50 (Myriophyllum spicatum): 0.558 mg/l
Exposure time: 14 d
Remarks: For similar material(s):

NOEC (Myriophyllum spicatum): 0.0095 mg/l
Exposure time: 14 d
Remarks: For similar material(s):

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC (Pimephales promelas (fathead minnow)): 7.19 mg/l
Exposure time: 28 d

M-Factor (Chronic aquatic toxicity) : 10

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

Very toxic to aquatic life with long lasting effects.

Alkylphenol alkoxyate:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 4.8 mg/l
Exposure time: 96 h
Test Type: static test
Method: OECD Test Guideline 203 or Equivalent

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LC50 (*Oncorhynchus mykiss* (rainbow trout)): 3.7 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)): 10.5 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202 or Equivalent

Toxicity to terrestrial organisms : dietary LC50 (*Apis mellifera* (bees)): > 105 micrograms/bee
Exposure time: 2 d

contact LD50 (*Apis mellifera* (bees)): > 100 micrograms/bee
Exposure time: 2 d

No Observed Effects Level (NOEL) (*Colinus virginianus* (Bobwhite quail)): 2,250 mg/kg

oral LD50 (*Colinus virginianus* (Bobwhite quail)): > 2,250 mg/kg

Ecotoxicology Assessment

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

propan-2-ol:

Toxicity to fish : LC50 (*Pimephales promelas* (fathead minnow)): 9,640 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 : LC50 (*Daphnia magna* (Water flea)): > 1,000 mg/l
Exposure time: 24 h
Test Type: static test
Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic plants : NOEC (alga *Scenedesmus* sp.): 1,800 mg/l
End point: Growth inhibition (cell density reduction)
Exposure time: 7 d
Test Type: static test

ErC50 (alga *Scenedesmus* sp.): > 1,000 mg/l
End point: Growth rate inhibition
Exposure time: 72 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 30 mg/l
Exposure time: 21 d
Test Type: semi-static test

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l

1,1',1'-nitriлотripropan-2-ol:

Toxicity to fish : Remarks: Material is practically non-toxic to aquatic organ-

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isms 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)

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

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.

Picloram triisopropanolamine salt:

Biodegradability : Result: Not readily biodegradable.
 Remarks: For similar active ingredient(s).
 Picloram.
 Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
 Biodegradation may occur under aerobic conditions (in the presence of oxygen).
 Surface photodegradation is expected with exposure to sunlight.

Alkylphenol alkoxyate:

Biodegradability : Result: Not biodegradable
 Remarks: Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%).
 Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biode-

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gradable under environmental conditions.

Chemical Oxygen Demand (COD) : 1.78 kg/kg

ThOD : 2.35 kg/kg

propan-2-ol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 95 %
Exposure time: 21 d
Method: OECD Test Guideline 301E or Equivalent
Remarks: 10-day Window: Pass

Biodegradation: 53 %
Exposure time: 5 d
Method: Other guidelines
Remarks: 10-day Window: Pass

Biochemical Oxygen Demand (BOD) : 20 - 72 %
Incubation time: 5 d

78 - 86 %
Incubation time: 20 d

Chemical Oxygen Demand (COD) : 2.09 kg/kg
Method: Estimated.

ThOD : 2.40 kg/kg
Method: Estimated.

Photodegradation : Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Rate constant: 7.26E-12 cm³/s
Method: Estimated.

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.

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).

Picloram triisopropanolamine salt:

Partition coefficient: n-octanol/water : Remarks: No data available for this product.
For similar active ingredient(s).
Picloram.
Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Alkylphenol alkoxyate:

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

propan-2-ol:

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

log Pow: 0.05
Method: Measured

1,1',1'-nitriлотripropan-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
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Balance:

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

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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).

Picloram triisopropanolamine salt:

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

propan-2-ol:

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

Koc: 1.1
Method: Estimated.

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).

Balance:

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

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.

Picloram triisopropanolamine salt:

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.

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Alkylphenol alkoxyate:

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.

propan-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.

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.

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 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.

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SECTION 14. TRANSPORT INFORMATION**International Regulations****UNRTDG**

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

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
Labels	:	CLASS 9
ERG Code	:	171
Marine pollutant	:	no
Reportable Quantity	:	2,4-D Salt only regulated in pack sizes > 114 kg

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.

THE ABOVE INFORMATION ONLY APPLIES TO PACKAGE SIZES WHERE THE HAZARDOUS SUBSTANCE MEETS THE REPORTABLE QUANTITY.

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 : Respiratory or skin sensitization
Serious eye damage or eye irritation

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

propan-2-ol	67-63-0	>= 1 - < 5 %
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US State Regulations

Pennsylvania Right To Know

propan-2-ol 67-63-0
1,1',1'-nitritotripropan-2-ol 122-20-3

California Prop. 65

WARNING: This product can expose you to chemicals including sulphuric acid, hexachlorobenzene, propylene oxide, ethylene oxide, which is/are known to the State of California to cause cancer, and hexachlorobenzene, ethylene oxide, 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

No substances are subject to a Significant New Use Rule.

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

Federal Insecticide, Fungicide and Rodenticide Act

EPA Registration Number : 62719-182

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 swallowed or inhaled
Harmful if absorbed through skin

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)
ACGIH BEI : ACGIH - Biological Exposure Indices (BEI)
Dow IHG : Dow Industrial Hygiene Guideline
OSHA P0 : USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
OSHA Z-1 : USA. Occupational Exposure Limits (OSHA) - Table Z-1 Lim-

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	its for Air Contaminants
ACGIH / TWA	: 8-hour, time-weighted average
ACGIH / STEL	: Short-term exposure limit
Dow IHG / TWA	: Time Weighted Average (TWA):
Dow IHG / STEL	: Short term exposure limit
Dow IHG / TWA	: Time weighted average
OSHA P0 / TWA	: 8-hour time weighted average
OSHA P0 / STEL	: Short-term exposure limit
OSHA Z-1 / TWA	: 8-hour 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 Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals 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 : 12/01/2022

Product code: GF-2179

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

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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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