SAFETY DATA SHEET

MezaVue™

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	06/22/2022	800080005602	Date of first issue: 06/22/2022

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 : MezaVue™

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)

Not a hazardous substance or mixture.

GHS label elements

Not a hazardous substance or mixture.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
fluroxypyr-meptyl (ISO)	81406-37-3	12.53

Picloram Potassium Salt	2545-60-0	10.06
Aminopyralid Potassium	566191-87-5	5.15
Glycerol	56-81-5	>= 3 - < 10
N,N-Dimethyloctanamide	1118-92-9	>= 3 - < 10
N,N-Dimethyldecan-1-amide	14433-76-2	>= 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.
Suitable emergency safety shower facility should be available in work area.

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

If swallowed : No emergency medical treatment necessary.

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.

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.

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

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 fire-fighters	:	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 vapors/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 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
fluroxypyr-meptyl (ISO)	81406-37-3	TWA	10 mg/m3	Dow IHG
Glycerol	56-81-5	TWA (mist, respirable fraction)	5 mg/m3	OSHA Z-1
		TWA (mist, total dust)	15 mg/m3	OSHA Z-1
		TWA (Mist - total dust)	10 mg/m3	OSHA P0
		TWA (Mist - respirable fraction)	5 mg/m3	OSHA P0

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. 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 safety glasses (with side shields).

Skin and body protection : Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid.
Color	:	tan
Odor	:	Solvent
Odor Threshold	:	No data available
pH	:	7.71 1% Aqueous solution
Melting point/range	:	Not applicable
Freezing point		No data available
Boiling point/boiling range	:	No data available
Flash point	:	> 212 °F / > 100 °C Method: ASTM D 93, closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Flammability (liquids)	:	Not expected to be a static-accumulating flammable liquid.
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) Method: OECD 109
Solubility(ies)		
Water solubility	:	emulsifies in water

Autoignition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	12.5 mPa.s (104 °F / 40 °C) Method: OECD 114
Explosive properties	:	Not explosive
Oxidizing properties	:	No

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

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	LD50 (Rat, female): > 5,000 mg/kg Method: OECD Test Guideline 423 Symptoms: No deaths occurred at this concentration.
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 5.69 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 Symptoms: No deaths occurred at this concentration. Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	:	LD50 (Rat, male and female): > 5,000 mg/kg Method: OECD Test Guideline 402 Symptoms: No deaths occurred at this concentration.

Components:

fluroxypyr-meptyl (ISO):

Acute oral toxicity	:	LD50 (Rat): > 2,000 mg/kg Symptoms: No deaths occurred at this concentration.

Assessment: The substance or mixture has no acute oral toxicity

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

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

Picloram Potassium Salt:

Acute oral toxicity : LD50 (Rat, female): 2,675 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 1.6 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): > 2,000 mg/kg
Method: Estimated.
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on information for a similar material:

Aminopyralid Potassium:

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

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

LC50 (Rat): > 5.10 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 (Rat): > 5,000 mg/kg

Glycerol:

Acute oral toxicity : LD50 (Rat): > 11,500 mg/kg
Remarks: Excessive exposure may cause:
Central nervous system effects.
Observations in humans include:
Altered blood sugar levels.

Acute inhalation toxicity : LC50 (Rat): > 2.75 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Symptoms: No deaths occurred following exposure to a saturated atmosphere.
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Guinea pig): >= 56,750 mg/kg

N,N-Dimethyloctanamide:

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

Acute inhalation toxicity : LC50 (Rat, male and female): > 3.551 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: For similar material(s):

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

N,N-Dimethyldecan-1-amide:

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

Acute inhalation toxicity : LC50 (Rat, male and female): > 3.551 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 (Rat): > 2,000 - 5,000 mg/kg

Skin corrosion/irritation

Product:

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

Components:

fluroxypyr-meptyl (ISO):

Species : Rabbit
Result : No skin irritation

Picloram Potassium Salt:

Result : No skin irritation

Glycerol:

Result : No skin irritation

N,N-Dimethyloctanamide:

Result : Skin irritation

N,N-Dimethyldecan-1-amide:

Result : Skin irritation

Serious eye damage/eye irritation

Product:

Species : Rabbit
Result : No eye irritation
Method : OECD Test Guideline 405

Components:

Picloram Potassium Salt:

Result : Eye irritation

Glycerol:

Result : No eye irritation

N,N-Dimethyloctanamide:

Result : Corrosive

N,N-Dimethyldecan-1-amide:

Result : Eye irritation

Respiratory or skin sensitization

Product:

Test Type : Local lymph node assay
Species : Mouse
Assessment : Does not cause skin sensitization.
Method : OECD Test Guideline 429

Components:

fluroxypyr-meptyl (ISO):

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

Picloram Potassium Salt:

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

Remarks : For respiratory sensitization:
No relevant data found.

Aminopyralid Potassium:

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

Remarks : For respiratory sensitization:
No relevant data found.

N,N-Dimethyloctanamide:

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

Remarks : For respiratory sensitization:
No relevant data found.

N,N-Dimethyldecan-1-amide:

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:

fluroxypyr-meptyl (ISO):

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

Picloram Potassium Salt:

Germ cell mutagenicity - Assessment : For similar active ingredient(s)., The preponderance of data shows picloram to be non-mutagenic in 'in vitro' (test tube)

tests and in animal test systems.

Aminopyralid Potassium:

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

Glycerol:

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

N,N-Dimethyloctanamide:

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

N,N-Dimethyldecan-1-amide:

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

Carcinogenicity

Components:

fluroxypyr-meptyl (ISO):

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

Picloram Potassium Salt:

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

Aminopyralid Potassium:

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

Glycerol:

Carcinogenicity - Assessment : For the major component(s):, Did not cause cancer in laboratory animals.

N,N-Dimethyloctanamide:

Carcinogenicity – Assessment : Similar material(s) 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:

fluroxypyr-meptyl (ISO):

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

Picloram Potassium 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 any other fetal effects in laboratory animals.

Aminopyralid Potassium:

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

Glycerol:

Reproductive toxicity - Assessment : Reproductive effects seen in female animals are believed to be due to altered nutritional states resulting from extremely high doses of glycerine given in the diet. Similar effects have been seen in animals fed synthetic diets.
Did not cause birth defects or any other fetal effects in laboratory animals.

N,N-Dimethyloctanamide:

Reproductive toxicity - Assessment : No relevant data found.
For similar material(s):, Has been toxic to the fetus in laboratory animals at doses toxic to the mother., Did not cause birth defects in laboratory animals.

N,N-Dimethyldecan-1-amide:

Reproductive toxicity - Assessment : For similar material(s):, 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:

Picloram Potassium Salt:

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

Aminopyralid Potassium:

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

Glycerol:

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

N,N-Dimethyloctanamide:

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

N,N-Dimethyldecan-1-amide:

Assessment : May cause respiratory irritation.

Repeated dose toxicity

Components:

fluroxypyr-meptyl (ISO):

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

Picloram Potassium Salt:

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

Aminopyralid Potassium:

Remarks : For similar active ingredient(s).
Aminopyralid.
In animals, effects have been reported on the following organs:
Gastrointestinal tract.

Glycerol:

Remarks : Excessive exposure to glycerine may cause increased fat levels in blood.

N,N-Dimethyloctanamide:

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

Kidney.
Eye.

N,N-Dimethyldecan-1-amide:

Remarks : For similar material(s):
In animals, effects have been reported on the following organs:
Eye.
Liver.
Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Aspiration toxicity

Product:

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

Components:

fluroxypyr-meptyl (ISO):

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

Picloram Potassium Salt:

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

Aminopyralid Potassium:

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

Glycerol:

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

N,N-Dimethyloctanamide:

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

N,N-Dimethyldecan-1-amide:

Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): > 2,000 mg/kg
Exposure time: 14 d

Components:

fluroxypyr-meptyl (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)): > 0.225 mg/l Exposure time: 96 h Test Type: semi-static test Method: OECD Test Guideline 203 or Equivalent
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 0.183 mg/l Exposure time: 48 h Test Type: semi-static test Method: OECD Test Guideline 202 or Equivalent
Toxicity to algae/aquatic plants	:	ErC50 (diatom Navicula sp.): 0.24 mg/l Exposure time: 72 h Test Type: static test Method: OECD Test Guideline 201 or Equivalent EbC50 (alga Scenedesmus sp.): > 0.47 mg/l Exposure time: 72 h ErC50 (Selenastrum capricornutum (green algae)): > 1.410 mg/l Exposure time: 96 h ErC50 (Myriophyllum spicatum): 0.075 mg/l Exposure time: 14 d NOEC (Myriophyllum spicatum): 0.031 mg/l Exposure time: 14 d
M-Factor (Acute aquatic toxicity)	:	10
Toxicity to fish (Chronic toxicity)	:	NOEC (Rainbow trout (Oncorhynchus mykiss)): 0.32 mg/l
M-Factor (Chronic aquatic toxicity)	:	1
Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg
Toxicity to terrestrial organisms	:	Remarks: Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg)., Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm). oral LD50 (Colinus virginianus (Bobwhite quail)): > 2000 mg/kg bodyweight. Exposure time: 5 d dietary LC50 (Colinus virginianus (Bobwhite quail)): > 5000 mg/kg diet. 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.

Picloram Potassium Salt:

Toxicity to fish : Remarks: For similar material(s):
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 (Lepomis macrochirus (Bluegill sunfish)): 137 mg/l
Exposure time: 96 h

LC50 (Oncorhynchus mykiss (rainbow trout)): 48 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 212 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EbC50 (Pseudokirchneriella subcapitata (green algae)): 85.5 mg/l
End point: Biomass
Exposure time: 120 h

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

M-Factor (Chronic aquatic toxicity) : 10

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

oral LD50 (Anas platyrhynchos (Mallard duck)): > 2,250 mg/kg

oral LD50 (Colinus virginianus (Bobwhite quail)): > 5,620 mg/kg

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

Aminopyralid Potassium:

Toxicity to fish : Remarks: For similar active ingredient(s).
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)): > 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

Toxicity to algae/aquatic plants : ErC50 (Algae): 100 mg/l
Exposure time: 72 h

ErC50 (Myriophyllum spicatum): 0.363 mg/l
Exposure time: 14 d
Remarks: For similar material(s):

NOEC (Myriophyllum spicatum): 0.0639 mg/l
Exposure time: 14 d
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)., Material is slightly toxic to birds on a dietary basis (LC50 between 1001 and 5000 ppm).

Ecotoxicology Assessment

Acute aquatic toxicity : Very toxic to aquatic life.

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

Glycerol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): >= 885 mg/l
Exposure time: 96 h
Test Type: static test
Method: Method Not Specified.

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 1,955 mg/l
Exposure time: 48 h
Test Type: static test
Method: Method Not Specified.

Toxicity to algae/aquatic plants : EC50 (Other): 2,900 mg/l
End point: Growth inhibition (cell density reduction)
Exposure time: 192 h
Test Type: static test
Method: Method Not Specified.

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h
Method: OECD 209 Test

N,N-Dimethyloctanamide:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 14.8 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 7.7 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 16.06 mg/l
Exposure time: 72 h

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

N,N-Dimethyldecan-1-amide:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 14.8 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 7.7 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 16.06 mg/l
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.079 mg/l
Exposure time: 21 d

Ecotoxicology Assessment

Acute aquatic toxicity : Toxic to aquatic life.

Persistence and degradability

Components:

fluroxypyr-meptyl (ISO):

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

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

ThOD : 2.2 kg/kg

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

Picloram Potassium Salt:

Biodegradability : 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.

Chemical Oxygen Demand (COD) : 0.64 kg/kg

ThOD : 0.86 kg/kg

Aminopyralid Potassium:

Biodegradability : Remarks: For similar active ingredient(s).
Aminopyralid.
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: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent
Remarks: 10-day Window: Fail

Glycerol:

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

Biodegradation: 63 %
Exposure time: 14 d
Method: OECD Test Guideline 301C or Equivalent
Remarks: 10-day Window: Not applicable

ThOD : 1.22 kg/kg

N,N-Dimethyloctanamide:

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

Result: Readily biodegradable.
Biodegradation: > 80 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent

Remarks: 10-day Window: Pass

Chemical Oxygen Demand (COD) : 2.890 kg/kg

ThOD : 2.85 kg/kg

N,N-Dimethyldecan-1-amide:

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

Result: Readily biodegradable.
Biodegradation: 66.12 %
Exposure time: 11 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: 10-day Window: Pass

Bioaccumulative potential

Components:

fluroxypyr-meptyl (ISO):

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

Partition coefficient: n-octanol/water :

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

Picloram Potassium Salt:

Partition coefficient: n-octanol/water : Remarks: For similar active ingredient(s).
Picloram.
Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Potential for mobility in soil is very high (Koc between 0 and 50).

Aminopyralid Potassium:

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

Glycerol:

Partition coefficient: n-octanol/water : log Pow: -1.76 (68 °F / 20 °C)
Method: Measured
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

N,N-Dimethyloctanamide:

Partition coefficient: n-octanol/water : log Pow: 2.59 (73 °F / 23 °C)
Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

N,N-Dimethyldecan-1-amide:

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

Balance:

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

Mobility in soil

Components:

fluroxypyr-meptyl (ISO):

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

Picloram Potassium 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).

Aminopyralid Potassium:

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

Glycerol:

Distribution among environmental compartments : Koc: 1
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.

N,N-Dimethyloctanamide:

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

N,N-Dimethyldecan-1-amide:

Distribution among environ- : Koc: 351 - 630

mental compartments | Remarks: Potential for mobility in soil is medium (Koc between 150 and 500).

Balance:

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

Other adverse effects

Components:

fluroxypyr-meptyl (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.

Picloram Potassium 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.

Aminopyralid Potassium:

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.

Glycerol:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is readily biodegradable and thus is not considered persistent or very persistent (P or vP).

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

N,N-Dimethyloctanamide:

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.

N,N-Dimethyldecan-1-amide:

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.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 3082
Proper shipping name	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Fluroxypyr 1-methylheptyl ester, Picloram Potassium 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. (Fluroxypyr 1-methylheptyl ester, Picloram Potassium 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. (Fluroxypyr 1-methylheptyl ester, Picloram Potassium 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

Not regulated as a dangerous good

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	:	No SARA Hazards
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

Glycerol	56-81-5

California Prop. 65

WARNING: This product can expose you to chemicals including sulphuric acid, hexachlorobenzene, 1,4-dioxane, formaldehyde, ethylene oxide, acetaldehyde, propylene oxide, which is/are known to the State of California to cause cancer, and
N-methyl-2-pyrrolidone, 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 : 62719-717

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:

CAUTION

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
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 Limits for Air Contaminants
Dow IHG / TWA	:	Time Weighted Average (TWA):
OSHA P0 / TWA	:	8-hour time weighted average
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 Har-

monized 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 : 06/22/2022

Product code: GF-2969

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.

US / EN