

## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
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Corteva Agriscience™ encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container. This Safety Data Sheet adheres to the standards and regulatory requirements of the United States and may not meet the regulatory requirements in other countries.

**SECTION 1. IDENTIFICATION** 

Product name : Loyant®

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

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## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

#### Components

Chemical name	CAS-No.	Concentration (% w/w)
Florpyrauxifen-benzyl	1390661-72-9	2.7
Reaction mass of N,N- dimethyldecan-1-amide and N,N- dimethyloctanamide	Not Assigned	>= 10 - < 20
propylene carbonate	108-32-7	>= 3 - < 10
Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts	68584-23-6	>= 3 - < 10
Ethylhexanol	104-76-7	>= 1 - < 3
methanol	67-56-1	>= 0.3 - < 1
Balance	Not Assigned	> 50

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 : 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 : 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



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

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.

Hazardous combustion prod-

ucts

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 fluoride Hydrogen chloride gas

Carbon oxides

Specific extinguishing meth-

ods

Remove undamaged containers from fire area if it is safe to do

Evacuate area.

Use extinguishing measures that are appropriate to local cir-

cumstances 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

Wear self-contained breathing apparatus for firefighting if nec-

essarv.

Use personal protective equipment.

### **SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protec- :

tive equipment and emer-

gency procedures

Ensure adequate ventilation.

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 : Clean up remaining materials from spill with suitable absorb-



## **Loyant®**

Version Revision Date: SDS Number: Date of last issue: 02/11/2022 1.1 07/14/2022 800080005472 Date of first issue: 02/11/2022

containment and cleaning up ant.

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 infor-

mation.

#### **SECTION 7. HANDLING AND STORAGE**

Advice on safe handling : 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 ap-

plication 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.

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 : Do not store near acids.

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
Ethylhexanol	104-76-7	TWA	2 ppm	Corteva OEL
methanol	67-56-1	TWA	200 ppm	ACGIH
		STEL	250 ppm	ACGIH
		TWA	200 ppm	OSHA Z-1



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

	260 mg/m3	
TWA	200 ppm 260 mg/m3	OSHA P0
STEL	250 ppm 325 mg/m3	OSHA P0

#### **Biological occupational exposure limits**

Components	CAS-No.	Control parameters	Biological specimen	Sam- pling time	Permissible concentration	Basis
methanol	67-56-1	Methanol	Urine	End of shift (As soon as possible after exposure ceases)	15 mg/l	ACGIH BEI

### **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: Chlorinated polyethylene. Neoprene. Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). 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).



## **Loyant®**

Version Revision Date: SDS Number: Date of last issue: 02/11/2022 1.1 07/14/2022 800080005472 Date of first issue: 02/11/2022

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 : Yellow

Odor : Solvent

Odor Threshold : No data available

pH : 4.24 (72.7 °F / 22.6 °C)

Concentration: 1 %

(1% aqueous suspension)

Melting point/range : Not applicable to liquids

Freezing point No data available

Boiling point/boiling range : No data available

Flash point :  $> 212 \, ^{\circ}\text{F} / > 100 \, ^{\circ}\text{C}$ 

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 : 0.001 hPa (68 °F / 20 °C)

Relative vapor density : No data available

Density : 0.9257 g/cm3 (68 °F / 20 °C)

Method: Digital density meter

Solubility(ies)

Water solubility :  $0.015 \text{ mg/l} (68 \degree \text{F} / 20 \degree \text{C})$ 

Autoignition temperature : 500 °F / 260 °C



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

Viscosity

Viscosity, dynamic : 15.4 mPa.s (68 °F / 20 °C)

8.90 mPa.s (104 °F / 40 °C)

Viscosity, kinematic : No data available

Explosive properties : Not explosive

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 reac-

tions

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 fluoride Hydrogen chloride gas

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): > 5.40 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 inhala-

tion toxicity



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

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:** 

Florpyrauxifen-benzyl:

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

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.23 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 inhala-

tion toxicity

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

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

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

Acute inhalation toxicity : LC50 (Rat): > 3.551 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Assessment: The substance or mixture has no acute inhala-

tion toxicity

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

propylene carbonate:

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

Acute dermal toxicity : LD50 (Rabbit): > 3,000 mg/kg

Assessment: The substance or mixture has no acute dermal

toxicity

**Ethylhexanol:** 

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

Target Organs: Central nervous system

Acute inhalation toxicity : LC50 (Rat): 2.17 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): > 3,000 mg/kg

Method: OECD Test Guideline 402

methanol:

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

Assessment: The component/mixture is toxic after single in-

gestion.



## **Loyant®**

Version Revision Date: SDS Number: Date of last issue: 02/11/2022 1.1 07/14/2022 800080005472 Date of first issue: 02/11/2022

Remarks: Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to

other organs including liver, kidney, and heart.

Effects may be delayed.

Lethal Dose (Humans): 340 mg/kg

Method: Estimated.

Lethal Dose (Humans): Method: Estimated.

Acute inhalation toxicity : LC50 (Rat): 3 mg/l

Exposure time: 4 h
Test atmosphere: vapor

Acute dermal toxicity : LD50 (Rabbit): 15,800 mg/kg

Assessment: The component/mixture is toxic after single con-

tact with skin.

Remarks: Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as

liver, kidneys and heart, even death.

#### Skin corrosion/irritation

**Product:** 

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

**Components:** 

Florpyrauxifen-benzyl:

Species : Rabbit

Result : No skin irritation

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

Species : Rabbit Result : Skin irritation

propylene carbonate:

Result : No skin irritation

Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts:

Result : Skin irritation

**Ethylhexanol:** 

Species : Rabbit
Result : Skin irritation



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

methanol:

Result : No skin irritation

Serious eye damage/eye irritation

**Product:** 

Species : Rabbit

Result : No eye irritation

Method : OECD Test Guideline 405

**Components:** 

Florpyrauxifen-benzyl:

Species : Rabbit

Result : No eye irritation

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

Species : Rabbit Result : Corrosive

propylene carbonate:

Result : Eye irritation

Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts:

Result : Eye irritation

**Ethylhexanol:** 

Species : Rabbit Result : Eye irritation

methanol:

Result : No eye irritation

Respiratory or skin sensitization

**Product:** 

Test Type : Buehler Test Species : Guinea pig

Assessment : Does not cause skin sensitization.

**Components:** 

Florpyrauxifen-benzyl:

Assessment : The product is a skin sensitizer, sub-category 1B.

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

Species : Guinea pig

Assessment : Does not cause skin sensitization.



## Loyant®

Version **Revision Date:** SDS Number: Date of last issue: 02/11/2022 07/14/2022 800080005472 Date of first issue: 02/11/2022 1.1

For similar material(s): Remarks

propylene carbonate:

Assessment Does not cause skin sensitization.

Remarks Did not cause allergic skin reactions when tested in humans.

Remarks For respiratory sensitization:

No relevant data found.

**Ethylhexanol:** 

Test Type HRIPT (human repeat insult patch test)

Species human

Assessment Does not cause skin sensitization.

Germ cell mutagenicity

**Components:** 

Florpyrauxifen-benzyl:

Germ cell mutagenicity -

Assessment

toxicity studies were negative.

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

Assessment

In vitro genetic toxicity studies were negative.

propylene carbonate:

Germ cell mutagenicity -

Assessment

In vitro genetic toxicity studies were negative.

**Ethylhexanol:** 

Germ cell mutagenicity -

Assessment

In vitro genetic toxicity studies were negative., Animal genetic

In vitro genetic toxicity studies were negative., Animal genetic

toxicity studies were negative.

methanol:

Germ cell mutagenicity -

Assessment

In vitro genetic toxicity studies were negative., Animal genetic

toxicity studies were negative in some cases and positive in

other cases.

Carcinogenicity

Components:

Florpyrauxifen-benzyl:

Carcinogenicity - Assess-

ment

Did not cause cancer in laboratory animals.

propylene carbonate:

Carcinogenicity - Assess-Did not cause cancer in laboratory animals.



## **Loyant®**

Version Revision Date: SDS Number: Date of last issue: 02/11/2022 1.1 07/14/2022 800080005472 Date of first issue: 02/11/2022

ment

**Ethylhexanol:** 

Carcinogenicity - Assess-

ment

In laboratory animals, evidence of carcinogenic activity was observed., These is no evidence that these findings are rele-

vant to humans.

methanol:

Carcinogenicity - Assess-

ment

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:** 

Florpyrauxifen-benzyl:

Reproductive toxicity - As-

sessment

In animal studies, did not interfere with reproduction.

Did not cause birth defects or any other fetal effects in labora-

tory animals.

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

Reproductive toxicity - As-

sessment

For similar material(s):, Did not cause birth defects or any

other fetal effects in laboratory animals.

propylene carbonate:

Reproductive toxicity - As-

sessment

Did not cause birth defects or any other fetal effects in labora-

tory animals.

Ethylhexanol:

Reproductive toxicity - As-

sessment

Has caused birth defects in laboratory animals only at doses toxic to the mother., Has been toxic to the fetus in laboratory

animals at doses toxic to the mother., These concentrations

exceed relevant human dose levels.

methanol:

Reproductive toxicity - As-

sessment

: In animal studies, did not interfere with reproduction.

Methanol has caused birth defects in mice at doses nontoxic to the mother as well as slight behavioral effects in offspring of

rats.



# **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

#### STOT-single exposure

**Product:** 

Assessment : Evaluation of available data suggests that this material is not

an STOT-SE toxicant.

**Components:** 

Florpyrauxifen-benzyl:

Assessment : Evaluation of available data suggests that this material is not

an STOT-SE toxicant.

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

Routes of exposure : Inhalation

Assessment : May cause respiratory irritation.

propylene carbonate:

Assessment : Available data are inadequate to determine single exposure

specific target organ toxicity.

Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts:

Assessment : Available data are inadequate to determine single exposure

specific target organ toxicity.

**Ethylhexanol:** 

Routes of exposure : Inhalation

Target Organs : Respiratory Tract

Assessment : May cause respiratory irritation.

methanol:

Target Organs : Eyes, Central nervous system Assessment : Causes damage to organs.

STOT-repeated exposure

**Product:** 

Assessment : Evaluation of available data suggests that this material is not

an STOT-RE toxicant.

Repeated dose toxicity

Components:

Florpyrauxifen-benzyl:

Remarks : Based on available data, repeated exposures are not antici-

pated to cause significant adverse effects.

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

Remarks : For similar material(s):



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

Based on available data, repeated exposures are not antici-

pated to cause significant adverse effects.

propylene carbonate:

Remarks : Repeated skin application to laboratory animals did not pro-

duce systemic toxicity.

Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts:

Remarks : No relevant data found.

Ethylhexanol:

Remarks : In animals, effects have been reported on the following or-

gans: Blood. Kidney. Liver. Spleen.

methanol:

Remarks : Methanol is highly toxic to humans and may cause central

nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs

including liver, kidney, and heart.

**Aspiration toxicity** 

**Product:** 

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

**Components:** 

Florpyrauxifen-benzyl:

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

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

May be harmful if swallowed and enters airways.

propylene carbonate:

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

Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts:

Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

**Ethylhexanol:** 

May be harmful if swallowed and enters airways.



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

#### methanol:

May be harmful if swallowed and enters airways.

## **SECTION 12. ECOLOGICAL INFORMATION**

#### **Ecotoxicity**

**Product:** 

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): > 120 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)): 49 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): > 5.4

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

ErC50 (Myriophyllum spicatum): 0.000919 mg/l

Exposure time: 14 d

NOEC (Myriophyllum spicatum): 0.0000954 mg/l

Exposure time: 14 d

Toxicity to soil dwelling or-

ganisms

LC50 (Eisenia fetida (earthworms)): > 2,500 mg/kg

Exposure time: 14 d End point: mortality

Toxicity to terrestrial organ-

isms

oral LD50 (Colinus virginianus (Bobwhite quail)): > 2500

mg/kg bodyweight.

oral LD50 (Apis mellifera (bees)):  $> 212.2 \mu g/bee$ 

Exposure time: 48 h

contact LD50 (Apis mellifera (bees)): > 200 µg/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.

**Components:** 

Florpyrauxifen-benzyl:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 1 mg/l

Exposure time: 96 h

Remarks: The LC50 value is above the water solubility.



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

LC50 (Cyprinodon variegatus (sheepshead minnow)): >

0.0403 mg/l

Exposure time: 96 h

Remarks: The LC50 value is above the water solubility.

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 0.0623 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1

mg/

End point: Growth rate inhibition

Exposure time: 72 h

ErC50 (Myriophyllum spicatum): 0.000154 mg/l

Exposure time: 14 d

NOEC (Myriophyllum spicatum): 0.0000095 mg/l

Exposure time: 14 d

M-Factor (Acute aquatic tox-

icity)

1,000

Toxicity to fish (Chronic tox-

icity)

NOEC (Pimephales promelas (fathead minnow)): 0.0370 mg/l

Exposure time: 33 d Test Type: static test

Toxicity to daphnia and other : aquatic invertebrates (Chron-

ic toxicity)

NOEC (Daphnia magna (Water flea)): 0.0378 mg/l

Exposure time: 21 d

M-Factor (Chronic aquatic

toxicity)

10,000

Toxicity to microorganisms :

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

Exposure time: 3 h

Method: OECD Test Guideline 209

Toxicity to soil dwelling or-

ganisms

LC50 (Eisenia fetida (earthworms)): > 2,000 mg/kg

Exposure time: 14 d

Toxicity to terrestrial organ-

isms

oral LD50 (Colinus virginianus (Bobwhite quail)): > 2000

mg/kg bodyweight. End point: mortality

dietary LC50 (Anas platyrhynchos (Mallard duck)): > 5620

mg/kg diet.

oral LD50 (Apis mellifera (bees)): > 105.4 µg/bee

Exposure time: 48 h End point: mortality

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

Exposure time: 48 h End point: mortality



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

**Ecotoxicology Assessment** 

Acute aquatic toxicity : Very toxic to aquatic life.

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

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

Toxicity to fish : Remarks: Material is moderately toxic to aquatic organisms on

an acute basis (LC50/EC50 between 1 and 10 mg/L in the

most sensitive species tested).

Remarks: Material is toxic to aquatic organisms

(LC50/EC50/IC50 between 1 and 10 mg/L in the most sensi-

tive species).

LC50 (Danio rerio (zebra fish)): 14.8 mg/l

Exposure time: 96 h

Toxicity to daphnia and other :

aquatic invertebrates

LC50 (Daphnia magna (Water flea)): 7.7 mg/l

Exposure time: 48 h

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): 16.06

mg/l

Exposure time: 72 h

**Ecotoxicology Assessment** 

Acute aquatic toxicity : Toxic to aquatic life.

propylene carbonate:

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

isms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in

the most sensitive species tested).

LC50 (Cyprinus carpio (Carp)): > 1,000 mg/l

Exposure time: 96 h
Test Type: semi-static test

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 1,000 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic

plants

EC50 (alga Scenedesmus sp.): > 900 mg/l

End point: Biomass Exposure time: 72 h

Method: Method Not Specified.

Toxicity to microorganisms : EC50 (activated sludge): > 800 mg/l

Exposure time: 30 min Method: OECD 209 Test

Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts:



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

Toxicity to fish : Remarks: Toxicity to aquatic species occurs at concentrations

above material's water solubility.

**Ecotoxicology Assessment** 

Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

**Ethylhexanol:** 

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

Exposure time: 96 h

LC50 (Fathead minnow (Pimephales promelas)): 28.2 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

LC50 (Daphnia magna (Water flea)): 35.2 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

EC50 (Daphnia magna (Water flea)): 39 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202 or Equivalent

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): 11.5

mg/l

End point: Growth rate inhibition

Exposure time: 72 h

Method: OECD Test Guideline 201 or Equivalent

Toxicity to microorganisms : EC50 (Bacteria): 256 - 320 mg/l

Exposure time: 16 h

methanol:

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

isms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in

the most sensitive species tested).

LC50 (Oncorhynchus mykiss (rainbow trout)): 19,000 mg/l

Exposure time: 96 h

Method: Method Not Specified.

Toxicity to daphnia and other :

aquatic invertebrates

LC50 (Daphnia magna (Water flea)): > 10,000 mg/l

Exposure time: 24 h

Method: Method Not Specified.

Toxicity to microorganisms : IC50 (activated sludge): > 1,000 mg/l

Exposure time: 3 h

Persistence and degradability

**Components:** 

Florpyrauxifen-benzyl:



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

Biodegradability : Result: Not readily biodegradable.

Biodegradation: 14.6 % Exposure time: 29 d

Method: OECD Test Guideline 301B Remarks: 10-day Window: Fail

Stability in water : Test Type: Hydrolysis

Degradation half life (DT50): 913 d (25 °C) pH: 4

Test Type: Hydrolysis

Degradation half life (DT50): 111 d (25 °C) pH: 7

Test Type: Hydrolysis

Degradation half life (DT50): 1.3 d (25 °C) pH: 9

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

Biodegradability : Remarks: Material is readily biodegradable. Passes OECD

test(s) for ready biodegradability.

Result: Readily biodegradable. Biodegradation: > 80 % Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

Remarks: 10-day Window: Pass

Chemical Oxygen Demand

(COD)

2.890 mg/g

propylene carbonate:

Biodegradability : Result: Readily biodegradable.

Remarks: Material is readily biodegradable. Passes OECD

test(s) for ready biodegradability.

Material is ultimately biodegradable (reaches > 70% minerali-

zation in OECD test(s) for inherent biodegradability).

Biodegradation: 94 % Exposure time: 28 d

Method: OECD Test Guideline 301E or Equivalent

Remarks: 10-day Window: Pass

Biodegradation: > 97 % Exposure time: 28 d

Method: OECD Test Guideline 302B or Equivalent

Remarks: 10-day Window: Not applicable

ThOD : 1.25 kg/kg

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

Sensitizer: OH radicals

Concentration: 1,500,000 1/cm3 Rate constant: 3,79E-12 cm3/s

Method: Estimated.



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts:

Biodegradability : Remarks: No relevant information found.

**Ethylhexanol:** 

Biodegradability : Result: Readily biodegradable.

Biodegradation: > 95 %

Exposure time: 5 d

Method: OECD Test Guideline 302B or Equivalent

Remarks: 10-day Window: Not applicable

Biodegradation: 68 % Exposure time: 17 d

Method: OECD Test Guideline 301B or Equivalent

Remarks: 10-day Window: Pass

Biochemical Oxygen De-

mand (BOD)

26 - 70 %

Incubation time: 5 d

75 - 81 %

Incubation time: 10 d

86 - 87 %

Incubation time: 20 d

Chemical Oxygen Demand

(COD)

2.70 kg/kg

ThOD : 2.95 kg/kg

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

Sensitizer: OH radicals

Rate constant: 1.32E-11 cm3/s

Method: Estimated.

methanol:

Biodegradability : Remarks: Material is readily biodegradable. Passes OECD

test(s) for ready biodegradability.

Result: Readily biodegradable.

Biodegradation: 99 % Exposure time: 28 d

Method: OECD Test Guideline 301D or Equivalent

Remarks: 10-day Window: Pass

Biochemical Oxygen De-

mand (BOD)

72 %

Incubation time: 5 d

79 %

Incubation time: 20 d

Chemical Oxygen Demand

(COD)

1.49 kg/kg

Method: Dichromate



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

ThOD : 1.50 kg/kg

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

Sensitizer: OH radicals

Concentration: 1,500,000 1/cm3 Rate constant: 6.16E-13 cm3/s

Method: Estimated.

Bioaccumulative potential

Components:

Florpyrauxifen-benzyl:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)

Bioconcentration factor (BCF): 356

Exposure time: 30 d

Partition coefficient: n-

octanol/water

log Pow: 5.5 (68 °F / 20 °C)

pH: 7

Remarks: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

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

Partition coefficient: n-

octanol/water

log Pow: < 3.44 (68 °F / 20 °C)

Remarks: Bioconcentration potential is moderate (BCF be-

tween 100 and 3000 or Log Pow between 3 and 5).

propylene carbonate:

Partition coefficient: n-

octanol/water

Remarks: Bioconcentration potential is low (BCF < 100 or Log

Pow < 3).

Potential for mobility in soil is very high (Koc between 0 and

50).

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an im-

portant fate process.

log Pow: -0.41 Method: Measured

Remarks: Bioconcentration potential is low (BCF < 100 or Log

Pow < 3).

Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts:

Partition coefficient: n-

octanol/water

: Remarks: No relevant information found.

**Ethylhexanol:** 

Partition coefficient: n-

octanol/water

log Pow: 3.1

Method: Measured

Remarks: Bioconcentration potential is moderate (BCF be-

tween 100 and 3000 or Log Pow between 3 and 5).



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

methanol:

Bioaccumulation : Species: Fish

Bioconcentration factor (BCF): < 10

Method: Measured

Partition coefficient: n-

octanol/water

log Pow: -0.77

Method: Measured

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:** 

Florpyrauxifen-benzyl:

Distribution among environ-

mental compartments

Koc: 34200

Remarks: Expected to be relatively immobile in soil (Koc >

5000).

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

Distribution among environ-

mental compartments

Koc: 527.3

Remarks: Potential for mobility in soil is low (Koc between 500

and 2000).

propylene carbonate:

Distribution among environ-

mental compartments

Koc: 15

Method: Estimated.

Remarks: Potential for mobility in soil is very high (Koc be-

tween 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 im-

portant fate process.

Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts:

Distribution among environ-

mental compartments

Remarks: No relevant data found.

Ethylhexanol:

Distribution among environ-

mental compartments

Koc: 800

Method: Estimated.

Remarks: Potential for mobility in soil is low (Koc between 500

and 2000).

methanol:

Distribution among environ-

mental compartments

Koc: 0.44

Method: Estimated.



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

Remarks: Potential for mobility in soil is very high (Koc be-

tween 0 and 50).

Balance:

Distribution among environmental compartments Remarks: No relevant data found.

Other adverse effects

**Components:** 

Florpyrauxifen-benzyl:

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.

Reaction mass of N,N-dimethyldecan-1-amide and 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.

propylene carbonate:

Results of PBT and vPvB

assessment

: This substance has not been assessed for persistence, bioac-

cumulation and toxicity (PBT).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list

of substances that deplete the ozone layer.

Benzenesulfonic acid, c10-16-alkyl derivs., calcium salts:

Results of PBT and vPvB

assessment

This substance is not considered to be very persistent and

very bioaccumulating (vPvB).

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list

of substances that deplete the ozone layer.

**Ethylhexanol:** 

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.

methanol:



## **Loyant®**

Version Revision Date: SDS Number: Date of last issue: 02/11/2022 1.1 07/14/2022 800080005472 Date of first issue: 02/11/2022

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, bioac-

cumulation 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 regu-

lations.

If the material as supplied becomes a waste, follow all appli-

cable 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.

(Florpyrauxifen-benzyl)

Class : 9
Packing group : III
Labels : 9

IATA-DGR

UN/ID No. : UN 3082

Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.

(Florpyrauxifen-benzyl)

Class : 9 Packing group : III

Labels : Miscellaneous

Packing instruction (cargo : 964



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

aircraft)

Packing instruction (passen: 964

ger aircraft)

**IMDG-Code** 

UN number : UN 3082

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(Florpyrauxifen-benzyl)

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

Ethylhexanol 104-76-7

California Prop. 65

WARNING: This product can expose you to chemicals including Silica, which is/are known to the State of California to cause cancer, and

methanol, toluene, n-hexane, 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.



## **Loyant®**

 Version
 Revision Date:
 SDS Number:
 Date of last issue: 02/11/2022

 1.1
 07/14/2022
 800080005472
 Date of first issue: 02/11/2022

#### 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 : 62719-698

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

Causes moderate eye irritation

### **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)
Corteva OEL : Corteva Occupational Exposure Limit

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-

its for Air Contaminants

ACGIH / TWA : 8-hour, time-weighted average ACGIH / STEL : Short-term exposure limit : Time weighted average 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 asso-



## **Loyant®**

Version Revision Date: SDS Number: Date of last issue: 02/11/2022 1.1 07/14/2022 800080005472 Date of first issue: 02/11/2022

ciated 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 : 07/14/2022

Product code: GF-3206

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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