according to the Globally Harmonized System



# TREMISIA™ fungicide

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#### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : TREMISIA™ fungicide

Manufacturer or supplier's details

Company : FMC India Private Limited

Address : TCG Financial Centre, 2nd Floor, C-53,

Bandra Kurla Complex,

Bandra (E), Mumbai, Maharashtra-400098

India

E-mail address : SDS-Info@fmc.com

Emergency telephone : 022 6704 5504/5404

000-800-100-7141 (CHEMTREC)

Medical Emergency Number : 022 6704 5504/5404

Recommended use of the chemical and restrictions on use

Recommended use : Fungicide

Restrictions on use : Use as recommended by the label.

### 2. HAZARDS IDENTIFICATION

### Manufacture, Storage and Import of Hazardous Chemicals Rules 1989

### Classification

Not classified as hazardous according to criteria laid down in Part I of Schedule-1.

**GHS Classification** 

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

Short-term (acute) aquatic

hazard

Category 1

Long-term (chronic) aquatic

hazard

Category 2

#### **GHS** label elements

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Hazard pictograms





Signal Word : WARNING

Hazard Statements : H302 + H332 Harmful if swallowed or if inhaled.

H400 Very toxic to aquatic life.

H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements : Prevention:

P261 Avoid breathing mist or vapors. P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

Response:

P301 + P317 + P330 IF SWALLOWED: Get medical help.

Rinse mouth.

P304 + P340 + P317 IF INHALED: Remove person to fresh air

and keep comfortable for breathing. Get medical help.

P391 Collect spillage.

Disposal:

P501 Dispose of contents/ container to an approved waste

disposal plant.

#### Other hazards which do not result in classification

None known.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

#### Components

| Chemical name                                      | CAS-No.      | Concentration (%    |
|--|--------------|---------------------|
|  |              | w/w)                |
| Fluindapyr   | 1383809-87-7 | >= 20 - < 25        |
| Flutriafol   | 76674-21-0   | >= 20 - < 25        |
| Poly(oxy-1,2-ethanediyl), α-tridecyl-ω-hydroxy-,   | 68186-36-7   | >= 1 - < 2.5        |
| phosphate, potassium salt                          |              |                     |
| Residues, petroleum, catalytic reformer fractiona- | 68425-94-5   | >= 1 - < 2.5        |
| tor, sulfonated, polymers with formaldehyde, sodi- |              |                     |
| um salts   |              |                     |
| 1,2-benzisothiazol-3(2H)-one                       | 2634-33-5    | >= 0.0025 - < 0.025 |

#### 4. FIRST AID MEASURES

General advice : Move out of dangerous area.

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Show this material safety data sheet to the doctor in attend-

ance.

Do not leave the victim unattended.

If inhaled : Remove to fresh air.

If unconscious, place in recovery position and seek medical

advice.

If experiencing any discomfort, immediately remove from exposure. Light cases: Keep person under surveillance. Get medical attention immediately if symptoms develop. Serious cases: Get medical attention immediately or call for an ambu-

lance.

In case of skin contact : If on clothes, remove clothes.

If on skin, rinse well with water.

Wash off with soap and plenty of water.

Get medical attention immediately if irritation develops and

persists.

In case of eye contact : Flush eyes with water as a precaution.

Remove contact lenses. Protect unharmed eye.

Keep eye wide open while rinsing.

If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.

Do not give milk or alcoholic beverages.

Never give anything by mouth to an unconscious person.

Do not induce vomiting without medical advice.

Let the exposed person rinse mouth and let him/her drink several glasses of water, but do not induce vomiting. If vomiting does occur, let him/her rinse mouth and drink fluids again.

Get medical attention immediately.

Most important symptoms and effects, both acute and

delayed

Contains a triazole. Symptoms may include nausea, vomiting,

diarrhea, visual changes, hallucinations, rash, itching, and

alopecia.

Harmful if swallowed or if inhaled.

Protection of first-aiders : First Aid responders should pay attention to self-protection

and use the recommended protective clothing

Avoid inhalation, ingestion and contact with skin and eyes. If potential for exposure exists refer to Section 8 for specific

personal protective equipment.

Notes to physician : Treat symptomatically.

Immediate medical attention is required in case of ingestion.

#### 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Dry chemical, CO2, water spray or regular foam.

Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment.

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Unsuitable extinguishing

media

High volume water jet

Do not spread spilled material with high-pressure water

streams.

Specific hazards during fire

fighting

Do not allow run-off from fire fighting to enter drains or water

courses.

Hazardous combustion prod: :

ucts

Fire may produce irritating, corrosive and/or toxic gases.

Carbon oxides Sulfur oxides

Nitrogen oxides (NOx) Fluorine compounds Hydrogen cyanide Hydrogen fluoride Fluorinated compounds

Specific extinguishing meth-

ods

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

SO.

Use a water spray to cool fully closed containers.

Use extinguishing measures that are appropriate to local cir-

cumstances and the surrounding environment.

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

Firefighters should wear protective clothing and self-contained

breathing apparatus.

#### 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emer-

gency procedures

Evacuate personnel to safe areas.

Use personal protective equipment. If it can be safely done, stop the leak.

Do not touch or walk through the spilled material. Never return spills in original containers for re-use.

Mark the contaminated area with signs and prevent access to

unauthorized personnel.

Only qualified personnel equipped with suitable protective

equipment may intervene.

Environmental precautions : Prevent further leakage or spillage if safe to do so.

Prevent product from entering drains.

If the product contaminates rivers and lakes or drains inform

respective authorities.

Methods and materials for containment and cleaning up

Never return spills in original containers for re-use.

Collect as much of the spill as possible with a suitable absor-

bent material.

Pick up and transfer to properly labeled containers. Keep in suitable, closed containers for disposal.

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#### 7. HANDLING AND STORAGE

Advice on protection against :

fire and explosion

Normal measures for preventive fire protection.

Advice on safe handling : Do not breathe vapors/dust.

For personal protection see section 8. Avoid formation of respirable particles.

Dispose of rinse water in accordance with local and national

regulations.

Smoking, eating and drinking should be prohibited in the ap-

plication area.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated

place.

Containers which are opened must be carefully resealed and

kept upright to prevent leakage.

Electrical installations / working materials must comply with

the technological safety standards.

Further information on stor-

age conditions

Store in closed, labelled containers. The storage room should be constructed of incombustible material, closed, dry, ventilated and with impermeable floor, without access of unauthorised persons or children. A warning sign reading "POISON" is recommended. The room should only be used for storage of chemicals. Food, drink, feed and seed should not be present.

A hand wash station should be available.

Further information on stor-

age stability

No decomposition if stored and applied as directed.

### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

#### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### Personal protective equipment

Respiratory protection : In case of mist, spray or aerosol exposure wear suitable per-

sonal respiratory protection and protective suit.

Hand protection

Material : Wear chemical resistant gloves, such as barrier laminate,

butyl rubber or nitrile rubber.

Remarks : The suitability for a specific workplace should be discussed

with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water

Tightly fitting safety goggles

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Skin and body protection : Impervious clothing

Choose body protection according to the amount and concen-

tration of the dangerous substance at the work place.

Protective measures : Plan first aid action before beginning work with this product.

Always have on hand a first-aid kit, together with proper in-

structions.

Wear suitable protective equipment. When using do not eat, drink or smoke.

In the context of professional plant protection use as recommended, the end user must refer to the label and the instruc-

tions for use.

Hygiene measures : Avoid contact with skin, eyes and clothing.

Do not inhale aerosol.

When using do not eat or drink. When using do not smoke.

Wash hands before breaks and at the end of workday.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : liquid

Form : suspension

Color : light brown

Odor : Faint odour

Odor Threshold : No data available

pH : 6.42 (22.1 °C)

(1% solution in water)

Melting point/ range : not determined

Boiling point/boiling range : not determined

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

Evaporation rate : No data available

Self-ignition : No data available

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Upper explosion limit / Upper :

flammability limit

No data available

Lower explosion limit / Lower :

flammability limit

No data available

Vapor pressure : Not available for this mixture.

Relative vapor density : No data available

Relative density : No data available

Density : 1.1470 g/cm3 (22.7 °C)

Bulk density : No data available

Solubility(ies)

Water solubility : No data available

Solubility in other solvents : No data available

Partition coefficient: n-

octanol/water

Not applicable

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity

Viscosity, kinematic : 365 mm2/s (21.5 °C)

295.8 mm2/s (41.5 °C)

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : Not applicable

Particle size : Not applicable

## **10. STABILITY AND REACTIVITY**

Reactivity : No decomposition if stored and applied as directed.

Chemical stability : No decomposition if stored and applied as directed.

Possibility of hazardous reac-

tions

: No decomposition if stored and applied as directed.

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Conditions to avoid : Avoid extreme temperatures.

Avoid formation of aerosol.

Protect from frost, heat and sunlight.

Heating of the mixture may evolve harmful and irritant va-

ours.

Incompatible materials : Avoid strong acids, bases, and oxidizers.

Hazardous decomposition

products

Stable under recommended storage conditions.

#### 11. TOXICOLOGICAL INFORMATION

#### **Acute toxicity**

Harmful if swallowed or if inhaled.

**Product:** 

Acute oral toxicity : LD50(Rat, female): 550 mg/kg

Method: OECD Test Guideline 425

Acute inhalation toxicity : LC50(Rat, male and female): > 2.12 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

Symptoms: hypoactivity, Breathing difficulties

Remarks: no mortality

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

Method: OECD Test Guideline 402

Symptoms: Irritation

Assessment: The substance or mixture has no acute dermal

toxicity

Remarks: no mortality

Components:

Fluindapyr:

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

Method: OECD Test Guideline 423

GLP: yes

Assessment: The component/mixture is minimally toxic after

single ingestion. Remarks: no mortality

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.19 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403 Symptoms: ataxia, Breathing difficulties

GLP: yes

Remarks: no mortality

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

Method: OECD Test Guideline 402

Symptoms: Irritation

GLP: yes

Assessment: The component/mixture is minimally toxic after

single contact with skin. Remarks: no mortality

Flutriafol:

Acute oral toxicity : LD50 (Rat, female): 1,030 mg/kg

Method: OECD Test Guideline 425

Target Organs: Liver, Gastrointestinal tract

Symptoms: Breathing difficulties

Acute inhalation toxicity : LC50 (Rat): > 5.2 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

Symptoms: Fatality, ataxia, Breathing difficulties

GLP: yes

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

Method: OECD Test Guideline 402

GLP: yes

Remarks: no mortality

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

Method: OECD Test Guideline 402

Symptoms: Irritation

GLP: yes

Assessment: The substance or mixture has no acute dermal

toxicity

Remarks: no mortality

Poly(oxy-1,2-ethanediyl),  $\alpha$ -tridecyl- $\omega$ -hydroxy-, phosphate, potassium salt:

Acute oral toxicity : Assessment: Toxic effects cannot be excluded

Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formalde-

hyde, sodium salts:

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

1,2-benzisothiazol-3(2H)-one:

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

Method: OECD Test Guideline 402

Assessment: The substance or mixture has no acute dermal

toxicity

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#### Skin corrosion/irritation

Not classified based on available information.

**Product:** 

Species : Rabbit

Method : OECD Test Guideline 404

Result : No skin irritation

Remarks : Minimal effects that do not meet the threshold for classifica-

tion.

**Components:** 

Fluindapyr:

Species : Rabbit

Assessment : Not classified as irritant

Method : OECD Test Guideline 404

GLP : yes

Assessment : Not classified as irritant

Method : EPISKIN Human Skin Model Test

Flutriafol:

Species : Rabbit

Assessment : Not classified as irritant

Method : OECD Test Guideline 404

Result : No skin irritation

GLP : yes

Species : Rabbit

Result : No skin irritation

Poly(oxy-1,2-ethanediyl), α-tridecyl-ω-hydroxy-, phosphate, potassium salt:

Result : Skin irritation

Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formalde-

hyde, sodium salts:

Remarks : No data available

1,2-benzisothiazol-3(2H)-one:

Species : Rabbit Exposure time : 72 h

Method : OECD Test Guideline 404

Result : No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

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**Product:** 

Species : Rabbit

Method : OECD Test Guideline 405

Result : No eye irritation

Components:

Fluindapyr:

Species : Rabbit

Method : OECD Test Guideline 405

Result : No eye irritation

GLP : yes

Method : Bovine cornea (BCOP)

Result : not corrosive

GLP : yes

Flutriafol:

Species : Rabbit

Assessment : Not classified as irritant
Method : OECD Test Guideline 405

Result : slight irritation

GLP : yes

Species : Rabbit

Assessment : Not classified as irritant
Method : OECD Test Guideline 405
Result : Slight or no eye irritation

GLP : yes

Species : Rabbit Result : slight irritation

Poly(oxy-1,2-ethanediyl),  $\alpha$ -tridecyl- $\omega$ -hydroxy-, phosphate, potassium salt:

Result : Irreversible effects on the eye

Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formalde-

hyde, sodium salts:

Result : Eye irritation

1,2-benzisothiazol-3(2H)-one:

Species : Bovine cornea

Method : OECD Test Guideline 437

Result : No eye irritation

Species : Rabbit

Method : EPA OPP 81-4

Result : Irreversible effects on the eye

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### Respiratory or skin sensitization

#### Skin sensitization

Not classified based on available information.

#### Respiratory sensitization

Not classified based on available information.

**Product:** 

Test Type : Local lymph node assay (LLNA)

Routes of exposure : Skin contact Species : Mouse

Method : OECD Test Guideline 429

Result : Did not cause sensitization on laboratory animals.

#### **Components:**

Fluindapyr:

Test Type : Local lymph node assay (LLNA)

Routes of exposure : Skin contact

Method : OECD Test Guideline 429

Result : May cause sensitization by skin contact.

GLP : yes

Flutriafol:

Test Type : Buehler Test Routes of exposure : Skin contact Species : Guinea pig

Assessment : Did not cause sensitization on laboratory animals.

Method : OECD Test Guideline 406

GLP : yes

Species : Guinea pig

Result : Not a skin sensitizer.

#### 1,2-benzisothiazol-3(2H)-one:

Test Type : Maximization Test

Species : Guinea pig

Method : OECD Test Guideline 406

Result : May cause sensitization by skin contact.

Species : Guinea pig Method : FIFRA 81.06

Result : May cause sensitization by skin contact.

#### Germ cell mutagenicity

Not classified based on available information.

#### **Components:**

### Fluindapyr:

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Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro

Test system: lymphocytes

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Test Type: gene mutation test Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 490

Result: negative

Test Type: Ames test

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

GLP: yes

Genotoxicity in vivo : Test Type: Mammalian bone marrow sister chromatid ex-

change

Species: Mouse Result: negative

Test Type: Micronucleus test

Species: Mouse

Method: OECD Test Guideline 474

Result: negative

Flutriafol:

Genotoxicity in vivo : Test Type: dominant lethal test

Method: OECD Test Guideline 478

Result: negative

1,2-benzisothiazol-3(2H)-one:

Genotoxicity in vitro : Test Type: gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: Ames test

Method: OECD Test Guideline 471

Result: negative

Test Type: Chromosome aberration test in vitro

Method: OECD Test Guideline 473

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Result: positive

Genotoxicity in vivo : Test Type: unscheduled DNA synthesis assay

Species: Rat (male) Cell type: Liver cells

Application Route: Ingestion

Exposure time: 4 h

Method: OECD Test Guideline 486

Result: negative

Test Type: Micronucleus test

Species: Mouse Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

Germ cell mutagenicity -

Assessment

Weight of evidence does not support classification as a germ

cell mutagen.

### Carcinogenicity

Not classified based on available information.

#### **Components:**

### Fluindapyr:

Species : Mouse Application Route : Oral

Exposure time : 18 month(s)

Method : OECD Test Guideline 451
Result : Not a carcinogenic hazard

Species : Rat
Application Route : Oral
Exposure time : 2 Years

Method : OECD Test Guideline 453
Result : Not a carcinogenic hazard

GLP : yes

Flutriafol:

Species : Mouse Exposure time : 2 Years

NOAEL : 1.2 mg/kg bw/day

Result : negative

Species : Rat Exposure time : 2 Years

NOAEL : 1 mg/kg bw/day

Result : negative

Carcinogenicity - Assess-

ment

: Animal testing did not show any carcinogenic effects.

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### Reproductive toxicity

Not classified based on available information.

### **Components:**

Fluindapyr:

Effects on fertility : Test Type: Two-generation study

General Toxicity Parent: NOEL: ca. 100 ppm

Fertility: NOAEL: ca. 400 ppm

Early Embryonic Development: NOAEL: ca. 400 ppm

Method: OECD Test Guideline 416

GLP: yes

Flutriafol:

Effects on fertility : Test Type: reproductive and developmental toxicity study

Method: OECD Test Guideline 416

Result: negative

Effects on fetal development : Test Type: Embryo-fetal development

Method: OECD Test Guideline 414

Result: negative

1,2-benzisothiazol-3(2H)-one:

Effects on fertility : Species: Rat, male

**Application Route: Ingestion** 

General Toxicity Parent: NOAEL: 18.5 mg/kg body weight General Toxicity F1: NOAEL: 48 mg/kg body weight

Fertility: NOAEL: 112 mg/kg bw/day

Symptoms: No effects on reproduction parameters.

Method: OPPTS 870.3800

Result: negative

Reproductive toxicity - As-

sessment

Weight of evidence does not support classification for repro-

ductive toxicity

#### **STOT-single exposure**

Not classified based on available information.

#### Components:

Flutriafol:

Remarks : No significant adverse effects were reported

#### STOT-repeated exposure

Not classified based on available information.

#### **Components:**

## 1,2-benzisothiazol-3(2H)-one:

Assessment : The substance or mixture is not classified as specific target

organ toxicant, repeated exposure.

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### Repeated dose toxicity

### **Components:**

### Fluindapyr:

Species : Rat

NOAEL : 1,000 mg/kg Application Route : Dermal Exposure time : 21 d

Number of exposures : 5 d/w for 6 hr

Dose : 0,100,300,1000 mg/kg bw/d
Method : OECD Test Guideline 410

GLP : yes

Symptoms : Skin irritation

Flutriafol:

Species : Rat

NOAEL : 13.3 mg/kg bw/day

Application Route : Oral - feed Exposure time : 90 d

Symptoms : anemia, Liver effects

Species : Dog

NOAEL : 5 mg/kg bw/day

Application Route : Oral Exposure time : 90 d

Symptoms : blood effects, Liver effects

### 1,2-benzisothiazol-3(2H)-one:

Species : Rat, male and female

NOAEL : 15 mg/kg Application Route : Ingestion Exposure time : 28 d

Method : OECD Test Guideline 407

Symptoms : Irritation

Species : Rat, male and female

NOAEL : 69 mg/kg Application Route : Ingestion Exposure time : 90 d

Symptoms : Irritation, Reduced body weight

#### **Aspiration toxicity**

Not classified based on available information.

#### **Components:**

### Flutriafol:

The substance does not have properties associated with aspiration hazard potential.

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### **Neurological effects**

#### **Components:**

Flutriafol:

No neurotoxicity observed in animal studies.

**Further information** 

**Product:** 

Remarks : No data available

### 12. ECOLOGICAL INFORMATION

### **Ecotoxicity**

**Product:** 

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 0.91 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 3.8 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

NOEC (Daphnia magna (Water flea)): 2.5 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EyC50 (Raphidocelis subcapitata (freshwater green alga)): 9.6

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

ErC50 (Raphidocelis subcapitata (freshwater green alga)): >

9.9 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Toxicity to soil dwelling or-

ganisms

LC50: > 1,000 mg/kg Exposure time: 14 d

Species: Eisenia fetida (earthworms) Method: OECD Test Guideline 207

Toxicity to terrestrial organ-

isms

LD50: 946 mg/kg Exposure time: 14 d

End point: Acute oral toxicity

Species: Colinus virginianus (Bobwhite quail)

Method: OECD Test Guideline 223

LD50: 240 µg/bee Exposure time: 48 h

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End point: Acute contact toxicity Species: Apis mellifera (bees) Method: OECD Test Guideline 214

LD50: 24 µg/bee Exposure time: 48 h

End point: Acute oral toxicity Species: Apis mellifera (bees) Method: OECD Test Guideline 213

Remarks: Active ingredient

#### **Components:**

### Fluindapyr:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.121 mg/l

Exposure time: 96 h Test Type: static test

Method: OECD Test Guideline 203

GLP: yes

LC50 (Oryzias latipes (Japanese medaka)): > 1.8 mg/l

Exposure time: 96 h Test Type: static test

Method: OECD Test Guideline 203

GLP: yes

LC50 (Danio rerio (zebra fish)): 0.424 mg/l

Exposure time: 96 h Test Type: static test

Method: OECD Test Guideline 203

GLP: yes

LC50 (Cyprinodon variegatus (sheepshead minnow)): 0.43

mg/l

Exposure time: 96 h Test Type: static test Method: OPPTS 850.1075

GLP: yes

LC50 (Cyprinus carpio (Carp)): 0.11 mg/l

Exposure time: 96 h

Test Type: Static renewal test Method: OECD Test Guideline 203

GLP: yes

LC50 (Lepomis macrochirus (Bluegill sunfish)): 0.286 mg/l

Exposure time: 96 h Test Type: static test

Method: OECD Test Guideline 203

GLP: yes

LC50 (Pimephales promelas (fathead minnow)): 0.19 mg/l

Exposure time: 96 h

according to the Globally Harmonized System



# TREMISIA™ fungicide

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Method: OECD Test Guideline 203

GLP: yes

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 0.141 mg/l

Exposure time: 48 h Test Type: static test

Method: OECD Test Guideline 202

LC50 (Americamysis bahia (mysid shrimp)): 0.33 mg/l

Exposure time: 96 h Test Type: static test Method: OCSPP 850.1035

GLP: yes

Toxicity to algae/aquatic

plants

ErC50 (Pseudokirchneriella subcapitata (green algae)): >

4.83 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

GLP: yes

NOEC (Lemna gibba (duckweed)): 2 mg/l

Exposure time: 7 d

Method: OECD Test Guideline 221

GLP: yes

EC50 (Skeletonema costatum (Diatom)): > 2 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

GLP: yes

M-Factor (Acute aquatic tox- : 1

icity)

Toxicity to fish (Chronic tox-

icity)

NOEC: 0.031 mg/l

Exposure time: 32 d

Species: Pimephales promelas (fathead minnow)

Test Type: Early-life Stage

Method: OECD Test Guideline 210

GLP: yes

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

NOEC: 0.062 mg/l Exposure time: 28 d

Species: Americamysis bahia (mysid shrimp)

Test Type: flow-through test Method: OPPTS 850.1350

GLP: yes

NOEC: 0.12 mg/l End point: reproduction Exposure time: 21 d

Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

GLP: yes

according to the Globally Harmonized System



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NOEC: 68 mg/l Exposure time: 42 d

Species: Hyalella azteca (Amphipod)

Test Type: Static renewal test

GLP: yes

M-Factor (Chronic aquatic

toxicity)

: 1

Toxicity to soil dwelling or-

ganisms

LC50: > 1,000 mg/kg

Species: Eisenia fetida (earthworms)

Method: OECD Test Guideline 216

Remarks: No significant adverse effect on Nitrogen minerali-

zation.

Method: OECD Test Guideline 217

Remarks: No significant adverse effect on Carbon mineraliza-

tion.

Toxicity to terrestrial organ-

isms

LD50: 1,612 mg/kg

Species: Colinus virginianus (Bobwhite quail)

Method: OECD Test Guideline 205

GLP: yes

LD50: 2,250 mg/kg

Species: Colinus virginianus (Bobwhite quail)

Method: OPPTS 850.2100

GLP: yes

LD50: > 300 µg/bee Exposure time: 48 h

Species: Apis mellifera (bees) Method: OECD Test Guideline 214

GLP: yes

Remarks: Contact

LD50: > 32.8 µg/bee Exposure time: 48 h

Species: Apis mellifera (bees) Method: OECD Test Guideline 213

GLP: yes Remarks: Oral

NOEC: 679 mg/kg

End point: Reproduction Test

Species: Anas platyrhynchos (Mallard duck)

Method: OECD Test Guideline 206

GLP: yes

NOEC: 174 mg/kg

End point: Reproduction Test

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Species: Colinus virginianus (Bobwhite quail)

Method: OECD Test Guideline 206

GLP: yes

Flutriafol:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 33 mg/l

Exposure time: 96 h

LC50 (Danio rerio (zebra fish)): 22.97 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 67 mg/l

End point: Immobilization Exposure time: 48 h Test Type: static test

Method: OECD Test Guideline 202

GLP: yes

EC50 (Daphnia magna (Water flea)): 42.21 mg/l

End point: Immobilization Exposure time: 48 h

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

IC50 (Selenastrum capricornutum (green algae)): 12 mg/l

Exposure time: 96 h

IC50 (Scenedesmus subspicatus): 1.9 mg/l

Exposure time: 72 h

EbC50 (Lemna gibba (duckweed)): 0.65 mg/l

Exposure time: 7 d

EyC50 (Pseudokirchneriella subcapitata (algae)): 3.69 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

GLP: yes

Toxicity to fish (Chronic tox-

icity)

NOEC: 4.8 mg/l

Exposure time: 28 d

Species: Lepomis macrochirus (Bluegill sunfish)

NOEC: 20 mg/l Exposure time: 14 d

Species: Danio rerio (zebra fish) Method: OECD Test Guideline 204

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

NOEC: 0.31 mg/l Exposure time: 21 d

Species: Daphnia magna (Water flea)

NOEC: 0.45 mg/l

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Exposure time: 21 d

Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

Toxicity to soil dwelling or-

ganisms

NOEC: 0.01 mg/cm2 Exposure time: 180 d

Species: Eisenia fetida (earthworms)

LC50: > 1,000 mg/kg Exposure time: 14 d

Species: Eisenia fetida (earthworms) Method: OECD Test Guideline 207

Toxicity to terrestrial organ-

isms

LD50: > 144 µg/bee

End point: Acute oral toxicity Species: Apis mellifera (bees) Method: OECD Test Guideline 213

GLP: yes

LD50: > 150 µg/bee

End point: Acute contact toxicity Species: Apis mellifera (bees) Method: OECD Test Guideline 214

GLP: yes

LD50: > 100 µg/bee

End point: Acute contact toxicity Species: Apis mellifera (bees) Method: OECD Test Guideline 214

LD50: 872.53 µg/bee Exposure time: 48 h

End point: Acute oral toxicity Species: Apis mellifera (bees) Method: OECD Test Guideline 213

LD50: > 5,000 mg/kg

Species: Anas platyrhynchos (Mallard duck)

LD50: ca. 385 mg/kg

Species: Coturnix japonica (Japanese quail) Method: US EPA Test Guideline OPPTS 850.2100

LD50: 4260 ppm

Species: Coturnix japonica (Japanese quail)

Method: OPPTS 850.2200

### Poly(oxy-1,2-ethanediyl), α-tridecyl-ω-hydroxy-, phosphate, potassium salt:

### **Ecotoxicology Assessment**

Acute aquatic toxicity : Harmful to aquatic life.

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

according to the Globally Harmonized System



# TREMISIA™ fungicide

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Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:

Toxicity to fish : LC50 (Zebra fish): > 10 - 100 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Remarks: Based on data from similar materials

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): > 100 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Remarks: Based on data from similar materials

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): > 100

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

EC10 (Pseudokirchneriella subcapitata (green algae)): > 100

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Remarks: Based on data from similar materials

Toxicity to daphnia and other :

aquatic invertebrates (Chron-

ic toxicity)

EC10: > 10 - 100 mg/l Exposure time: 21 d

Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211

Remarks: Based on data from similar materials

1,2-benzisothiazol-3(2H)-one:

Toxicity to fish : LC50 (Cyprinodon variegatus (sheepshead minnow)): 16.7

mg/l

Exposure time: 96 h Test Type: static test

LC50 (Oncorhynchus mykiss (rainbow trout)): 2.15 mg/l

Exposure time: 96 h

Method: OECD Test Guideline 203

Toxicity to daphnia and other :

aquatic invertebrates

EC50 (Daphnia magna (Water flea)): 2.9 mg/l

Exposure time: 48 h Test Type: static test

Method: OECD Test Guideline 202

Toxicity to algae/aquatic

plants

EC50 (Pseudokirchneriella subcapitata (green algae)): 0.070

mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.04

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mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

M-Factor (Acute aquatic tox-

icity)

10

Toxicity to microorganisms : EC50 (activated sludge): 24 mg/l

Exposure time: 3 h

Test Type: Respiration inhibition Method: OECD Test Guideline 209

EC50 (activated sludge): 12.8 mg/l

Exposure time: 3 h

Test Type: Respiration inhibition Method: OECD Test Guideline 209

### Persistence and degradability

**Product:** 

Biodegradability : Remarks: No data is available on the product itself.

Product contains minor amounts of not readily biodegradable components, which may not be degradable in waste water

treatment plants.

**Components:** 

Fluindapyr:

Biodegradability : Result: Not readily biodegradable.

Flutriafol:

Biodegradability : Result: Not readily biodegradable.

Stability in water : Remarks: Does not readily hydrolyze

Poly(oxy-1,2-ethanediyl),  $\alpha$ -tridecyl- $\omega$ -hydroxy-, phosphate, potassium salt:

Biodegradability : Result: Readily biodegradable.

Biodegradation: 80 % Exposure time: 28 d

Method: OECD Test Guideline 301D

Remarks: Based on data from similar materials

Residues, petroleum, catalytic reformer fractionator, sulfonated, polymers with formaldehyde, sodium salts:

Biodegradability : Result: Not readily biodegradable.

Remarks: Based on data from similar materials

1,2-benzisothiazol-3(2H)-one:

Biodegradability : Result: rapidly biodegradable

according to the Globally Harmonized System



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Method: OECD Test Guideline 301C

Bioaccumulative potential

**Product:** 

Bioaccumulation : Remarks: No data is available on the product itself.

**Components:** 

Fluindapyr:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)

Bioconcentration factor (BCF): < 500 Method: OECD Test Guideline 305

GLP: yes

Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-

octanol/water

log Pow: > 3

Flutriafol:

Bioaccumulation : Species: Fish

Bioconcentration factor (BCF): 7 Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-

octanol/water

log Pow: 2.29

1,2-benzisothiazol-3(2H)-one:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)

Exposure time: 56 d

Bioconcentration factor (BCF): 6.62 Method: OECD Test Guideline 305

Remarks: Substance is not persistent, bioaccumulative, and

toxic (PBT).

Partition coefficient: n-

octanol/water

log Pow: 0.7 (20 °C)

pH: 7

log Pow: 0.99 (20 °C)

pH: 5

Mobility in soil

**Product:** 

Distribution among environ-

mental compartments

: Remarks: No data is available on the product itself.

**Components:** 

Fluindapyr:

according to the Globally Harmonized System



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Distribution among environ-

mental compartments

Remarks: Low mobility in soil.

Flutriafol:

Distribution among environmental compartments

among environ- : Remarks: Moderately mobile in soils

Stability in soil : Remarks: Very persistent in soil.

1,2-benzisothiazol-3(2H)-one:

Distribution among environ-

mental compartments

Koc: 9.33 ml/g, log Koc: 0.97 Method: OECD Test Guideline 121 Remarks: Highly mobile in soils

Other adverse effects

**Product:** 

Additional ecological infor-

mation

An environmental hazard cannot be excluded in the event of

unprofessional handling or disposal.

Very toxic to aquatic life.

Toxic to aquatic life with long lasting effects.

#### 13. DISPOSAL CONSIDERATIONS

**Disposal methods** 

Waste from residues : The product should not be allowed to enter drains, water

courses or the soil.

Do not contaminate ponds, waterways or ditches with chemi-

cal or used container.

Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.

Triple rinse containers.

Do not re-use empty containers.

Packaging that is not properly emptied must be disposed of as

the unused product.

Empty containers should be taken to an approved waste han-

dling site for recycling or disposal.

### 14. TRANSPORT INFORMATION

### International Regulations

**UNRTDG** 

UN number : UN 3082

Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

(Fluindapyr, Flutriafol)

according to the Globally Harmonized System



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Class 9 Ш Packing group Labels 9 Environmentally hazardous yes

IATA-DGR

UN/ID No. UN 3082

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

(Fluindapyr, Flutriafol)

Class 9 Packing group Ш

Labels Miscellaneous

Packing instruction (cargo

aircraft)

Packing instruction (passen-

ger aircraft)

Environmentally hazardous yes

**IMDG-Code** 

UN number UN 3082

Proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID,

N.O.S.

964

964

(Fluindapyr, Flutriafol)

Class 9 Ш Packing group Labels 9 EmS Code F-A, S-F

Marine pollutant yes

### Transport in bulk according to IMO instruments

Not applicable for product as supplied.

#### 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.

### 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

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

**TCSI** Not in compliance with the inventory

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

AIIC Not in compliance with the inventory

**DSL** This product contains chemical substance(s) exempt from

> CEPA DSL Inventory requirements. It is regulated as a pesticide subject to Pest Control Products Act (PCPA) require-

according to the Globally Harmonized System



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ments. Read the PCPA label, authorized under the Pest Con-

trol Products Act, prior to using or handling this pest control

product.

ENCS : Not in compliance with the inventory

ISHL : Not in compliance with the inventory

KECI : Not in compliance with the inventory

PICCS : Not in compliance with the inventory

IECSC : Not in compliance with the inventory

NZIoC : Not in compliance with the inventory

TECI: Not in compliance with the inventory

#### **16. OTHER INFORMATION**

Revision Date : 25.06.2025

Date format : dd.mm.yyyy

#### Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR -Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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 Substanc-

according to the Globally Harmonized System



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es; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

#### Disclaimer

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