

SAFETY DATA SHEET



TOPGUARD EQ FUNGICIDE

Version 2.0 Revision Date: 02/03/2022 SDS Number: 50001310 Date of last issue: -
Date of first issue: 05/01/2016

SECTION 1. IDENTIFICATION

Product identifier

Product name TOPGUARD EQ FUNGICIDE

Other means of identification

Product code 50001310

Recommended use of the chemical and restrictions on use

Recommended use Fungicide

Restrictions on use Use as recommended by the label.

Details of the supplier of the safety data sheet

Manufacturer FMC Corporation
2929 WALNUT ST
PHILADELPHIA PA, 19104
(215) 299-6000 (General Information)
SDS-Info@fmc.com

Emergency telephone

For leak, fire, spill or accident emergencies, call:
1 800 / 424-9300 (CHEMTREC - U.S.A.)
1 703 / 741-5970 (CHEMTREC - International)
1 703 / 527-3887 (CHEMTREC - Alternate)

Medical emergency:
U.S.A. & Canada: +1 800 / 331-3148
All other countries: +1 651 / 632-6793 (Collect)

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids : Category 4
Acute toxicity (Inhalation) : Category 4
Eye irritation : Category 2B
Specific target organ toxicity : Category 2 (Liver)
- repeated exposure

GHS label elements

Hazard pictograms :

Signal Word : Warning

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Hazard Statements : H227 Combustible liquid.
H320 Causes eye irritation.
H332 Harmful if inhaled.
H373 May cause damage to organs (Liver) through prolonged or repeated exposure.

Precautionary Statements : **Prevention:**
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P314 Get medical advice/ attention if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.

Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Very toxic to aquatic life with long lasting effects

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Components

| Chemical name | CAS-No. | Concentration (% w/w) |
|---|-------------|-----------------------|
| azoxystrobin (ISO) | 131860-33-8 | >= 20 - < 30 |
| (RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol | 76674-21-0 | >= 10 - < 20 |
| propane-1,2-diol | 57-55-6 | >= 5 - < 10 |
| azoxystrobin (ISO) | 131860-33-8 | >= 20 - < 30 |
| (RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol | 76674-21-0 | >= 10 - < 20 |
| propane-1,2-diol | 57-55-6 | >= 5 - < 10 |
| Residues (petroleum), catalytic re- | 68425-94-5 | >= 1 - < 5 |

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former fractionator, sulfonated, polymers with formaldehyde, sodium salts

Actual concentration is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Consult a physician after significant exposure.
If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
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.
If symptoms persist, call a physician.
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : Causes eye irritation.
Harmful if inhaled.
May cause damage to organs through prolonged or repeated exposure.
- Notes to physician : Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Carbon dioxide (CO₂)
- Unsuitable extinguishing media : 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 products : Thermal decomposition can lead to release of irritating gases and vapors.
Nitrogen oxides (NO_x)
Carbon oxides
Fluorinated compounds

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- 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.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.
- Special protective equipment for fire-fighters : Firefighters should wear protective clothing and self-contained breathing apparatus.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition.
Evacuate personnel to safe areas.
If it can be safely done, stop the leak.
Do not touch or walk through the spilled material.
Use personal protective equipment.
Ensure adequate ventilation.
- Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).
Keep in suitable, closed containers for disposal.
-

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material.
Keep away from open flames, hot surfaces and sources of ignition.
- Advice on safe handling : Avoid formation of aerosol.
Do not breathe vapors/dust.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Provide sufficient air exchange and/or exhaust in work rooms.
Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : No smoking.
Keep in a well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
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Electrical installations / working materials must comply with the technological safety standards.

Further information on storage stability : No decomposition if stored and applied as directed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|--------------------|-------------|-------------------------------|--|---------|
| azoxystrobin (ISO) | 131860-33-8 | | 4 mg/m ³ | |
| propane-1,2-diol | 57-55-6 | TWA | 10 mg/m ³ | US WEEL |

Personal protective equipment

Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter.

Hand protection
Material : Protective gloves

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

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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

Hygiene measures : Avoid contact with skin, eyes and clothing.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Color : light brown

Odor : aromatic

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pH : 6.4
: No data available
: No data available

Flash point : 185.4 °F / 85.2 °C
Method: Pensky-Martens closed cup combustible

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Density : 9.839 lb/gal

Solubility(ies)
Water solubility : No data available

Partition coefficient: n-octanol/water : No data available

Viscosity
Viscosity, dynamic : 1,972 mPa.s (68 °F / 20 °C)
1,624 mPa.s (104 °F / 40 °C)

Viscosity, kinematic : No data available

Explosive properties : Not explosive

Oxidizing properties : Non-oxidizing

SECTION 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 reactions : Vapors may form explosive mixture with air.
No decomposition if stored and applied as directed.

Conditions to avoid : Heat, flames and sparks.
Avoid extreme temperatures
Avoid formation of aerosol.

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

Hazardous decomposition : Nitrogen oxides (NO_x)

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products

- Hydrogen fluoride
- Sulfur oxides
- Carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if inhaled.

Product:

Acute oral toxicity : LD50 Oral (Rat): > 5,000 mg/kg
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50: 3.93 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The component/mixture is moderately toxic after short term inhalation.

Acute dermal toxicity : LD50 Dermal (Rat): > 5,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified based on available information.

Product:

Result : Mild skin irritant

Remarks : May cause skin irritation and/or dermatitis.

Serious eye damage/eye irritation

Causes eye irritation.

Product:

Result : Mild eye irritant

Remarks : Vapors may cause irritation to the eyes, respiratory system and the skin.

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

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Respiratory sensitization

Not classified based on available information.

Product:

Result : Not a skin sensitizer.

Germ cell mutagenicity

Not classified based on available information.

Components:

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Genotoxicity in vivo : Test Type: dominant lethal test
Method: OECD Test Guideline 478
Result: negative

propane-1,2-diol:

Genotoxicity in vitro : Test Type: reverse mutation assay
Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse
Result: negative

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Genotoxicity in vivo : Test Type: dominant lethal test
Method: OECD Test Guideline 478
Result: negative

propane-1,2-diol:

Genotoxicity in vitro : Test Type: reverse mutation assay
Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test
Species: Mouse
Result: negative

Carcinogenicity

Not classified based on available information.

Components:

azoxystrobin (ISO):

Method : OECD Test Guideline 451
Result : negative
Remarks : No significant adverse effects were reported

Method : OECD Test Guideline 453
Result : negative
Remarks : No significant adverse effects were reported

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Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

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 - Assessment : Animal testing did not show any carcinogenic effects.

propane-1,2-diol:

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

azoxystrobin (ISO):

Method : OECD Test Guideline 451
Result : negative
Remarks : No significant adverse effects were reported

Method : OECD Test Guideline 453
Result : negative
Remarks : No significant adverse effects were reported

Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

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 - Assessment : Animal testing did not show any carcinogenic effects.

propane-1,2-diol:

Species : Rat

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Application Route : Oral
Exposure time : 2 Years
Result : negative

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

Not classified based on available information.

Components:

azoxystrobin (ISO):

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity
Did not show teratogenic effects in animal experiments.

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility.
Animal testing showed no developmental toxicity.

propane-1,2-diol:

Effects on fertility : Test Type: reproductive and developmental toxicity study
Species: Mouse
Application Route: Oral
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 414
Result: Animal testing did not show any effects on fertility.
Remarks: Based on data from similar materials

azoxystrobin (ISO):

Reproductive toxicity - Assessment : Weight of evidence does not support classification for reproductive toxicity
Did not show teratogenic effects in animal experiments.

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Reproductive toxicity - Assessment : Animal testing did not show any effects on fertility.
Animal testing showed no developmental toxicity.

propane-1,2-diol:

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Effects on fertility : Test Type: reproductive and developmental toxicity study
Species: Mouse
Application Route: Oral
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Mouse
Application Route: Oral
Method: OECD Test Guideline 414
Result: Animal testing did not show any effects on fertility.
Remarks: Based on data from similar materials

STOT-single exposure

Not classified based on available information.

Components:

azoxystrobin (ISO):

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Assessment : May cause respiratory irritation.

azoxystrobin (ISO):

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Assessment : May cause respiratory irritation.

STOT-repeated exposure

May cause damage to organs (Liver) through prolonged or repeated exposure.

Components:

azoxystrobin (ISO):

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Target Organs : Liver

azoxystrobin (ISO):

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Target Organs : Liver

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Repeated dose toxicity

Components:

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Species : Rat, male
NOAEL : 13.3 mg/kg bw/day
Application Route : Oral - feed
Exposure time : 90 d
Symptoms : anemia, Liver effects

propane-1,2-diol:

Species : Rat, male and female
NOAEL : 1,700 mg/kg
Application Route : Oral
Exposure time : 2 Years

Species : Rat, male and female
NOAEL : 1,000 mg/kg
LOAEL : 160 mg/kg
Application Route : Inhalation
Exposure time : 90 Days

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Species : Rat, male
NOAEL : 13.3 mg/kg bw/day
Application Route : Oral - feed
Exposure time : 90 d
Symptoms : anemia, Liver effects

propane-1,2-diol:

Species : Rat, male and female
NOAEL : 1,700 mg/kg
Application Route : Oral
Exposure time : 2 Years

Species : Rat, male and female
NOAEL : 1,000 mg/kg
LOAEL : 160 mg/kg
Application Route : Inhalation
Exposure time : 90 Days

Aspiration toxicity

Not classified based on available information.

Components:

azoxystrobin (ISO):

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

Remarks : Not classified

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(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

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

azoxystrobin (ISO):

The substance does not have properties associated with aspiration hazard potential.
Remarks : Not classified

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

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

Further information

Product:

Remarks : No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity -

Product Assessment: Very toxic to aquatic life with long lasting effects

Components:

azoxystrobin (ISO):

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.47 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.28 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

EC50 (Americamysis bahia (mysid shrimp)): 0.055 mg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants : EC50 (Lemna gibba (duckweed)): 3.2 mg/l
Exposure time: 14 d

EC50 (Navicula pelliculosa (Diatom)): 0.146 mg/l
Exposure time: 72 h

NOEC (Navicula pelliculosa (Diatom)): 0.02 mg/l
Exposure time: 72 h

NOEC (Lemna gibba (duckweed)): 0.8 mg/l
Exposure time: 14 d

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.16 mg/l
Exposure time: 28 d
Method: OECD Test Guideline 204

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NOEC (*Pimephales promelas* (fathead minnow)): 0.147 mg/l
Exposure time: 28 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 0.044 mg/l
Exposure time: 21 d

NOEC (*Americamysis bahia* (mysid shrimp)): 0.00954 mg/l
Exposure time: 28 d

Toxicity to soil dwelling organisms : LC50 (*Eisenia fetida* (earthworms)): 283 mg/kg
Exposure time: 14 d

Toxicity to terrestrial organisms : LD50 (*Anas platyrhynchos* (Mallard duck)): > 250 mg/kg
Exposure time: 14 d

LD50 (*Apis mellifera* (bees)): >25

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): 61 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): > 78 mg/l
Exposure time: 48 h

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

Toxicity to fish (Chronic toxicity) : NOEC (*Oncorhynchus mykiss* (rainbow trout)): 6.2 mg/l
Exposure time: 28 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (*Daphnia magna* (Water flea)): 0.31 mg/l
Exposure time: 21 d

Toxicity to soil dwelling organisms : NOEC (*Eisenia fetida* (earthworms)): 0.01 mg/cm²
Exposure time: 180 d

Toxicity to terrestrial organisms : LD50 (*Apis mellifera* (bees)): > 50 μ g/bee
End point: Acute contact toxicity

LD50 (*Apis mellifera* (bees)): > 2 μ g/bee
End point: Acute oral toxicity

LD50 (*Anas platyrhynchos* (Mallard duck)): > 5,000 mg/kg

propane-1,2-diol:

Toxicity to fish : LC50 (*Oncorhynchus mykiss* (rainbow trout)): 40,613 mg/l
Exposure time: 96 h

Toxicity to daphnia and other : (*Mysidopsis bahia* (opossum shrimp)): 18,800 mg/l

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- aquatic invertebrates Exposure time: 96 h
- Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 34,100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 201
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 13,020 mg/l
Exposure time: 7 d
- Toxicity to microorganisms : EC50 (Pseudomonas putida): > 20,000 mg/l
Exposure time: 18 h
- azoxystrobin (ISO):**
- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.47 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.28 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- EC50 (Americamysis bahia (mysid shrimp)): 0.055 mg/l
Exposure time: 96 h
- Toxicity to algae/aquatic plants : EC50 (Lemna gibba (duckweed)): 3.2 mg/l
Exposure time: 14 d
- EC50 (Navicula pelliculosa (Diatom)): 0.146 mg/l
Exposure time: 72 h
- NOEC (Navicula pelliculosa (Diatom)): 0.02 mg/l
Exposure time: 72 h
- NOEC (Lemna gibba (duckweed)): 0.8 mg/l
Exposure time: 14 d
- Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 0.16 mg/l
Exposure time: 28 d
Method: OECD Test Guideline 204
- NOEC (Pimephales promelas (fathead minnow)): 0.147 mg/l
Exposure time: 28 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.044 mg/l
Exposure time: 21 d
- NOEC (Americamysis bahia (mysid shrimp)): 0.00954 mg/l
Exposure time: 28 d
- Toxicity to soil dwelling organisms : LC50 (Eisenia fetida (earthworms)): 283 mg/kg
Exposure time: 14 d

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Toxicity to terrestrial organisms : LD50 (Anas platyrhynchos (Mallard duck)): > 250 mg/kg
Exposure time: 14 d

LD50 (Apis mellifera (bees)): >25

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 61 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 78 mg/l
Exposure time: 48 h

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

Toxicity to fish (Chronic toxicity) : NOEC (Oncorhynchus mykiss (rainbow trout)): 6.2 mg/l
Exposure time: 28 d

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.31 mg/l
Exposure time: 21 d

Toxicity to soil dwelling organisms : NOEC (Eisenia fetida (earthworms)): 0.01 mg/cm²
Exposure time: 180 d

Toxicity to terrestrial organisms : LD50 (Apis mellifera (bees)): > 50 μ g/bee
End point: Acute contact toxicity

LD50 (Apis mellifera (bees)): > 2 μ g/bee
End point: Acute oral toxicity

LD50 (Anas platyrhynchos (Mallard duck)): > 5,000 mg/kg

propane-1,2-diol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 40,613 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : (Mysidopsis bahia (opossum shrimp)): 18,800 mg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 34,100 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 201

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 13,020 mg/l
Exposure time: 7 d

Toxicity to microorganisms : EC50 (Pseudomonas putida): > 20,000 mg/l

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Exposure time: 18 h

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 (Chronic toxicity) : EC10 (Daphnia magna (Water flea)): > 10 - 100 mg/l
Exposure time: 21 d
Method: OECD Test Guideline 211
Remarks: Based on data from similar materials

Persistence and degradability

Components:

azoxystrobin (ISO):

- Biodegradability : Result: Not readily biodegradable.
- Stability in water : Remarks: The product is insoluble and sinks in water.

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

- Biodegradability : Result: Not readily biodegradable.

propane-1,2-diol:

- Biodegradability : Result: Readily biodegradable.
Biodegradation: 23.6 %
Exposure time: 64 d
Method: OECD Test Guideline 306

azoxystrobin (ISO):

- Biodegradability : Result: Not readily biodegradable.

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Stability in water : Remarks: The product is insoluble and sinks in water.

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Biodegradability : Result: Not readily biodegradable.

propane-1,2-diol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 23.6 %
Exposure time: 64 d
Method: OECD Test Guideline 306

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

Biodegradability : Result: Not readily biodegradable.
Remarks: Based on data from similar materials

Bioaccumulative potential

Components:

azoxystrobin (ISO):

Bioaccumulation : Remarks: Low potential for bioaccumulation

Partition coefficient: n-octanol/water : log Pow: 2.5 (68 °F / 20 °C)

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Bioaccumulation : Species: *Salmo gairdneri*
Bioconcentration factor (BCF): 7
Remarks: Bioaccumulation is unlikely.
See section 9 for octanol-water partition coefficient.

Partition coefficient: n-octanol/water : log Pow: 2.29

propane-1,2-diol:

Partition coefficient: n-octanol/water : log Pow: -1.07

azoxystrobin (ISO):

Bioaccumulation : Remarks: Low potential for bioaccumulation

Partition coefficient: n-octanol/water : log Pow: 2.5 (68 °F / 20 °C)

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Bioaccumulation : Species: *Salmo gairdneri*
Bioconcentration factor (BCF): 7
Remarks: Bioaccumulation is unlikely.

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See section 9 for octanol-water partition coefficient.

Partition coefficient: n-octanol/water : log Pow: 2.29

propane-1,2-diol:

Partition coefficient: n-octanol/water : log Pow: -1.07

Mobility in soil

Components:

azoxystrobin (ISO):

Distribution among environmental compartments : Remarks: Moderately mobile in soils

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Distribution among environmental compartments : Remarks: medium mobility in soil

azoxystrobin (ISO):

Distribution among environmental compartments : Remarks: Moderately mobile in soils

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Distribution among environmental compartments : Remarks: medium mobility in soil

Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Components:

(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

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(RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

SECTION 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 chemical or used container.
Send to a licensed waste management company.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Flutriafol, Azoxystrobin)

Class : 9
Packing group : III
Labels : 9

IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s. (Flutriafol, Azoxystrobin)

Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964

IMDG-Code

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Flutriafol, Azoxystrobin)

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

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Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(Flutriafol, Azoxystrobin)
Class : 9
Packing group : III
Labels : CLASS 9
ERG Code : 171
Marine pollutant : yes

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

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

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.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCOMI Intermediate or Final VOC's (40 CFR 60.489):

| | | |
|------------------|---------|---------------|
| propane-1,2-diol | 57-55-6 | >= 5 - < 10 % |
|------------------|---------|---------------|

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

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This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307
This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

| | |
|---|-------------|
| water | 7732-18-5 |
| azoxystrobin (ISO) | 131860-33-8 |
| (RS)-2,4'-difluoro- α -(1H-1,2,4-triazol-1-ylmethyl)benzhydryl alcohol | 76674-21-0 |
| propane-1,2-diol | 57-55-6 |
| Fatty acids, coco, polymers with glycerol and phthalic anhydride | 67746-02-5 |

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

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 the following components that are not on the Canadian DSL nor NDSL. (RS)-2,4'-DIFLUORO-A-(1H-1,2,4-TRIAZOL-1-YLMETHYL)BENZHYDRYL ALCOHOL azoxystrobin (ISO) mixture of polyorganosiloxanes and fillers |
| 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 |

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TECI : Not in compliance with the inventory

TSCA list

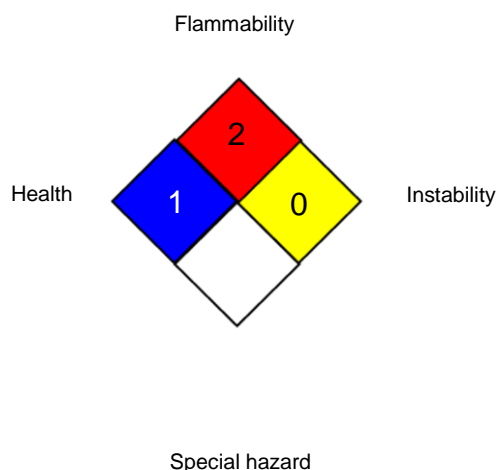
No substances are subject to a Significant New Use Rule.

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

SECTION 16. OTHER INFORMATION

Further information

NFPA 704:



0 No health threat, 1 Slightly Hazardous, 2 Hazardous, 3 Extreme danger, 4 Deadly

HMIS® IV:

| | | |
|-----------------|---|---|
| HEALTH | * | 2 |
| FLAMMABILITY | | 2 |
| PHYSICAL HAZARD | | 0 |

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

US WEEL : USA. Workplace Environmental Exposure Levels (WEEL)
US WEEL / TWA : 8-hr TWA

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Indus-

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trial 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

Disclaimer

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End of Material Safety Data Sheet