

SAFETY DATA SHEET

according to the OSHA Hazard Communication Standard



ADASTRIO™ Fungicide

Version	Revision Date:	SDS Number:	Date of last issue: 07/14/2022
1.1	03/04/2024	50002623	Date of first issue: 07/14/2022

SECTION 1. IDENTIFICATION

Product identifier

Product name ADASTRIO™ Fungicide

Other means of identification

Product code 50002623

Chemical nature Mixture

Recommended use of the chemical and restrictions on use

Recommended use Can be used as fungicide only.

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
USA
(215) 299-6000
SDS-Info@fmc.com

Supplier Address

FMC Corporation
2929 Walnut Street
Philadelphia PA 19104
USA

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)

Acute toxicity (Inhalation) : Category 4

Eye irritation : Category 2B

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Skin sensitization : Category 1

GHS label elements

Hazard pictograms :



Signal Word : Warning

Hazard Statements : H302 + H332 Harmful if swallowed or if inhaled.
H317 May cause an allergic skin reaction.
H320 Causes eye irritation.

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.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.

Response:
P302 + P352 IF ON SKIN: Wash with plenty of water and soap.
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.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.

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

Other hazards

Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Components

Chemical name	CAS-No.	Concentration (% w/w)
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azoxystrobin (ISO)	131860-33-8	15.7
Fluindapyr	1383809-87-7	10.5
Flutriafol	76674-21-0	15.7
propane-1,2-diol	57-55-6	$\geq 5 - < 10$
Poly(oxy-1,2-ethanediyl), .alpha.-tridecyl-.omega.-hydroxy-, phosphate, potassium salt	68186-36-7	$\geq 1 - < 5$
Sodium alkyl naphthalene sulfonate	68425-94-5	$\geq 1 - < 5$

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 : Move to fresh air.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- In case of skin contact : Take off all contaminated clothing immediately.
Wash contaminated clothing before re-use.
Wash off immediately with plenty of water for at least 15 minutes.
Get medical attention if irritation develops and persists.
- 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 : Do not induce vomiting without medical advice.
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.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed or if inhaled.
May cause an allergic skin reaction.
Causes serious eye irritation.
- 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.

SECTION 5. FIRE-FIGHTING MEASURES

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- | | | |
|--|---|---|
| Suitable extinguishing media | : | Dry chemical, CO ₂ , water spray or regular foam. |
| Unsuitable extinguishing media | : | High volume water jet |
| 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
Sulfur oxides
Fluorine compounds |
| 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 | : | Firefighters should wear protective clothing and self-contained breathing apparatus. |

SECTION 6. ACCIDENTAL RELEASE MEASURES

- | | | |
|---|---|--|
| Personal precautions, protective equipment and emergency procedures | : | Use personal protective equipment.
Never return spills in original containers for re-use.
Mark the contaminated area with signs and prevent access to unauthorized personnel.
For disposal considerations see section 13. |
| 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 | : | Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal. |

SECTION 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.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area. |

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Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

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 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
propane-1,2-diol	57-55-6	TWA	10 mg/m ³	US WEEL

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

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
Wear face-shield and protective suit for abnormal processing problems.

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

Hygiene measures : When using do not eat or drink.
When using do not smoke.

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Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	:	liquid
Color	:	off-white to white
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	6.5 - 7.0
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	> 212 °F / > 100 °C
Evaporation rate	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	ca. 1.14 (68 °F / 20 °C)
Density	:	No data available
Solubility(ies)		
Water solubility	:	dispersible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Decomposition temperature	:	No data available

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Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Explosive properties	:	Not explosive
Oxidizing properties	:	The product is not oxidizing. The substance or mixture is not classified as 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	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	Avoid extreme temperatures.
Incompatible materials	:	Avoid strong acids, bases, and oxidizers.
Hazardous decomposition products	:	No decomposition if stored and applied as directed.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Harmful if swallowed or if inhaled.

Product:

Acute oral toxicity	:	LD50 Oral (Rat): 2,000 - 4,000 mg/kg GLP: yes
Acute inhalation toxicity	:	LC50 (Rat): 2 - 5 mg/l Exposure time: 4 h Test atmosphere: dust/mist GLP: yes
Acute dermal toxicity	:	LD50 Dermal (Rat): > 2,000 mg/kg GLP: yes

Components:

azoxystrobin (ISO):

Acute oral toxicity	:	LD50 (Rat): > 5,000 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	:	LC50 (Rat, female): 0.69 mg/l

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- Exposure time: 4 h
Test atmosphere: dust/mist
- Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
- Fluindapyr:**
- Acute oral toxicity : LD50 (Rat, female): > 2,000 mg/kg
Method: OECD Test Guideline 423
GLP: yes
Assessment: The substance or mixture has no acute oral toxicity
- LD50 (Rat, female): 300 - 2,000 mg/kg
Method: OECD Test Guideline 423
Symptoms: ataxia, Breathing difficulties, Fatality
GLP: yes
Assessment: The component/mixture is moderately toxic after single ingestion.
- Acute inhalation toxicity : LC50 (Rat): > 5.19 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Symptoms: ataxia, Breathing difficulties
GLP: yes
Assessment: The component/mixture is minimally toxic after short term inhalation.
Remarks: no mortality
- 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.
- Flutriafol:**
- Acute oral toxicity : LD50 (Rat, male): 1,140 mg/kg
LD50 (Rat, female): 1,480 mg/kg
LD50 (Rat, female): 200 - 2,000 mg/kg
Method: OECD Test Guideline 423
Target Organs: Liver, Gastrointestinal tract
Symptoms: Fatality
Assessment: The component/mixture is moderately toxic after single ingestion.
- Acute inhalation toxicity : LC50 (Rat): > 5.2 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

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Method: OECD Test Guideline 403

LC50 (Rat, male and female): > 2.13 mg/l

Exposure time: 4 h

Test atmosphere: dust/mist

Method: OECD Test Guideline 403

GLP: yes

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
GLP: yes
Assessment: The component/mixture is minimally toxic after single contact with skin.
Remarks: no mortality

propane-1,2-diol:

Acute oral toxicity : LD50 (Rat, male and female): 22,000 mg/kg

Acute inhalation toxicity : LC0 (Rabbit): 31.7 mg/l

Exposure time: 2 h

Test atmosphere: vapor

Remarks: no mortality

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

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

Acute oral toxicity : Assessment: Toxic effects cannot be excluded

Sodium alkyl naphthalene sulfonate:

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

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Product:

Assessment : Not classified as irritant
Result : No skin irritation
GLP : yes

Components:

azoxystrobin (ISO):

Species : Rabbit
Assessment : Not classified as irritant
Method : OECD Test Guideline 404
Remarks : Minimal effects that do not meet the threshold for classification.
Based on available data, the classification criteria are not met.

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Fluindapyr:

Species	: Not tested on animals
Assessment	: Not classified as irritant
Method	: OECD Test Guideline 404
Result	: No skin irritation
GLP	: yes

Assessment	: Not classified as irritant
Method	: OECD Test Guideline 439
GLP	: yes

Flutriafol:

Species	: Rabbit
Assessment	: Not classified as irritant
Method	: OECD Test Guideline 404
Result	: No skin irritation
GLP	: yes

propane-1,2-diol:

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

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

Result	: Skin irritation
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Sodium alkyl naphthalene sulfonate:

Remarks	: No data available
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Serious eye damage/eye irritation

Causes eye irritation.

Product:

Result	: Moderate eye irritation
Assessment	: Mild eye irritation
GLP	: yes

Components:

azoxystrobin (ISO):

Species	: Rabbit
Assessment	: Not classified as irritant
Method	: OECD Test Guideline 405
Remarks	: Minimal effects that do not meet the threshold for classification. Based on available data, the classification criteria are not met.

Fluindapyr:

Species	: Rabbit
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Result : No eye irritation
Assessment : Not classified as irritant
Method : OECD Test Guideline 405
GLP : yes

Result : not corrosive
Method : Bovine cornea (BCOP)
GLP : yes

Flutriafol:

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

propane-1,2-diol:

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

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

Result : Irreversible effects on the eye

Sodium alkyl naphthalene sulfonate:

Result : Eye irritation

Respiratory or skin sensitization

Skin sensitization

May cause an allergic skin reaction.

Respiratory sensitization

Based on available data, the classification criteria are not met.

Product:

Assessment : May cause sensitization by skin contact.
Result : May cause sensitization by skin contact.

Components:

azoxystrobin (ISO):

Species : Guinea pig
Assessment : Not a skin sensitizer.
Method : OECD Test Guideline 406
Result : Does not cause skin sensitization.

Fluindapyr:

Test Type : Local lymph node assay (LLNA)

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Routes of exposure : Skin contact
Species : Mouse
Method : OECD Test Guideline 429
Result : May cause sensitization by skin contact.
GLP : yes

Flutriafol:

Test Type : Local lymph node assay (LLNA)
Species : Mouse
Method : OECD Test Guideline 429
Result : Not a skin sensitizer.

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

propane-1,2-diol:

Test Type : Maximization Test
Species : Guinea pig
Result : negative

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Components:

Fluindapyr:

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

Flutriafol:

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

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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

Based on available data, the classification criteria are not met.

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

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

Fluindapyr:

Species : Mouse
Method : OECD Test Guideline 451
Result : Not a carcinogenic hazard
GLP : yes
Remarks : No significant adverse effects were reported

Species : Rat
Method : OECD Test Guideline 453
Result : Not a carcinogenic hazard
GLP : yes
Remarks : No significant adverse effects were reported

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

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propane-1,2-diol:

Species	:	Rat
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

Based on available data, the classification criteria are not met.

Components:

azoxystrobin (ISO):

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

Effects on fertility	:	Test Type: Two-generation study General Toxicity Parent: NOAEL: ca. 30 mg/kg bw/day Method: OECD Test Guideline 416 GLP: yes
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Flutriafol:

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
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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
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STOT-single exposure

Based on available data, the classification criteria are not met.

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Components:

azoxystrobin (ISO):

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

Flutriafol:

Assessment : May cause respiratory irritation.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Components:

azoxystrobin (ISO):

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

Repeated dose toxicity

Components:

azoxystrobin (ISO):

Species : Rat
NOAEL : 21 mg/kg bw/day
Application Route : Oral
Exposure time : 90 d
Remarks : No significant adverse effects were reported

Species : Dog
NOAEL : 50 mg/kg bw/day
Application Route : Oral
Exposure time : 90 d
Remarks : No significant adverse effects were reported

Species : Dog
NOAEL : 25 mg/kg bw/day
Application Route : Oral
Exposure time : 1 yr
Remarks : No significant adverse effects were reported

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/day
Method : OECD Test Guideline 410
GLP : yes
Symptoms : Irritation

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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

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

Based on available data, the classification criteria are not met.

Components:

azoxystrobin (ISO):

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

Flutriafol:

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

Neurological effects

Components:

Flutriafol:

No neurotoxicity observed in animal studies.

Further information

Product:

Remarks	:	No data available
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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

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

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)): > 1,000 mg/kg

LD50 (Colinus virginianus (Bobwhite quail)): > 1,000 mg/kg

LD50 (Colinus virginianus (Bobwhite quail)): > 5,200 ppm |

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Remarks: Dietary

LD50 (*Apis mellifera* (bees)): > 200 µg/bee
Exposure time: 48 h
End point: Acute contact toxicity

LD50 (*Apis mellifera* (bees)): > 25 µg/bee
Exposure time: 48 h
End point: Acute oral toxicity

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)): > 2.7 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

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

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		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
Toxicity to fish (Chronic toxicity)	:	NOEC (Pimephales promelas (fathead minnow)): 0.031 mg/l Exposure time: 32 d Test Type: Early-life Stage Method: OECD Test Guideline 210 GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC (Americamysis bahia (mysid shrimp)): 0.062 mg/l Exposure time: 28 d Test Type: flow-through test Method: OPPTS 850.1350 GLP: yes NOEC (Daphnia magna (Water flea)): 0.12 mg/l Exposure time: 21 d Test substance: yes Method: OECD Test Guideline 211 GLP: yes Remarks: Information refers to the main ingredient.
Toxicity to soil dwelling organisms	:	LC50 (Eisenia fetida (earthworms)): > 1,000 mg/kg Method: OECD Test Guideline 216 Remarks: No significant adverse effect on Nitrogen mineralization. Method: OECD Test Guideline 217 Remarks: No significant adverse effect on Carbon mineralization.
Toxicity to terrestrial organisms	:	LD50 (Colinus virginianus (Bobwhite quail)): > 2,250 mg/kg

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LD50 (*Apis mellifera* (bees)): > 300 µg/bee
Exposure time: 48 h
Method: OECD Test Guideline 214
GLP: yes
Remarks: Contact

LD50 (*Apis mellifera* (bees)): > 32.8 µg/bee
Exposure time: 48 h
Method: OECD Test Guideline 213
GLP: yes
Remarks: Oral

Flutriafol:

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
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

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

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)): > 200.2 µg/bee
End point: Acute oral toxicity
Method: OECD Test Guideline 213
GLP: yes

LD50 (*Apis mellifera* (bees)): > 200.2 µg/bee
End point: Acute contact toxicity
Method: OECD Test Guideline 214
GLP: yes

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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 Exposure time: 18 h

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

Ecotoxicology Assessment

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

Sodium alkyl naphthalene sulfonate:

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	:	EC10 (Daphnia magna (Water flea)): > 10 - 100 mg/l

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aquatic invertebrates (Chronic toxicity)

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.

Fluindapyr:

Biodegradability : Result: Not readily biodegradable.

Flutriafol:

Biodegradability : Result: Not readily biodegradable.
Stability in water : Remarks: Does not readily hydrolyze

propane-1,2-diol:

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

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

Sodium alkyl naphthalene sulfonate:

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

Bioaccumulative potential

Components:

azoxystrobin (ISO):

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

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

Fluindapyr:

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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

propane-1,2-diol:

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

Mobility in soil

Components:

azoxystrobin (ISO):

Distribution among environmental compartments : Remarks: Under normal conditions the substance has low to moderate mobility in soil.

Fluindapyr:

Distribution among environmental compartments : Remarks: Low mobility in soil.

Flutriafol:

Distribution among environmental compartments : Remarks: Moderately mobile in soils

Stability in soil : Remarks: Very persistent 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

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mation unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

Components:

Flutriafol:

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic 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.

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
Environmentally hazardous : no

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,

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	N.O.S.
	(Flutriafol, Azoxystrobin)
Class	: 9
Packing group	: III
Labels	: 9
EmS Code	: F-A, S-F
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 Road

UN/ID/NA number	: UN 3082
Proper shipping name	: Environmentally hazardous substance, liquid, n.o.s. (Flutriafol,)
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

Listed substances in the product are at low enough levels to not be expected to exceed the 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).

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The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermedi-ate or Final VOC's (40 CFR 60.489):

propane-1,2-diol	57-55-6	>= 5 - < 10 %
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Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Ta-ble 116.4A:

sodium hydroxide	1310-73-2	>= 0 - < 0.1 %
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The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

sodium hydroxide	1310-73-2	>= 0 - < 0.1 %
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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
Flutriafol	76674-21-0
Fluindapyr	1383809-87-7
propane-1,2-diol	57-55-6
Monobutyl ether of polymer of 2-methyloxirane / oxirane	9038-95-3

Maine Chemicals of High Concern

octamethylcyclotetrasiloxane [D4]	556-67-2
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Vermont Chemicals of High Concern

octamethylcyclotetrasiloxane [D4]	556-67-2
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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 FLUINDAPYR TECHNICAL azoxystrobin (ISO) Smectite-group minerals

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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

TSCA list

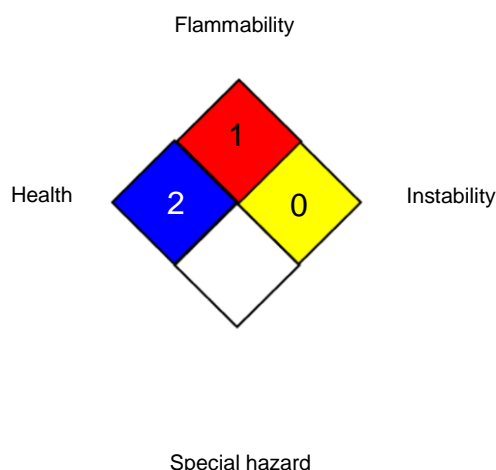
No substances are subject to a Significant New Use Rule.

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		1
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, Compensa-

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tion, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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End of Material Safety Data Sheet