



Ascernity®

Fungicide



Product registration number: PCS No. 05520

ASCERNITY® is a soluble liquid formulation containing 23.6 g/l benzovindiflupyr and 78.9 g/l difenoconazole.

A broad spectrum foliar fungicide with both contact and systemic properties for the moderate control of Fusarium Patch (*Microdochium nivale*), Dollar Spot (*Sclerotinia homoeocarpa*) and Anthracnose (*Colletotrichum graminicola*) on golf courses (greens and tees).

Approval Holder	Marketing Company (Ireland)
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**In case of toxic or transport emergency ring
+44 (0) 1484 538444 anytime**

PROTECT FROM FROST
SHAKE WELL BEFORE USE




3 litres

This product label is
compliant with the CPA
Voluntary Initiative (VI)
guidance.



The
Voluntary
Initiative

FOR PROFESSIONAL USE ONLY

To avoid risks to human health and the environment comply with the instruction for use.

ASCERNITY® is a soluble liquid formulation containing 23.6 g/l benzovindiflupyr and 78.9 g/l difenoconazole.

Warning

Harmful if swallowed.
Harmful if inhaled.

Causes serious eye irritation.

Very toxic to aquatic life with long lasting effects.

Keep out of reach of children.

Avoid breathing mist/vapours/spray.

Wear protective gloves/protective clothing/eye protection/face protection.

Avoid release to the environment.

IF INHALED: Call a POISON CENTRE or doctor/physician if you feel unwell.

If eye irritation persists: Get medical advice/attention.

Collect spillage.

Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty clean containers which can be disposed of as non-hazardous waste.



PCS No. 05520

CONDITIONS OF USE

FOR USE ONLY AS A HORTICULTURAL FUNGICIDE

User: Professional

Crops/situations	Maximum individual dose (product/ha)	Maximum number of treatments
Grassland – Amenity (Golf courses: greens and tees)	3 L	2 per year

Other specific restrictions:

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

ADDITIONAL SAFETY INFORMATION**(a) Operator protection**

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND FACE PROTECTION (FACESHIELD) when handling the concentrate.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), AND SUITABLE PROTECTIVE GLOVES when handling contaminated surfaces.

WASH ALL PROTECTIVE CLOTHING thoroughly after use especially the insides of gloves.

WASH SPLASHES from skin or eyes immediately.

DO NOT BREATHE SPRAY.

WASH HANDS AND EXPOSED SKIN before eating, drinking or smoking and after work.

(b) Environmental protection

To protect aquatic organisms respect an unsprayed buffer zone of 10m to surface water bodies.

Do not contaminate water with the product or its container. Do not clean application equipment near surface water. Avoid contamination via drains from golf courses and other amenity areas.

(c) Storage and disposal

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.

RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add washings to sprayer at time of filling and dispose of safely.

DO NOT RE-USE CONTAINER for any purpose.

This leaflet is part of the approved Product Label.

DIRECTIONS FOR USE

IMPORTANT: This information is approved as part of the Product Label. All instructions within this section must be carefully read in order to obtain safe and successful use of this product.

GENERAL INFORMATION

ASCERNITY® is a soluble liquid formulation containing 23.6 g/l benzovindiflupyr and 78.9 g/l difenoconazole.

Difenoconazole

Difenoconazole has protective, curative and eradicator activity. It is rapidly absorbed by the assimilating parts of the plant, mostly within one hour of treatment. It is transported acropetally (upwards) in the xylem. This systemic translocation contributes to good distribution of the active ingredient within the plant tissue.

Difenoconazole is a member of the DMI-fungicide group (demethylation inhibitors). These materials act on the fungal pathogen inside the plant at the stage of first haustoria formation and stop disease development by interfering with sterol biosynthesis in fungal cell membranes.

Benzovindiflupyr

Benzovindiflupyr is predominantly protectant in its effect on the pathogen. It has some limited curative activity through reduction of intercellular mycelial growth but its major effects on the pathogen occur when it is applied as a protectant.

Benzovindiflupyr (SOLATENOL) has a consistent distribution between leaf surface, leaf waxes and leaf tissue. The presence of active ingredient in a significant and homogeneous quantity in the 3 compartments allows a good redistribution on the molecule in the time, providing a good persistence.

Benzovindiflupyr acts as a succinate dehydrogenase inhibitor (SDHI) and interferes with the main route for energy production in the fungal cells. Blocking this key route leads to a major cellular energy breakdown.

RESTRICTIONS

Prevent spray drift on to surrounding areas.
DO NOT apply to turf under heat or moisture stress.
Use ASCERNITY on established turf.

For optimum turf quality and disease control, use ASCERNITY in conjunction with turf management practices that promote good plant health.

DISEASES CONTROLLED

ASCERNITY is a contact and systemic fungicide for the moderate control of the following diseases:

Fusarium Patch (*Microdochium nivale*)

Anthracnose (*Colletotrichum graminicola*)

Dollar Spot (*Sclerotinia homoeocarpa*)

Correct identification of the disease(s) is essential in selecting the most appropriate control measures.

CROP SPECIFIC INFORMATION

Apply when conditions are favourable for disease infection, or at the very beginning of disease symptom expression.

Crop Tolerance

When used as recommended, ASCERNITY is well tolerated by all common turf grass species but safety to newly sown turf has not been established.

Rates of Use

Apply ASCERNITY at 3 litres per hectare in 125-500 litres water per hectare.

For spot treatments, use 30 ml ASCERNITY per 10 litres water per 100 sq. metres.

Timing

Apply as a preventative spray when conditions become favourable to disease development.

RESISTANCE MANAGEMENT

In order to minimise the likelihood of the development of resistance, it is recommended that ASCERNITY should be used in a programme with products of different chemical groups.

ASCERNITY contains difenoconazole and benzovindiflupyr and applications should be made in accordance with the FRAC guidelines.

Apply ASCERNITY at full recommended rates. Utilize management practices, which encourage healthy turf and reduce turf stress.

APPLICATION

VOLUME OF WATER AND SPRAYING

This product may be applied through pedestrian controlled sprayers or vehicle mounted/drawn equipment and hand-held knapsack sprayers. Application equipment should be calibrated before use.

ASCERNITY is recommended to be applied in 125-500 litres water/ha using vehicle mounted/trailed sprayers. Use 125 - 500 litres water/ha (3 - 5 litres water/100 m²) for spot treatments using a hand-held knapsack sprayer.

MIXING AND SPRAYING

Tractor-mounted/trailed sprayers: Make sure the sprayer is set to give an even application at the correct volume and an even deposit. Half fill the spray tank with the required volume of clean water and start agitation. Add the required amount of ASCERNITY to the spray tank. Agitate the mixture thoroughly before use and continue agitation during spraying. Thoroughly wash all spray equipment with water immediately after use.

Hand-held knapsack sprayers: Half fill the spray tank with clean water and add the required quantity of ASCERNITY to the tank. Complete filling, mix thoroughly and use immediately.

Thoroughly wash all spraying equipment immediately after use.

Wash out containers thoroughly, preferably using an integrated pressure rinsing device, or manually rinse three times. Add washings to the sprayer at the time of filling. Complete filling to the required volume and continue to agitate throughout the spraying operation.

Do not leave the spray liquid in the sprayer for long periods (such as during meal breaks or overnight). Make up only the amount of spray required for immediate use.

AFTER SPRAYING

Thoroughly wash out sprayer according to manufacturer's guidelines and dispose of washings and clean containers according to local Code of Practice and local water authority guidelines.

OTHER INFORMATION

1. Some diseases can quickly damage turf. Treatment at a late stage of disease development will be more difficult and can leave bare soil patches needing renovation.
2. Use preventative sprays, especially against diseases which occur in winter and early spring.
3. If diseases recur regularly, check management practices, especially fertilizer treatment as this can affect disease occurrence if either in excess or deficient.

This product is to be used only in accordance with the recommendations and instructions given on the labels provided with this pack.

ASCERNITY® is a trade mark of a Syngenta Group Company.

SAFETY DATA SHEET - V1.0

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Trade name: ASCERNITY

Design code: A19188B

Product Registration Number: PCS 05520

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture: Fungicide

1.3 Details of the supplier of the safety data sheet Company

Company: Syngenta Ireland Limited

Block 6 Cleaboy Business Park, Old Kilmeaden Road, Waterford, Ireland

Telephone: (051) 377203

Telefax: (051) 354748

E-mail address of person responsible for the SDS: cropsales.ie@syngenta.com

1.4 Emergency telephone number

Emergency telephone number: +44 (0) 1481 518444

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Acute toxicity, Category 4 - H302: Harmful if swallowed.

Eye irritation, Category 2 - H312: Causes serious eye irritation.

Short-term (acute) aquatic hazard, Category 1 - H400: Very toxic to aquatic life.

Long-term (chronic) aquatic hazard, Category 1 - H410: Very toxic to aquatic life with long lasting effects.

Acute toxicity, Category 4 - H332: Harmful if inhaled.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Hazard Statements	H302	Harmful if swallowed.
	H319	Causes serious eye irritation.
	H332	Harmful if inhaled.
	H410	Very toxic to aquatic life with long lasting effects.
Supplemental Hazard Statements	EUH401	To avoid risks to human health and the environment comply with the instructions for use.
Precautionary Statements	P102	Keep out of reach of children.
	P261	Avoid breathing mist or vapours.
	P261	Avoid breathing spray.
	P273	Avoid release to the environment.
	P280	Wear protective gloves/ protective clothing/ eye protection/face protection.
	P304+P312	IF INHALED: Call a POISON CENTER or doctor/ physician if you feel unwell.
	P337+P313	If eye irritation persists. Get medical advice/ attention.
	P391	Collect spillage.
P501	Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for empty triple rinsed clean containers which can be disposed of as non-hazardous waste.	

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Components

Chemical Name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Propanoic acid, 2-hydroxy-, butyl ester, (2S)-	34451-19-9 205-316-4	Skin Irrit. 2; H315 Eye Irrit. 2; H319	>= 30 - < 50

Chemical Name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
difenoconazole	119446-68-3	Acute Tox. 4; H302 Eye Irrit. 2; H319 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	>= 2.5 - < 10
benzovindiflupyr (ISO)	1072957-71-1 616-218-00-X 01-2119929229-31	Acute Tox. 3; H301 Acute Tox. 3; H331 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 100 M-factor (Chronic aquatic toxicity): 100	>= 1 - < 2.5

For explanation of abbreviations see section 16.

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measure.

General advice: Have the product container, label or Safety Data Sheet with you when calling the emergency number, a poison control center or physician, or going for treatment.

If inhaled: Move the victim to fresh air. If breathing is irregular or stopped, administer artificial respiration. Keep patient warm and at rest. Call a physician or poison control centre immediately.

In case of skin contact: Take off all contaminated clothing immediately. Wash off immediately with plenty of water. If skin irritation persists, call a physician. Wash contaminated clothing before re-use.

In case of eye contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.

If swallowed: If swallowed, seek medical advice immediately and show this container or label. Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed symptoms

Symptoms: Nonspecific. No symptoms known or expected.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment: There is no specific antidote available. Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media:

Extinguishing media - small fires

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Extinguishing media - large fires

Use alcohol-resistant foam or water spray.

Unsuitable extinguishing media: Do not use a solid water stream as it may scatter and spread fire.

5.2 Specific hazards arising from the substance or mixture

Specific hazards during fire-fighting: As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10). Exposure to decomposition products may be a hazard to health.

5.3 Advice for firefighters

Special protective equipment: Wear full protective clothing and self-contained breathing apparatus. Do not allow run-off from fire fighting to enter drains or water courses. Cool closed containers exposed to fire with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions: Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and materials for containment and cleaning up

Methods for 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). Clean contaminated surface thoroughly. Clean with detergents. Avoid solvents. Retain and dispose of contaminated wash water.

6.4 Reference to other sections

For disposal considerations see section 13., Refer to protective measures listed in sections 7 and 8.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling: No special protective measures against fire required. Avoid contact with skin and eyes. When using, do not eat, drink or smoke. For personal protection see section 8.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers: No special storage conditions required. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from food, drink and animal feedingstuffs.

7.3 Specific end use(s)

Specific use(s): For proper and safe use of this product, please refer to the approval conditions laid down on the product label.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Propanoic acid, 2-hydroxy-, butyl ester, (2S)-	34491-19-9	OELV - 8 hrs (TWA)	5 ppm 25 mg/m ³	IE OEL
difenoconazole	119446-68-3	TWA	5 mg/m ³	Syngenta
benzovindiflupyr (ISO)	1072957-71-1	TWA	1 mg/m ³	Syngenta

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
benzovindiflupyr (ISO)	Workers	Inhalation	Long-term systemic effects	0.478 mg/m ³
	Workers	Inhalation	Acute systemic effects	1.13 mg/m ³

Substance name	End Use	Exposure routes	Potential health effects	Value
	Workers	Dermal	Long-term systemic effects	3.33 mg/kg
	Consumers	Inhalation	Long-term systemic effects	0.119 mg/m ³
	Consumers	Dermal	Long-term systemic effects	1.67 mg/kg
	Consumers	Oral	Long-term systemic effects	0.049 mg/kg

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
benzovindiflupyr (ISO)	Fresh water	0.000095 mg/l
	Secondary poisoning	2 mg/kg
	Soil	0.041 mg/kg
	Marine water	0.000009 mg/l
	Fresh water sediment	0.053 mg/kg
	Sewage treatment plant	100 mg/l
	Marine sediment	0.005 mg/kg

8.2 Exposure controls

Engineering measures: Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated. The extent of these protection measures depends on the actual risks in use. If airborne dust is generated, use local exhaust ventilation controls. Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit. Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Eye protection: Tightly fitting safety goggles

Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded. Use eye protection according to EN 166.

Hand protection

Remarks: No special protective equipment required.

Skin and body protection: No special protective equipment required.

Select skin and body protection based on the physical job requirements.

Respiratory protection: No personal respiratory protective equipment normally required. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Protective measures: The use of technical measures should always have priority over the use of personal protective equipment. When selecting personal protective equipment, seek appropriate professional advice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance:	liquid
Colour:	No data available
Odour:	No data available
Odour Threshold:	No data available
pH:	No data available
Melting point/range:	No data available
Boiling Point/Boiling Range:	No data available
Flash-Point:	80 °C Method: Pensky-Martens closed cup
Evaporation rate:	No data available
Flammability (solid, gas):	No data available
Lower explosion limit:	No data available
Upper explosion limit:	No data available
Vapour pressure:	No data available
Relative vapour density:	No data available
Density:	1.054 g/cm ³
Solubility in other solvents:	No data available
Partition Coefficient n-octanol/water	No data available
Auto-ignition temperature:	331 °C
Decomposition temperature:	No data available
Viscosity, dynamic:	No data available
Explosive Properties:	Not explosive
Oxidising properties:	The substance or mixture is not classified as oxidizing.

9.2 Other Information

No data available

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

None reasonably foreseeable.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions: No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid: No decomposition if used as directed.

10.5 Incompatible materials

Materials to avoid: None known.

10.6 Hazardous decomposition products

Hazardous decomposition products: No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Information on likely routes of exposure: Ingestion, Inhalation, Skin contact, Eye contact

Acute toxicity

Product:

- Acute oral toxicity: LD50 (Rat): 1,030 mg/kg
Remarks: Based on data from similar materials
- Acute inhalation toxicity: LC50 (Rat, male and female): > 2.6 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Based on data from similar materials
- Acute dermal toxicity: LD50 (Rat, male and female): > 5,000 mg/kg
Remarks: Based on data from similar materials

Components:

difenoconazole:

- Acute oral toxicity : LD50 (Rat, male and female): 1,453 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion
- Acute inhalation toxicity : LC50 (Rat, male and female): > 3,300 mg/m³
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
- Acute dermal toxicity : LD50 (Rabbit, male and female): > 2,010 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

benzovindiflupyr (ISO):

- Acute oral toxicity : LD50 (Rat, female): 55 mg/kg
Acute toxicity estimate: 100.0 mg/kg
Method: Converted acute toxicity point estimate
- Acute inhalation toxicity : LC50 (Rat, male and female): > 0.56 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
- Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Product:

Species: Rabbit

Result: No skin irritation

Remarks: Based on data from similar materials

Components:

Propanoic acid, 2-hydroxy-, butyl ester, (2S)-:

Result : Irritating to skin.

difenoconazole:

Species : Rabbit

Result : No skin irritation

benzovindiflupyr (ISO):

Species : Rabbit

Result : No skin irritation

Serious eye damage/eye irritation

Product:

Species : Rabbit

Result : Irritation to eyes, reversing within 21 days

Remarks : Based on data from similar materials

Components:

Propanoic acid, 2-hydroxy-, butyl ester, (2S)-:

Result : Eye irritation

difenoconazole:

Species : Rabbit

Result : Irritation to eyes, reversing within 7 days

benzovindiflupyr (ISO):

Species : Rabbit

Result : No eye irritation

Respiratory or skin sensitisation

Product:

Test Type : Buehler Test

Species : Rabbit

Result : Did not cause sensitisation on laboratory animals.

Remarks : Based on data from similar materials

Components:

difenoconazole:

Species : Guinea pig

Result : Did not cause sensitisation on laboratory animals.

benzovindiflupyr (ISO):

Test Type : mouse lymphoma cells

Species : Mouse

Result : Did not cause sensitisation on laboratory animals.

Germ cell mutagenicity

Components:

difenoconazole:

Germ cell mutagenicity- Assessment: Animal testing did not show any mutagenic effects.

benzovindiflupyr (ISO):

Germ cell mutagenicity- Assessment: Animal testing did not show any mutagenic effects.

Carcinogenicity

Components:

difenoconazole:

Carcinogenicity - Assessment: Weight of evidence does not support classification as a carcinogen, In a two-year feeding study of mice, an oncogenic effect was seen in the livers of males and females., The observed tumors do not appear to be relevant for men.

benzovindiflupyr (ISO):

Carcinogenicity - Assessment: Weight of evidence does not support classification as a carcinogen, This substance has been reported to cause tumours in certain animal species., There is no evidence that these findings are relevant to humans.

Reproductive toxicity

Components:

difenoconazole:

Reproductive toxicity - Assessment: No toxicity to reproduction

benzovindiflupyr (ISO):

Reproductive toxicity - Assessment: No toxicity to reproduction

STOT - single exposure

Components:

benzovindiflupyr (ISO):

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

STOT - repeated exposure

Components:

benzovindiflupyr (ISO):

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

Repeated dose toxicity

Components:

difenoconazole:

Remarks : No adverse effect has been observed in chronic toxicity tests.

benzovindiflupyr (ISO):

Remarks : No adverse effect has been observed in chronic toxicity tests.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Components:

Propanoic acid, 2-hydroxy-, butyl ester, (2S)-:

Toxicity to fish : LC50 (Fish): 75 mg/l
Exposure time: 96 h

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

difenoconazole:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1.1 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 0.77 mg/l
Exposure time: 48 h

EC50 (Americamysis): 0.15 mg/l

Exposure time: 30 h

Toxicity to algae/aquatic plants: EC50 (Navicula pelliculosa (Freshwater diatom)): 0.091 mg/l

Exposure time: 72 h

NOEC (Navicula pelliculosa (Freshwater diatom)): 0.053 mg/l

Exposure time: 72 h

ErC50 (Desmodesmus subspicatus (green algae)): 0.0876 mg/l

Exposure time: 72 h

NOEC (Desmodesmus subspicatus (green algae)): 0.0036 mg/l

Exposure time: 72 h

M-Factor (Acute aquatic toxicity): 10

Toxicity to microorganisms: EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h

Toxicity to fish (Chronic toxicity): NOEC: 0.0076 mg/l
Exposure time: 34 d

Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates

(Chronic toxicity): NOEC: 0.0056 mg/l
Exposure time: 21 d

Species: Daphnia magna (Water flea)

NOEC: 0.0023 mg/l

Exposure time: 28 d

Species: Americamysis

M-Factor (Chronic aquatic toxicity):	10
benzovindiflupyr (ISO):	
Toxicity to fish :	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.0091 mg/l Exposure time: 96 h LC50 (Cyprinus carpio (Carp)): 0.0035 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates:	EC50 (Americamysis): 0.056 mg/l Exposure time: 96 h
Toxicity to algae/aquatic plants:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): > 0.89 mg/l Exposure time: 96 h NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.42 mg/l End point: Growth rate Exposure time: 96 h ErC50 (Skeletonema costatum (marine diatom)): 0.55 mg/l Exposure time: 72 h NOEC (Skeletonema costatum (marine diatom)): 0.4 mg/l End point: Growth rate Exposure time: 72 h
M-Factor (Acute aquatic toxicity):	100
Toxicity to microorganisms :	EC50 (activated sludge): > 1,000 mg/l Exposure time: 3 h
Toxicity to fish (Chronic toxicity):	NOEC: 0.00095 mg/l Exposure time: 32 d Species: Pimephales promelas (fathead minnow) Test Type: Early-life Stage
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity):	NOEC: 0.015 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) NOEC: 0.0074 mg/l Exposure time: 28 d Species: Americamysis
M-Factor (Chronic aquatic toxicity):	100

12.2 Persistence and degradability

Components:

Propanoic acid, 2-hydroxy-, butyl ester, (2S)-:

Biodegradability : Result: Readily biodegradable.

difenoconazole:

Biodegradability : Result: Not readily biodegradable.

Stability in water : Degradation half life: 1 d

Remarks: Product is not persistent.

benzovindiflupyr (ISO):

Biodegradability : Result: Not readily biodegradable.

12.3 Bioaccumulative potential

Components:

difenoconazole:

Bioaccumulation : Remarks: High bioaccumulation potential.

Partition coefficient: n octanol/water: log Pow: 4.4 (25 °C)

benzovindiflupyr (ISO):

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n octanol/water: log Pow: 4.3 (25 °C)

12.4 Mobility in soil

Components:

difenoconazole:

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

Stability in soil : Dissipation time: 149 - 187 d

Percentage dissipation: 50 % (DT50)

Remarks: Product is not persistent.

benzovindiflupyr (ISO):

Distribution among environmental compartments: Remarks: Slightly mobile in soils.

12.5 Results of PBT and vPvB assessment

Product:

Assessment: This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT).

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:

difenoconazole:

Assessment: This substance is not considered to be very persistent and very bioaccumulating (vPvB). This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

benzovindiflupyr (ISO):

Assessment: This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Product: Do not contaminate ponds, waterways or ditches with chemical or used container. Do not dispose of waste into sewer. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated packaging: Empty remaining contents. Triple rinse containers. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Waste Code: 150110, packaging containing residues of or contaminated by hazardous substances.

SECTION 14. TRANSPORT INFORMATION**14.1 UN number**

ADN: UN 3082

ADR: UN 3082

RID: UN 3082

IMDG: UN 3082

IATA: UN 3082

14.2 UN proper shipping name

ADN: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BENZOVINDIFLUPYR AND DIFENOCONAZOLE)

ADR: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BENZOVINDIFLUPYR AND DIFENOCONAZOLE)

RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BENZOVINDIFLUPYR AND DIFENOCONAZOLE)

IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(BENZOVINDIFLUPYR AND DIFENOCONAZOLE)

IATA: Environmentally hazardous substance, liquid, n.o.s.
(BENZOVINDIFLUPYR AND DIFENOCONAZOLE)

14.3 Transport hazard class(es)

ADN: 9

ADR: 9

RID: 9

IMDG: 9

IATA: 9

14.4 Packing group

ADN

Packing group: III

Classification Code: M6

Hazard Identification Number: 90

Labels: 9

ADR

Packing group: III

Classification Code: M6

Hazard Identification Number: 90

Labels: 9

Tunnel restriction code: (-)

RID

Packing group: III

Classification Code: M6

Hazard Identification Number: 90

Labels: 9

IMDG

Packing group: III

Labels: 9

EmS Code: F-A, S-F

IATA (Cargo)

Packing instruction (cargo aircraft): 964

Packing instruction (LQ): Y964

Packing group: III

Labels: Miscellaneous

IATA (Passenger)

Packing instruction (passenger aircraft): 964

Packing instruction (LQ): Y964

Packing group: III

Labels: Miscellaneous

14.5 Environmental hazards

ADN

Environmentally hazardous: yes

ADR

Environmentally hazardous: yes

RID

Environmentally hazardous: yes

IMDG

Marine pollutant: yes

IATA (Passenger)

Environmentally hazardous: yes

IATA (Cargo)

Environmentally hazardous: yes

14.6 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.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable for product as supplied.

SECTION 15. REGULATORY INFORMATION

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII): Conditions of restriction for the following entries should be considered: Number on list 3

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59): Not applicable

REACH - List of substances subject to authorisation (Annex XIV): Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer: Not applicable

Regulation (EC) No 850/2004 on persistent organic pollutants: Not applicable

Regulation (EC) No 649/2002 of the European Parliament and the Council concerning the export and import of dangerous chemicals: Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

	Quantity 1	Quantity 2
E1 ENVIRONMENTAL HAZARDS	100 t	200 t

Other regulations:

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

15.2 Chemical safety assessment

A Chemical Safety Assessment is not required for this substance when it is used in the specified applications.

SECTION 16. OTHER INFORMATION

Full text of H-statements

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Fatal if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.:	Acute toxicity
Aquatic Acute:	Short-term (acute) aquatic hazard
Aquatic Chronic:	Long-term (chronic) aquatic hazard
Eye Irrit.:	Eye irritation
Skin Irrit.:	Skin irritation
IE OEL:	Ireland. List of Chemical Agents and Occupational Exposure Limit Values - Schedule 1
IE OEL / OELV - 8 hrs (TWA):	Occupational exposure limit, time (3-hour reference period)

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification, Labeling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ECx - Concentration associated with x% growth rate response; 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; IECS - 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture: Classification procedure:

Acute Tox. 4	H302	Based on product data or assessment
Eye Irrit. 2	H319	Based on product data or assessment
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	Calculation method
Acute Tox. 4	H332	Calculation method

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