CARIAL STAR

Version	Revision Date:	SDS Number:	This version replaces all previous versions.
9.0	08.04.2021	S00006500405	

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	:	CARIAL STAR
Design code	:	A14576A
Product Registration Number	:	MAPP 16323

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	:	Syngenta UK Limited CPC4, Capital Park Fulbourn, Cambridge CB21 5XE United Kingdom
Telephone	:	+44 (0) 1223 883400
Telefax	:	+44 (0) 1223 882195
E-mail address of person responsible for the SDS	:	customer.services@syngenta.com

1.4 Emergency telephone number

Emergency telephone number	:	+44 1484 538444

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

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.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word	:	Warning
Hazard statements	:	H303 May be harmful if swallowed. H410 Very toxic to aquatic life with long lasting effects.
Supplemental Hazard Statements	:	EUH208 Contains 1,2-benzisothiazol-3-one. May produce an allergic reaction. 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. P270 Do not eat, drink or smoke when using this product. P273 Avoid release to the environment. **Response:** P391 Collect spillage. **Disposal:** 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.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 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)
mandipropamid (ISO)	374726-62-2 616-213-00-2	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1	>= 20 - < 25

		M-Factor (Chronic aquatic toxicity): 1	
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	>= 20 - < 25
toluene	108-88-3 203-625-9 601-021-00-3 01-2119471310-51	Flam. Liq. 2; H225 Skin Irrit. 2; H315 Repr. 2; H361d STOT SE 3; H336 (Central nervous system) STOT RE 2; H373 Asp. Tox. 1; H304	>= 0.1 - < 1
1,2-benzisothiazol-3(2H)-one	2634-33-5 220-120-9 613-088-00-6 01-2120761540-60	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 2; H411 M-Factor (Acute aquatic toxicity): 1 specific concentration limit Skin Sens. 1; H317 >= 0,05 %	>= 0.025 - < 0.05

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

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 : 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: Firefighting 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
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 Special hazards arising from the substance or mixture

Specific hazards during firefighting : 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 for firefighters : Wear full protective clothing and self-contained breathing apparatus.

Further information	:	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 material 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.
Further information on storage stability	:	Physically and chemically stable for at least 2 years when stored in the original unopened sales container at ambient temperatures.

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
mandipropamid (ISO)	374726-62-2	TWA	5 mg/m3	Syngenta
difenoconazole	119446-68-3	TWA	5 mg/m3	Syngenta
toluene	108-88-3	TWA	50 ppm 192 mg/m3	2006/15/EC
	Further information: Indicative, Identifies the possibility of significant uptake through the skin			
		STEL	100 ppm 384 mg/m3	2006/15/EC
	Further information: Indicative, Identifies the possibility of significant uptake through the skin			
		TWA	50 ppm 191 mg/m3	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			
		STEL	100 ppm 384 mg/m3	GB EH40
	Further information: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.			

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

Substance name	End Use	Exposure routes	Potential health effects	Value
1,2-benzisothiazol-3(2H)-one	Workers	Inhalation	Long-term systemic effects	6.81 mg/m3
	Workers	Dermal	Long-term systemic effects	0.966 mg/kg
	Consumers	Inhalation	Long-term systemic effects	1.2 mg/m3
	Consumers	Dermal	Long-term systemic effects	0.345 mg/kg
toluene	Workers	Inhalation	Long-term systemic effects	192 mg/m3
	Workers	Dermal	Long-term systemic effects	384 mg/kg
	Workers	Inhalation	Acute local effects	384 mg/m3
	Workers	Inhalation	Acute systemic effects	384 mg/m3
	Workers	Inhalation	Long-term local effects	192 mg/m3
	Consumers	Oral	Long-term systemic effects	8.13 mg/kg

	Consumers	Dermal	Long-term systemic effects	226 mg/kg
	Consumers	Inhalation	Acute systemic effects	226 mg/m3
	Consumers	Inhalation	Acute local effects	226 mg/m3
	Consumers	Inhalation	Long-term local effects	56.5 mg/m3
	Consumers	Inhalation	Long-term systemic effects	56.5 mg/m3

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

Substance name	Environmental Compartment	Value
1,2-benzisothiazol-3(2H)-one	Fresh water	0.00403 mg/l
	Marine water	0.000403 mg/l
	Sewage treatment plant	1.03 mg/l
	Fresh water sediment	0.0499 mg/kg
	Marine sediment	0.00499 mg/kg
	Freshwater - intermittent	0.0011 mg/l
	Marine water - intermittent	0.000110 mg/l
	Soil	3 mg/kg
toluene	Fresh water	0.68 mg/l
	Marine sediment	16.39 mg/kg
	Sewage treatment plant	13.61 mg/l
	Intermittent release	0.68 mg/l
	Marine water	0.68 mg/l
	Fresh water sediment	16.39 mg/kg
	Soil	2.89 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.

Maintain air concentrations below occupational exposure standards.
Where necessary, seek additional occupational hygiene advice.

Personal protective equipment

Eye protection : No special protective equipment required.
Hand protection

Material : Nitrile rubber
Break through time : > 480 min
Glove thickness : 0.5 mm

Remarks : Wear protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the

		gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The break through time depends amongst other things on the material, the thickness and the type of glove and therefore has to be measured for each case. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Remove and wash contaminated clothing before re-use. Wear as appropriate: Impervious clothing
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

Physical state	:	suspension
Colour	:	off-white to brownish
Odour	:	sweetish
Odour Threshold	:	No data available
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flammability	:	No data available
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Flash point	:	Method: Pensky-Martens closed cup does not flash
Auto-ignition temperature	:	460 °C

Decomposition temperature
Decomposition temperature : No data available

pH : 5 - 9
Concentration: 1 % w/v

Viscosity
Viscosity, dynamic : 61.4 - 339 mPa.s (40 °C)

91.0 - 427 mPa.s (20 °C)

Viscosity, kinematic : No data available

Solubility(ies)
Water solubility : No data available
Solubility in other solvents : No data available

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

Vapour pressure : No data available

Density : 1.14 g/cm3 (25 °C)

Relative vapour density : No data available

Particle characteristics
Particle size : No data available

9.2 Other information

Explosives : Not explosive

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

Evaporation rate : No data available

Surface tension : 27.9 mN/m, 20 °C

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 hazard classes as defined in Regulation (EC) No 1272/2008**

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

Acute toxicity

Product:

Acute oral toxicity : LD50 (Rat, female): 2,958 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.12 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

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

Components:

mandipropamid (ISO):

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

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.19 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat, male and female): > 5,050 mg/kg

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

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

Acute oral toxicity : LD50 (Rat, male): 670 mg/kg

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

Components:

mandipropamid (ISO):

Species : Rabbit
Result : No skin irritation

difenoconazole:

Species : Rabbit
Result : No skin irritation

toluene:

Species : Rabbit
Result : Irritating to skin.

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

Species : Rabbit
Result : Mild skin irritation

Serious eye damage/eye irritation

Product:

Species : Rabbit
Result : No eye irritation

Components:

mandipropamid (ISO):

Species : Rabbit
Result : No eye irritation

difenoconazole:

Species : Rabbit
Result : Irritation to eyes, reversing within 7 days

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

Species : Rabbit
Result : Risk of serious damage to eyes.

Respiratory or skin sensitisation

Product:

Test Type : Buehler Test
Species : Guinea pig
Result : Did not cause sensitisation on laboratory animals.

Components:

mandipropamid (ISO):

Species : Guinea pig
Result : Did not cause sensitisation on laboratory animals.

difenoconazole:

Species : Guinea pig
Result : Did not cause sensitisation on laboratory animals.

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

Result : Probability or evidence of skin sensitisation in humans

Germ cell mutagenicity

Components:

mandipropamid (ISO):

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

difenoconazole:

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

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

Germ cell mutagenicity-Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Carcinogenicity

Components:

mandipropamid (ISO):

Carcinogenicity - Assessment : No evidence of carcinogenicity in animal studies.

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.

Reproductive toxicity

Components:

mandipropamid (ISO):

Reproductive toxicity - Assessment : No toxicity to reproduction

difenoconazole:

Reproductive toxicity - Assessment : No toxicity to reproduction

toluene:

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

STOT - single exposure

Components:

toluene:

Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

STOT - repeated exposure

Components:

toluene:

Target Organs : Central nervous system
Assessment : The substance or mixture is classified as specific target organ toxicant, repeated exposure, category 2.

Repeated dose toxicity

Components:

mandipropamid (ISO):

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

difenoconazole:

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

Aspiration toxicity

Components:

toluene:

May be fatal if swallowed and enters airways.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 3.1 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2.9 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): 11 mg/l Exposure time: 72 h EC10 (Raphidocelis subcapitata (freshwater green alga)): 4.2 mg/l End point: Growth rate Exposure time: 72 h NOEC (Raphidocelis subcapitata (freshwater green alga)): 0.6 mg/l End point: Growth rate Exposure time: 72 h

Components:

mandipropamid (ISO):

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 4.4 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Crassostrea virginica (eastern oyster)): 0.97 mg/l Exposure time: 96 h
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): > 2.5 mg/l Exposure time: 72 h NOEC (Raphidocelis subcapitata (freshwater green alga)): 1.3 mg/l End point: Growth rate Exposure time: 72 h
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to microorganisms	:	EC50 (activated sludge): > 100 mg/l Exposure time: 3 h
Toxicity to fish (Chronic toxicity)	:	NOEC: 0.5 mg/l Exposure time: 32 d Species: Pimephales promelas (fathead minnow)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.076 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)
M-Factor (Chronic aquatic toxicity)	:	1

Ecotoxicology Assessment

Acute aquatic toxicity	:	Very toxic to aquatic life.

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: 96 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)): 0.0086 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

toluene:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 5.5 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Ceriodaphnia dubia (water flea)): 3.78 mg/l Exposure time: 48 h

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

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 2.18 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2.94 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0.15 mg/l Exposure time: 72 h EC10 (Raphidocelis subcapitata (freshwater green alga)): 0.04 mg/l End point: Growth rate Exposure time: 72 h

M-Factor (Acute aquatic toxicity)	:	1
Toxicity to fish (Chronic toxicity)	:	NOEC: 0.3 mg/l Exposure time: 28 d Species: Oncorhynchus mykiss (rainbow trout)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 1.7 mg/l Exposure time: 21 d Species: Daphnia (water flea)

12.2 Persistence and degradability

Components:

mandipropamid (ISO):

Biodegradability	:	Result: Not readily biodegradable.
Stability in water	:	Degradation half life: 4.5 - 26 d Remarks: Product is not persistent.

difenoconazole:

Biodegradability	:	Result: Not readily biodegradable.
Stability in water	:	Degradation half life: 1 d Remarks: Product is not persistent.

toluene:

Biodegradability	:	Result: Readily biodegradable.

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

Biodegradability	:	Result: rapidly degradable

12.3 Bioaccumulative potential

Components:

mandipropamid (ISO):

Bioaccumulation	:	Remarks: Low bioaccumulation potential.
Partition coefficient: n-octanol/water	:	log Pow: 3.2 (25 °C)

difenoconazole:

Bioaccumulation	:	Remarks: High bioaccumulation potential.
Partition coefficient: n-octanol/water	:	log Pow: 4.4 (25 °C)

toluene:

Bioaccumulation	:	Remarks: Does not bioaccumulate.

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

Bioaccumulation : Remarks: Bioaccumulation is unlikely.

12.4 Mobility in soil

Components:

mandipropamid (ISO):

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

Stability in soil : Dissipation time: 26 - 178 d
Percentage dissipation: 50 % (DT50)
Remarks: Product is not persistent.

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.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : 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:

mandipropamid (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)..

difenoconazole:

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)..

toluene:

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

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

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 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 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 : uncleaned packagings
15 01 10, packaging containing residues of or contaminated by hazardous substances

SECTION 14: Transport information

14.1 UN number or ID 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. (DIFENOCONAZOLE AND MANDIPROPAMID)
ADR	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIFENOCONAZOLE AND MANDIPROPAMID)
RID	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIFENOCONAZOLE AND MANDIPROPAMID)
IMDG	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIFENOCONAZOLE AND MANDIPROPAMID)
IATA	:	Environmentally hazardous substance, liquid, n.o.s. (DIFENOCONAZOLE AND MANDIPROPAMID)

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 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/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 propan-2-ol toluene (Number on list 48)
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 (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable

Regulation (EC) No 649/2012 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.

		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.
Use plant protection products safely. Always read the label and product information before use.

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

H225	:	Highly flammable liquid and vapour.
H302	:	Harmful if swallowed.
H304	:	May be fatal if swallowed and enters airways.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H336	:	May cause drowsiness or dizziness.
H361d	:	Suspected of damaging the unborn child.
H373	:	May cause damage to organs through prolonged or repeated exposure.
H400	:	Very toxic to aquatic life.
H410	:	Very toxic to aquatic life with long lasting effects.
H411	:	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
Asp. Tox.	:	Aspiration hazard
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Repr.	:	Reproductive toxicity
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT RE	:	Specific target organ toxicity - repeated exposure
STOT SE	:	Specific target organ toxicity - single exposure
2006/15/EC	:	Europe. Indicative occupational exposure limit values
GB EH40	:	UK. EH40 WEL - Workplace Exposure Limits
2006/15/EC / TWA	:	Limit Value - eight hours
2006/15/EC / STEL	:	Short term exposure limit

GB EH40 / TWA	:	Long-term exposure limit (8-hour TWA reference period)
GB EH40 / STEL	:	Short-term exposure limit (15-minute 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; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling 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); ErCx - 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; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; 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:**
Aquatic Acute 1	H400	Calculation method
Aquatic Chronic 1	H410	Calculation method

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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