

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

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

1.1 Product identifier

Trade name : TOPAS

Design code : A6209G

Product Registration Number : MAPP 16765

Unique Formula Identifier (UFI) : R4K8-C0D4-A00Y-PH9M

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

Use of the Sub-stance/Mixture : Fungicide

Recommended restrictions on use : professional use

1.3 Details of the supplier of the safety data sheet

Company : Syngenta UK Limited
Jealott's Hill International Research Centre
Bracknell, Berkshire RG42 6EY
United Kingdom

Telephone : +44 (0) 1223 883400

Telefax : -

E-mail address of person responsible for the SDS : MSDSenquiries.UK@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) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Eye irritation, Category 2	H319: Causes serious eye irritation.
Reproductive toxicity, Category 2	H361d: Suspected of damaging the unborn child.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008) as amended by GB-CLP Regulation, UK SI 2019/720, and UK SI 2020/1567)

Hazard pictograms :



Signal word : Warning

Hazard statements	H319	Causes serious eye irritation.
	H361d	Suspected of damaging the unborn child.
	H411	Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201	Obtain special instructions before use.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P391	Collect spillage.

Disposal:

P501	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.
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Hazardous components which must be listed on the label:
penconazole (ISO)

Additional Labelling

EUH401	To avoid risks to human health and the environment, comply with the instructions for use.
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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.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version 21.2	Revision Date: 03.07.2026	SDS Number: S1190672	Date of last issue: 09.01.2025 Date of first issue: 16.06.2017
-----------------	------------------------------	-------------------------	---

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
cyclohexanone	108-94-1 203-631-1 606-010-00-7	Flam. Liq. 3; H226 Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335 (Respiratory system)	>= 10 - < 20
penconazole (ISO)	66246-88-6 266-275-6 613-317-00-X	Acute Tox. 4; H302 Repr. 2; H361d Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic aquatic toxicity): 1	>= 10 - < 20
calcium dodecylbenzene sulphonate	26264-06-2 247-557-8	Skin Irrit. 2; H315 Eye Dam. 1; H318 Aquatic Chronic 3; H412	>= 3 - < 10
2-methylpropan-1-ol	78-83-1 201-148-0 603-108-00-1	Flam. Liq. 3; H226 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335 (Respiratory system) STOT SE 3; H336 (Central nervous system)	>= 3 - < 10
Substances with a workplace exposure limit :			
(2-methoxymethylethoxy)propanol	34590-94-8 252-104-2		>= 50 - < 70

For explanation of abbreviations see section 16.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

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
- 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 fire- : As the product contains combustible organic components, fire

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

fighting

will produce dense black smoke containing hazardous products of combustion (see section 10).
Exposure to decomposition products may be a hazard to health.
Flash back possible over considerable distance.

Hazardous combustion products :

- Carbon oxides
- Nitrogen oxides (NO_x)
- Chlorine compounds
- Sulphur oxides

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.
Keep people away from and upwind of spill/leak.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Remove all sources of ignition.
Pay attention to flashback.

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.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Avoid contact with skin and eyes.
When using do not eat, drink or smoke.
Use only in an area containing flame proof equipment.
Take precautionary measures against static discharges.
For personal protection see section 8.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Keep away from combustible material. Keep in an area equipped with sprinklers. Keep away from food, drink and animal feed-stuffs. No smoking.

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
(2-methoxymethylethoxy)propanol	34590-94-8	TWA	50 ppm 308 mg/m ³	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.			
		TWA	50 ppm 308 mg/m ³	2000/39/EC
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
penconazole (ISO)	66246-88-6	TWA	2 mg/m ³	Syngenta
cyclohexanone	108-94-1	TWA	10 ppm 41 mg/m ³	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	20 ppm 82 mg/m ³	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.			
		TWA	10 ppm 40.8 mg/m ³	2000/39/EC

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version 21.2 Revision Date: 03.07.2026 SDS Number: S1190672 Date of last issue: 09.01.2025
Date of first issue: 16.06.2017

	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	20 ppm 81.6 mg/m ³	2000/39/EC
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
2-methylpropan-1-ol	78-83-1	TWA	50 ppm 154 mg/m ³	GB EH40
		STEL	75 ppm 231 mg/m ³	GB EH40

Biological occupational exposure limits

Substance name	CAS-No.	Control parameters	Sampling time	Basis
cyclohexanone	108-94-1	cyclohexanol: 2 Millimoles per mole creatinine (Urine)	After shift	GB EH40 BAT

Derived No Effect Level (DNEL)

Substance name	End Use	Exposure routes	Potential health effects	Value
(2-methoxymethylethoxy)propanol	Workers	Dermal	Long-term systemic effects	82.5 mg/kg
	Workers	Inhalation	Long-term systemic effects	263 mg/m ³
	Consumers	Dermal	Long-term systemic effects	36 mg/kg
	Consumers	Inhalation	Long-term systemic effects	38 mg/m ³
	Consumers	Oral	Long-term systemic effects	11 mg/kg
cyclohexanone	Workers	Inhalation	Long-term systemic effects	40 mg/m ³
	Workers	Inhalation	Acute systemic effects	80 mg/m ³
	Workers	Inhalation	Long-term local effects	40 mg/m ³
	Workers	Inhalation	Acute local effects	80 mg/m ³
	Workers	Dermal	Long-term systemic effects	4 mg/kg
	Workers	Dermal	Acute systemic effects	4 mg/kg
	Consumers	Inhalation	Long-term systemic effects	10 mg/m ³
	Consumers	Inhalation	Acute systemic effects	20 mg/m ³
	Consumers	Inhalation	Long-term local effects	20 mg/m ³
	Consumers	Inhalation	Acute local effects	40 mg/m ³
	Consumers	Dermal	Long-term systemic effects	1 mg/kg
	Consumers	Dermal	Acute systemic effects	1 mg/kg

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version 21.2 Revision Date: 03.07.2026 SDS Number: S1190672 Date of last issue: 09.01.2025
Date of first issue: 16.06.2017

			fects	
	Consumers	Oral	Long-term systemic effects	1.5 mg/kg
	Consumers	Oral	Acute systemic effects	1.5 mg/kg
2-methylpropan-1-ol	Workers	Inhalation	Long-term systemic effects, Long-term local effects	310 mg/m3
	Consumers	Inhalation	Long-term systemic effects, Long-term local effects	55 mg/m3
	Consumers	Oral	Long-term systemic effects, Long-term local effects	25 mg/kg
castor oil, ethoxylated	Workers	Inhalation	Long-term systemic effects	16.4 mg/m3
	Workers	Dermal	Long-term systemic effects	4.67 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	2.9 mg/m3
	Consumers	Dermal	Long-term systemic effects	1.67 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	1.67 mg/kg bw/day
calcium dodecylbenzene sulphonate	Workers	Inhalation	Long-term systemic effects	52 mg/m3
	Workers	Inhalation	Acute systemic effects	52 mg/m3
	Workers	Inhalation	Long-term local effects	52 mg/m3
	Workers	Inhalation	Acute local effects	52 mg/m3
	Workers	Dermal	Long-term systemic effects	57.2 mg/kg
	Workers	Dermal	Acute systemic effects	80 mg/kg
	Workers	Dermal	Long-term local effects	1.57 mg/cm2
	Workers	Dermal	Acute local effects	1.57 mg/cm2

Predicted No Effect Concentration (PNEC)

Substance name	Environmental Compartment	Value
cyclohexanone	Fresh water	0.033 mg/l
	Freshwater - intermittent	0.329 mg/l
	Marine water	0.003 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	0.249 mg/kg
	Marine sediment	0.025 mg/kg
	Soil	0.03 mg/kg
2-methylpropan-1-ol	Fresh water	0.4 mg/l
	Sewage treatment plant	10 mg/l
	Soil	0.0699 mg/kg
	Marine sediment	0.152 mg/kg
	Fresh water sediment	1.52 mg/kg

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

	Marine water	0.04 mg/l
castor oil, ethoxylated	Fresh water sediment	0.0129 mg/kg dry weight (d.w.)
	Marine sediment	0.00129 mg/kg dry weight (d.w.)
	Soil	0.00258 mg/kg dry weight (d.w.)
(2-methoxymethylethoxy)propanol	Fresh water	0.1 mg/l
	Marine water	0.01 mg/l
	Intermittent use/release	1 mg/l
	Sewage treatment plant	4 mg/l
	Fresh water sediment	0.386 mg/kg
	Marine sediment	0.0386 mg/kg
	Soil	0.0185 mg/kg
calcium dodecylbenzene sulpho-nate	Fresh water	0.28 mg/l
	Marine water	0.458 mg/l
	Freshwater - intermittent	0.654 mg/l
	Sewage treatment plant	50 mg/l
	Fresh water sediment	27.5 mg/kg
	Marine sediment	2.75 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/face protection : Tightly fitting safety goggles
Always wear eye protection when the potential for inadvertent eye contact with the product cannot be excluded.

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

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

Skin and body protection	: 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. 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	: liquid
Form	: liquid
Colour	: light yellow to brownish
Odour	: characteristic
Odour Threshold	: No data available
Initial boiling point and boiling range	: > 143 °C
Flammability	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Flash point	: 62.5 °C Method: Pensky-Martens closed cup
Auto-ignition temperature	: 210 °C
Decomposition temperature	: No data available
pH	: 4 - 8

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version 21.2	Revision Date: 03.07.2026	SDS Number: S1190672	Date of last issue: 09.01.2025 Date of first issue: 16.06.2017
-----------------	------------------------------	-------------------------	---

Concentration: 1 %w/v

Viscosity
Viscosity, dynamic : 7.53 mPa,s (20 °C)
4.37 mPa,s (40 °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 : 0.985 g/cm³ (20 °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

Miscibility with water : Miscible

Surface tension : 30.3 mN/m, 25 °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

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

Conditions to avoid : No decomposition if used as directed.

10.5 Incompatible materials

Materials to avoid : None known.

10.6 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, female): 2,574 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 5,294 mg/m³
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): > 4,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Components:

cyclohexanone:

Acute oral toxicity : LD50 (Rat): 1,534 mg/kg

Acute inhalation toxicity : LC50 (Rat): 11 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): 1,100 mg/kg

penconazole (ISO):

Acute oral toxicity : LD50 (Rabbit, male and female): 971 mg/kg

Acute inhalation toxicity : LC50 (Rat, male and female): > 4,046 mg/m³
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity
Remarks: Highest attainable concentration

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

Acute dermal toxicity : LD50 (Rat, male and female): > 3,000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

2-methylpropan-1-ol:

Acute oral toxicity : LD50 (Rat): 2,830 - 3,350 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 24.6 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): 2,460 mg/kg

(2-methoxymethylethoxy)propanol:

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

Acute inhalation toxicity : LC50 (Rat): 3.35 mg/l
Exposure time: 7 h
Test atmosphere: vapour
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): 9,510 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Product:

Species : Rabbit
Result : No skin irritation

Components:

cyclohexanone:

Species : Rabbit
Result : Irritating to skin.

penconazole (ISO):

Species : Rabbit
Result : No skin irritation

calcium dodecylbenzene sulphonate:

Result : Irritating to skin.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

2-methylpropan-1-ol:

Result : Irritating to skin.

Serious eye damage/eye irritation

Product:

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

Components:

cyclohexanone:

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

penconazole (ISO):

Species : Rabbit
Result : No eye irritation

calcium dodecylbenzene sulphonate:

Result : Risk of serious damage to eyes.

2-methylpropan-1-ol:

Result : Risk of serious damage to eyes.

Respiratory or skin sensitisation

Product:

Test Type : Buehler Test
Species : Guinea pig
Result : Does not cause skin sensitisation.

Components:

penconazole (ISO):

Test Type : Maximisation Test
Species : Guinea pig
Result : Does not cause skin sensitisation.

2-methylpropan-1-ol:

Species : Guinea pig
Result : Does not cause skin sensitisation.
Remarks : Information given is based on data obtained from similar substances.

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

Germ cell mutagenicity

Components:

penconazole (ISO):

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

(2-methoxymethylethoxy)propanol:

Germ cell mutagenicity- Assessment : In vitro tests did not show mutagenic effects

Carcinogenicity

Components:

penconazole (ISO):

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

Reproductive toxicity

Components:

penconazole (ISO):

Reproductive toxicity - Assessment : No toxicity to reproduction

(2-methoxymethylethoxy)propanol:

Reproductive toxicity - Assessment : No toxicity to reproduction

STOT - single exposure

Components:

cyclohexanone:

Exposure routes : Inhalation
Target Organs : Respiratory system
Assessment : The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

penconazole (ISO):

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

2-methylpropan-1-ol:

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

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

STOT - repeated exposure

Components:

penconazole (ISO):

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

Aspiration toxicity

Components:

penconazole (ISO):

No aspiration toxicity classification

2-methylpropan-1-ol:

May be harmful if swallowed and enters airways.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 6.8 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 36 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): 7.9 mg/l Exposure time: 72 h NOEC (Desmodesmus subspicatus (green algae)): 1 mg/l End point: Growth rate Exposure time: 72 h

Components:

penconazole (ISO):

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 1.3 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 6.75 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Raphidocelis subcapitata (freshwater green alga)): 3.41 mg/l Exposure time: 72 h EC10 (Lemna gibba (gibbous duckweed)): 0.0171 mg/l End point: Growth rate

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

Exposure time: 7 d

EC10 (Raphidocelis subcapitata (freshwater green alga)):
0.257 mg/l
End point: Growth rate
Exposure time: 72 h

ErC50 (Lemna gibba (gibbous duckweed)): 0.267 mg/l
Exposure time: 7 d

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: 0.36 mg/l
Exposure time: 35 d
Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.069 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

M-Factor (Chronic aquatic toxicity) : 1

calcium dodecylbenzene sulphonate:

Ecotoxicology Assessment

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

2-methylpropan-1-ol:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 1,430 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia pulex (Water flea)): 1,100 mg/l
Exposure time: 48 h

Toxicity to algae/aquatic plants : EC50 (Raphidocelis subcapitata (freshwater green alga)):
1,799 mg/l
Exposure time: 72 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 20 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)

(2-methoxymethylethoxy)propanol:

Toxicity to fish : LC50 (Poecilia reticulata (guppy)): > 1,000 mg/l
Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other : LC50 (Daphnia magna (Water flea)): 1,919 mg/l

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version 21.2	Revision Date: 03.07.2026	SDS Number: S1190672	Date of last issue: 09.01.2025 Date of first issue: 16.06.2017
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aquatic invertebrates

Exposure time: 48 h

Test Type: static test

LC50 (Crangon crangon (shrimp)): > 1,000 mg/l

Exposure time: 96 h

Test Type: semi-static test

Toxicity to daphnia and other
aquatic invertebrates (Chronic
toxicity)

: NOEC: > 0.5 mg/l

Exposure time: 22 d

Species: Daphnia magna (Water flea)

Ecotoxicology Assessment

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

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

12.2 Persistence and degradability

Components:

cyclohexanone:

Biodegradability : Result: Readily biodegradable.

penconazole (ISO):

Biodegradability : Result: Not readily biodegradable.

Stability in water : Degradation half life: 505 - 1,000 d
Remarks: Persistent in water.

2-methylpropan-1-ol:

Biodegradability : Result: Readily biodegradable.

(2-methoxymethylethoxy)propanol:

Biodegradability : Result: Readily biodegradable.

12.3 Bioaccumulative potential

Components:

penconazole (ISO):

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-
octanol/water : log Pow: 3.72 (25 °C)
log Pow: 3.8 (20 °C)

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

12.4 Mobility in soil

Components:

penconazole (ISO):

Distribution among environmental compartments	:	Remarks: Slightly mobile in soils
Stability in soil	:	Dissipation time: 327.3 d Percentage dissipation: 50 % (DT50) Remarks: Persistent in soil.

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.
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Components:

cyclohexanone:

Assessment	:	Not persistent, bioaccumulative, and toxic (PBT). Not very persistent and very bioaccumulative (vPvB).
------------	---	---

penconazole (ISO):

Assessment	:	Not persistent, bioaccumulative, and toxic (PBT). Not very persistent and very bioaccumulative (vPvB). Remarks: Weight of Evidence
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2-methylpropan-1-ol:

Assessment	:	Not persistent, bioaccumulative, and toxic (PBT). Not very persistent and very bioaccumulative (vPvB).
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(2-methoxymethylethoxy)propanol:

Assessment	:	Not persistent, bioaccumulative, and toxic (PBT). Not very persistent and very bioaccumulative (vPvB).
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12.6 Other adverse effects

Product:

Endocrine disrupting potential	:	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.
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Components:

penconazole (ISO):

Endocrine disrupting potential	:	Does not have endocrine disrupting properties. Weight of Evidence
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SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

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.

SECTION 14: Transport information

14.1 UN number

- ADR : UN 3082
RID : UN 3082
IMDG : UN 3082
IATA : UN 3082

14.2 UN proper shipping name

- ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(PENCONAZOLE)
RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(PENCONAZOLE)
IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(PENCONAZOLE)
IATA : Environmentally hazardous substance, liquid, n.o.s.
(PENCONAZOLE)

14.3 Transport hazard class(es)

- | | Class | Subsidiary risks |
|------|-------|------------------|
| ADR | : 9 | |
| RID | : 9 | |
| IMDG | : 9 | |

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

IATA : 9

14.4 Packing group

ADR

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9
Tunnel restriction code : (-)
Remarks : This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

RID

Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9
Remarks : This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IMDG

Packing group : III
Labels : 9
EmS Code : F-A, S-F
Remarks : This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IATA (Cargo)

Packing instruction (cargo aircraft) : 964
Packing instruction (LQ) : Y964
Packing group : III
Labels : Miscellaneous
Remarks : This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

IATA (Passenger)

Packing instruction (passenger aircraft) : 964
Packing instruction (LQ) : Y964
Packing group : III
Labels : Miscellaneous
Remarks : This product can be subject to exemptions when packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids, or having a net mass of 5 kg or less for solids.

14.5 Environmental hazards

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

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 regulations/legislation specific for the substance or mixture

Relevant EU provisions transposed through retained EU law

UK REACH List of restrictions (Annex 17)	:	Conditions of restriction for the following entries should be considered: Number on list 3
UK REACH Candidate list of substances of very high concern (SVHC) for Authorisation	:	Not applicable
The Persistent Organic Pollutants Regulations (retained Regulation (EU) 2019/1021 as amended for Great Britain)	:	Not applicable
Regulation (EU) No 2024/590 on substances that deplete the ozone layer	:	Not applicable
UK REACH List of substances subject to authorisation (Annex XIV)	:	Not applicable
GB Export and import of hazardous chemicals - Prior Informed Consent (PIC) Regulation	:	Not applicable
Control of Major Accident Hazards Regulations 2015 (COMAH)	E2	ENVIRONMENTAL HAZARDS
Volatile organic compounds	:	Directive 2010/75/EU of 24 November 2010 on industrial and livestock rearing emissions (integrated pollution prevention and control) Not applicable

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

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

H226	: Flammable liquid and vapour.
H302	: Harmful if swallowed.
H312	: Harmful in contact with skin.
H315	: Causes skin irritation.
H318	: Causes serious eye damage.
H332	: Harmful if inhaled.
H335	: May cause respiratory irritation.
H336	: May cause drowsiness or dizziness.
H361d	: Suspected of damaging the unborn child.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.
H412	: Harmful 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 Dam.	: Serious eye damage
Flam. Liq.	: Flammable liquids
Repr.	: Reproductive toxicity
Skin Irrit.	: Skin irritation
STOT SE	: Specific target organ toxicity - single exposure
2000/39/EC	: Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
GB EH40	: UK. EH40 WEL - Workplace Exposure Limits
GB EH40 BAT	: UK. Biological monitoring guidance values
Syngenta	: Syngenta Occupational Exposure Limit
2000/39/EC / TWA	: Limit Value - eight hours
2000/39/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)
Syngenta / TWA	: Time weighted average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - 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 Harmonised 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 - Interna-

SAFETY DATA SHEET

According to REACH Regulation (EC) No 1907/2006, as amended by
UK REACH Regulations SI 2019/758



TOPAS

Version	Revision Date:	SDS Number:	Date of last issue: 09.01.2025
21.2	03.07.2026	S1190672	Date of first issue: 16.06.2017

tional Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; 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 - Organisation 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; 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

Further information

Classification of the mixture:

Eye Irrit. 2	H319
Repr. 2	H361d
Aquatic Chronic 2	H411

Classification procedure:

Based on product data or assessment
Calculation method
Based on product data or assessment

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.

GB / 6N