

SAFETY DATA SHEET

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



FONTELIS®

Version	Revision Date:	SDS Number:	Date of last issue: -
2.0	10/3/2020	800080006243	Date of first issue: 03.10.2022

Corteva Agriscience™ encourages you and expects you to read and understand the entire SDS as there is important information throughout the document. This SDS provides users with information relating to the protection of human health and safety at the workplace, protection of the environment and supports emergency response. Product users and applicators should primarily refer to the product label attached to or accompanying the product container. This Safety Data Sheet adheres to the standards and regulatory requirements of Great Britain and may not meet the regulatory requirements in other countries.

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

1.1 Product identifier

Trade name : FONTELIS®

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

Use of the Sub-stance/Mixture : Fungicide

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

Manufacturer/importer

Corteva Agriscience UK Ltd
CPC2 CAPITAL PARK
FULBOURN CAMBRIDGE - England - CB21 5XE
UNITED KINGDOM

Customer Information : + 44 800 689 8899

Number

E-mail address : SDS@corteva.com

1.4 Emergency telephone number

24 Hour Emergency Telephone Number: +44 161 884 1235

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)

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.

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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 : H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing.

Response:
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.

2.3 Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
penthiopyrad (ISO)	183675-82-3 616-222-00-1	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 11 M-Factor (Chronic aquatic toxicity): 11	20.4
Ammonium Salt of Polyarylphenyl	119432-41-6	Eye Dam. 1; H318	>= 3 - < 10

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Ether Sulphate		Aquatic Chronic 3; H412	
Alkyl-naphthalenesulfonic acid, polymer with formaldehyde, sodium salt	68425-94-5	Eye Irrit. 2; H319	$\geq 1 - < 3$
1,2-benzisothiazol-3(2H)-one	2634-33-5 220-120-9 613-088-00-6	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 3; H412 M-Factor (Acute aquatic toxicity): 1 specific concentration limit Skin Sens. 1; H317 $\geq 0.05\%$	$\geq 0.0025 - < 0.025$

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- If inhaled : Move to fresh air.
Consult a physician after significant exposure.
Artificial respiration and/or oxygen may be necessary.
- In case of skin contact : Take off contaminated clothing and shoes immediately.
Wash off immediately with soap and plenty of water.
In the case of skin irritation or allergic reactions see a physician.
Wash contaminated clothing before re-use.
- In case of eye contact : Hold eye open and rinse slowly and gently with water for 15-20 minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Obtain medical attention.
DO NOT induce vomiting unless directed to do so by a physician or poison control center.
If victim is conscious:
Rinse mouth with water.

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4.2 Most important symptoms and effects, both acute and delayed

Symptoms : No information available.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health. Do not allow run-off from fire fighting to enter drains or water courses.

Exposure to combustion products may be a hazard to health. Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products : During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating.
Nitrogen oxides (NOx)
Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

Specific extinguishing methods : Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.

Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

6.2 Environmental precautions

Environmental precautions : If the product contaminates rivers and lakes or drains inform respective authorities.
Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
Prevent from entering into soil, ditches, sewers, underwater.
See Section 12, Ecological Information.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped,
Recovered material should be stored in a vented container.
The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to over-pressurization of the container.
Keep in suitable, closed containers for disposal.
Wipe up with absorbent material (e.g. cloth, fleece).
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
See Section 13, Disposal Considerations, for additional information.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Do not breathe vapours/dust.
Handle in accordance with good industrial hygiene and safety practice.
Smoking, eating and drinking should be prohibited in the application area.

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Hygiene measures : Take care to prevent spills, waste and minimize release to the environment.
Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.
: Handle in accordance with good industrial hygiene and safety practice. Regular cleaning of equipment, work area and clothing. Keep working clothes separately. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product. When using do not eat, drink or smoke. Keep away from food, drink and animal feedingstuffs. Remove clothing/PPE immediately if material gets inside. For environmental protection remove and wash all contaminated protective equipment before re-use. Dispose of rinse water in accordance with local and national regulations.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Store in a closed container. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep in properly labelled containers. Store in accordance with the particular national regulations.

Advice on common storage : Strong oxidizing agents

Packaging material : Unsuitable material: None known.

7.3 Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
Propanediol	57-55-6	Long-term exposure limit (8-hour TWA reference period) (Total vapour and particles)	150 ppm 474 mg/m ³	GB EH40
		Long-term exposure limit (8-hour TWA reference period) (particles)	10 mg/m ³	GB EH40

8.2 Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye protection : Safety glasses with side-shields conforming to EN166

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Hand protection

Remarks : The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. 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 suitability for a specific workplace should be discussed with the producers of the protective gloves. Gauntlets shorter than 35 cm long shall be worn under the combination sleeve. Gauntlets of 35 cm long or longer shall be worn over the combination sleeve. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Before removing gloves clean them with soap and water.

Skin and body protection

: Manufacturing and processing work:
Full protective clothing Type 6 (EN 13034)
Spray application - outdoor:
Tractor / sprayer without hood:
Full protective clothing Type 4 (EN 14605)
Nitrile rubber boots (EN 13832-3 / EN ISO 20345).
Backpack / knapsack sprayer:
Full protective clothing Type 4 (EN 14605)
Nitrile rubber boots (EN 13832-3 / EN ISO 20345).
Mechanical automatized spray application in closed tunnel:
No personal body protection normally required.
To optimize the ergonomics it may be recommended to use cotton underwear when wearing some fabrics. Take advice from supplier.
Garment materials that are resistant to both water vapour and air will maximise wearing comfort. Materials should be robust to maintain the integrity and barrier in use.
The permeation resistance of the fabric must be verified independently of the « type » protection recommended, to ensure an appropriate performance level of the material adequate to the corresponding agent and type of exposure.
When exceptional circumstances require an access to the treated area before the end of re-entry periods, wear full protective clothing Type 6(EN 13034), nitrile rubber gloves class 3 (EN 374) and nitrile rubber boots (EN 13832-3 / EN ISO 20345).
Tractor / sprayer with hood:
No personal body protection normally required.
Mixer and loaders must wear:
Full protective clothing Type 6 (EN 13034)
Nitrile rubber boots (EN 13832-3 / EN ISO 20345).

Respiratory protection

: Manufacturing and processing work:
Half mask with vapour filter A1 (EN 141)

Protective measures

: The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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All chemical protective clothing should be visually inspected prior to use. Clothing and gloves should be replaced in case of chemical or physical damage or if contaminated.
Only protected handlers may be in the area during application.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	:	liquid
Colour	:	off-white
Odour	:	slight, ester-like
Odour Threshold	:	not determined
pH	:	6.66 Concentration: 10 g/L
Melting point/range	:	Not applicable
Freezing point	:	Not determined
Boiling point/boiling range	:	No data available
Flash point	:	> 105 °C Method: closed cup
Evaporation rate	:	No data available
Flammability (solid, gas)	:	Does not sustain combustion.
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower flammability limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	0.9789
Density	:	No data available
Solubility(ies)	:	
Water solubility	:	dispersible
Partition coefficient: n-octanol/water	:	Not applicable
Viscosity	:	
Viscosity, dynamic	:	770.7 mPa,s 30 rpm

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Explosive properties : Not explosive

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

9.2 Other information

Self-ignition : ca.
385 °C

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

No decomposition if stored and applied as directed.
Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Stable under recommended storage conditions.
No hazards to be specially mentioned.
None known.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : Strong acids
Strong bases

None.

10.6 Hazardous decomposition products

Decomposition products depend upon temperature, air supply and the presence of other materials.
Carbon oxides

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Components:

penthiopyrad (ISO):

Acute oral toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 423
Symptoms: No deaths occurred at this concentration.

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Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male and female): > 5.69 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg
Method: OECD Test Guideline 402
Symptoms: No deaths occurred at this concentration.
Assessment: The substance or mixture has no acute dermal toxicity

Ammonium Salt of Polyaryphenyl Ether Sulphate:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Alkyl-naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

Acute oral toxicity : LD50 (Rat): > 4,500 mg/kg

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

Acute oral toxicity : LD50 (Rat): 675.3 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0.25 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 5,000 mg/kg

Skin corrosion/irritation

Product:

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

Components:

penthiopyrad (ISO):

Species : Rabbit
Exposure time : 72 h
Method : OECD Test Guideline 404
Result : No skin irritation

Alkyl-naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

Species : Rabbit
Result : No skin irritation

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

Species : Rabbit
Result : Skin irritation

Serious eye damage/eye irritation

Product:

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

Components:

penthiopyrad (ISO):

Species : Rabbit
Exposure time : 72 h
Method : OECD Test Guideline 405
Result : No eye irritation

Ammonium Salt of Polyarylphenyl Ether Sulphate:

Result : Corrosive

Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

Species : Rabbit
Result : Eye irritation

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

Species : Rabbit
Result : Corrosive

Respiratory or skin sensitisation

Product:

Test Type : Maximisation Test
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.

Components:

penthiopyrad (ISO):

Test Type : Maximisation Test
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.

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

Species : Mouse
Assessment : The product is a skin sensitiser, sub-category 1B.

Germ cell mutagenicity

Components:

penthiopyrad (ISO):

Germ cell mutagenicity- Assessment : In vivo tests did not show mutagenic effects, In vitro genetic toxicity studies were negative.

Ammonium Salt of Polyarylphenyl Ether Sulphate:

Germ cell mutagenicity- Assessment : In vitro genetic toxicity studies were negative.

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

Germ cell mutagenicity- Assessment : Not mutagenic when tested in bacterial or mammalian systems.

Carcinogenicity

Components:

penthiopyrad (ISO):

Carcinogenicity - Assessment : Did not cause cancer in laboratory animals.

Reproductive toxicity

Components:

penthiopyrad (ISO):

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction. Did not cause birth defects or any other fetal effects in laboratory animals.

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

Reproductive toxicity - Assessment : In animal studies, did not interfere with reproduction., In animal studies, did not interfere with fertility. Did not cause birth defects in laboratory animals.

STOT - single exposure

Product:

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

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Components:

penthiopyrad (ISO):

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Alkyl-naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

Assessment : Available data are inadequate to determine single exposure specific target organ toxicity.

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

Assessment : Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Repeated dose toxicity

Components:

penthiopyrad (ISO):

Species : multiple species
Application Route : Oral
Method : OECD Test Guideline 407
Remarks : In animals, effects have been reported on the following organs:
Reduced body weight gain
Liver effects
Thyroid effects
Spleen effects
Gallbladder effects
Liver enlargement
immune system effects
altered blood chemistry
altered hematology
Organ weight changes
Decreased spleen weight
Increased liver weight

Ammonium Salt of Polyarylophenyl Ether Sulphate:

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

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

Remarks : Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Aspiration toxicity

Product:

Based on physical properties, not likely to be an aspiration hazard.

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Components:

penthiopyrad (ISO):

Based on physical properties, not likely to be an aspiration hazard.

Ammonium Salt of Polyaryphenyl Ether Sulphate:

Based on physical properties, not likely to be an aspiration hazard.

Alkyl-naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

Based on physical properties, not likely to be an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Product:

- | | | |
|--|---|---|
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): 0.29 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes |
| Toxicity to algae/aquatic plants | : | ErC50 (Pseudokirchneriella subcapitata (green algae)): > 10 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
GLP: yes |
| Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) | : | NOEC: 0.075 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: Semi-Static-Life-Cycle
Method: OECD Test Guideline 211
GLP: yes |
| Toxicity to terrestrial organisms | : | oral LD50: 517.42 µg/bee
Exposure time: 2 d
Species: Apis mellifera (bees)
Method: OECD Test Guideline 213
GLP: yes

contact LD50: 482.63 µg/bee
Exposure time: 2 d
Species: Apis mellifera (bees)
Method: OECD Test Guideline 214
GLP: yes |

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Components:

penthiopyrad (ISO):

- Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 0.572 mg/l
Exposure time: 96 h
Test Type: flow-through
Method: OECD Test Guideline 203
- LC50 (Pimephales promelas (fathead minnow)): 0.290 mg/l
Exposure time: 96 h
Test Type: semi-static test
Method: OECD Test Guideline 203
- LC50 (Oncorhynchus mykiss (rainbow trout)): 0.386 mg/l
Exposure time: 96 h
- NOEC (Oncorhynchus mykiss (rainbow trout)): 0.146 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 1.375 mg/l
Exposure time: 48 h
Test Type: Static
Method: OECD Test Guideline 202
- LC50 (Americamysis bahia (mysid shrimp)): > 1.7 mg/l
Exposure time: 96 h
Test Type: Static
Method: US EPA Test Guideline OPPTS 850.1035
- Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 4.0 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
- NOEC (Pseudokirchneriella subcapitata (green algae)): 0.45 mg/l
Exposure time: 72 h
Test Type: Growth inhibition
Method: OECD Test Guideline 201
- NOEC (Lemna gibba (gibbous duckweed)): 1.205 mg/l
Exposure time: 7 d
Test Type: Static
Method: OECD Test Guideline 201
- EbC50 (Pseudokirchneriella subcapitata (green algae)): 2.21 mg/l
Exposure time: 72 h
Test Type: Static
Method: OECD Test Guideline 201
- ErC50 (Pseudokirchneriella subcapitata (green algae)): > 1.5

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mg/l
Exposure time: 96 h
Test Type: Static
Method: OECD Test Guideline 201

ErC50 (Lemna gibba (duckweed)): > 1.2 mg/l
Exposure time: 7 d
Test Type: Static
Method: OECD Test Guideline 221

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC: 0.051 mg/l
Exposure time: 33 d
Species: Pimephales promelas (fathead minnow)
Test Type: Early Life-Stage
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 0.47 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test Type: flow-through test
Method: OECD Test Guideline 211

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to soil dwelling organisms : LC50: > 1,000 mg/kg
Exposure time: 14 d
Species: Eisenia fetida (earthworms)
Method: OECD Test Guideline 207

Toxicity to terrestrial organisms : LD50: > 2,250 mg/kg
Species: Colinus virginianus (Bobwhite quail)
Method: US EPA Test Guideline OPPTS 850.2100

dietary LC50: > 1,913 mg/kg
Exposure time: 5 d
Species: Colinus virginianus (Bobwhite quail)
Method: OECD Test Guideline 205

oral LD50: > 500 µg/b
Exposure time: 48 d
Species: Apis mellifera (bees)
Method: OECD Test Guideline 213

contact LD50: > 500 µg/b
Exposure time: 48 d
Species: Apis mellifera (bees)
Method: OECD Test Guideline 214

Ammonium Salt of Polyarylyphenyl Ether Sulphate:

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Toxicity to fish : Remarks: Material is harmful to aquatic organisms (LC50/EC50/IC50 between 10 and 100 mg/L in the most sensitive species).

LC50 (Oncorhynchus mykiss (rainbow trout)): 33 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 24 mg/l
Exposure time: 48 h

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

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1.9 mg/l
Exposure time: 96 h
Test Type: flow-through test
Method: OECD Test Guideline 203 or Equivalent

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 3.7 mg/l
Exposure time: 48 h
Test Type: flow-through test
Method: OECD Test Guideline 202 or Equivalent

LC50 (Mysid shrimp (Mysidopsis bahia)): 1.9 mg/l
Exposure time: 96 h

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.8 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201 or Equivalent

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.21 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201 or Equivalent

ErC50 (diatom Skeletonema costatum): 0.36 mg/l
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201 or Equivalent

NOEC (diatom Skeletonema costatum): 0.15 mg/l
End point: Growth rate
Exposure time: 72 h
Test Type: static test
Method: OECD Test Guideline 201 or Equivalent

M-Factor (Acute aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (Bacteria (active sludge)): 28.52 mg/l

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Exposure time: 3 h
Test Type: Respiration inhibition of activated sludge

12.2 Persistence and degradability

Components:

penthiopyrad (ISO):

Biodegradability : Result: Not readily biodegradable.
Method: OECD Test Guideline 301F or Equivalent

Ammonium Salt of Polyarylophenyl Ether Sulphate:

Biodegradability : Remarks: Based on analogy.
Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
Material is ultimately biodegradable under anaerobic conditions, according to the relevant OECD test(s).

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

Biodegradability : Result: Readily biodegradable.
Biodegradation: 24 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent
Remarks: Abiotic degradation: The material is rapidly degradable by abiotic means.

12.3 Bioaccumulative potential

Components:

penthiopyrad (ISO):

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Exposure time: 14 d
Bioconcentration factor (BCF): 155 - 186
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water : log Pow: 4.62
pH: 7

Ammonium Salt of Polyarylophenyl Ether Sulphate:

Partition coefficient: n-octanol/water : Remarks: No data available for this product.

Alkyl naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

Partition coefficient: n-octanol/water : Remarks: No data available for this product.

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

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Bioaccumulation	:	Species: Fish Bioconcentration factor (BCF): 3.2 Method: Calculated.
Partition coefficient: n-octanol/water	:	log Pow: 1.19 Method: OECD Test Guideline 117 or Equivalent Remarks: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

12.4 Mobility in soil

Product:

Distribution among environmental compartments	:	Remarks: Under actual use conditions the product has a low potential of mobility in soil.
---	---	---

Components:

penthiopyrad (ISO):

Distribution among environmental compartments	:	Remarks: Under actual use conditions the product has a low potential of mobility in soil.
---	---	---

Ammonium Salt of Polyarylphenyl Ether Sulphate:

Distribution among environmental compartments	:	Remarks: No relevant data found.
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1,2-benzisothiazol-3(2H)-one:

Distribution among environmental compartments	:	Koc: 104 Method: Estimated. Remarks: Potential for mobility in soil is high (Koc between 50 and 150). Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
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12.5 Results of PBT and vPvB assessment

Components:

penthiopyrad (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).
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Ammonium Salt of Polyarylphenyl Ether Sulphate:

Assessment	:	This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).
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Alkyl-naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

Assessment	:	This substance has not been assessed for persistence, bioac-
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cumulation and toxicity (PBT).

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

Assessment : This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

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.

Components:

Ammonium Salt of Polyarylether Sulphate:

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Alkyl-naphthalenesulfonic acid, polymer with formaldehyde, sodium salt:

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

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

Ozone-Depletion Potential : Remarks: This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.
If the material as supplied becomes a waste, follow all applicable regional, national and local laws.

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

14.3 Transport hazard class(es)

ADR : 9
RID : 9
IMDG : 9
IATA : 9

14.4 Packing group

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
Remarks : Stowage category A

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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

ADR

Environmentally hazardous : no

RID

Environmentally hazardous : no

IMDG

Marine pollutant : yes

14.6 Special precautions for user

Marine Pollutants assigned UN number 3077 and 3082 in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 KG or less for solids may be transported as non-dangerous goods as provided in section 2.10.2.7 of IMDG code, IATA Special provision A197, and ADR/RID special provision 375.

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

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	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
UK REACH List of substances subject to authorisation (Annex XIV)	:	Not applicable

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Seveso III Directive (2012/18/EU) implemented E1 ENVIRONMENTAL HAZARDS
by Control of Major Accident Hazards Regula-
tions 2015 (COMAH)

Registration Number : MAPP 20356

15.2 Chemical safety assessment

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

The mixture is evaluated within the frame of the provisions of Regulation (EC) No. 1107/2009.
Refer to the label for exposure assessment information.

SECTION 16: Other information

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from
information supplied by internal references within our company.

Full text of H-Statements

H302	: Harmful if swallowed.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.
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
Eye Irrit.	: Eye irritation
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
GB EH40	: UK. EH40 WEL - Workplace Exposure Limits
GB EH40 / TWA	: Long-term exposure limit (8-hour TWA reference period)

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 Test-
ing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regula-
tion (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 - Emergen-
cy Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration as-
sociated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good La-

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boratory 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; 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

Classification of the mixture:

Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

Based on product data or assessment
Based on product data or assessment

Product code: GF-4207

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