

SAFETY DATA SHEET

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



Capstone™ FS-65 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 07.08.2024
6.0	07.11.2024	9710367-00010	Date of first issue: 23.09.2021

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

1.1 Product identifier

Trade name : Capstone™ FS-65 Fluorosurfactant

SDS-Identcode : 130000052194

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

Use of the Sub-
stance/Mixture : Surfactant

Recommended restrictions on use : For industrial use only.
Do not use or resell Chemours™ materials in medical applications involving implantation in the human body or contact with internal body fluids or tissues unless agreed to by Seller in a written agreement covering such use. For further information, please contact your Chemours representative.

1.3 Details of the supplier of the safety data sheet

Company : Chemours Netherlands B.V.
Baanhoekweg 22
3313 LA Dordrecht Netherlands

Telephone : +31-(0)-78-630-1011

Telefax : +31-78-6163737

E-mail address of person
responsible for the SDS : sds-support@chemours.com

1.4 Emergency telephone number

+(44)-870-8200418 (CHEMTREC - Recommended)

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)

Acute toxicity, Category 2 H330: Fatal if inhaled.

Skin sensitisation, Category 1 H317: May cause an allergic skin reaction.

Specific target organ toxicity - single exposure, Category 1, Lungs, larynx H370: Causes damage to organs if inhaled.

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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 : Danger

Hazard statements	H317	May cause an allergic skin reaction.
	H330	Fatal if inhaled.
	H370	Causes damage to organs (Lungs, larynx) if inhaled.

Precautionary statements :

Prevention:

P260	Do not breathe mist or vapours.
P280	Wear protective gloves.
P284	Wear respiratory protection.

Response:

P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P308 + P311	IF exposed or concerned: Call a POISON CENTER/ doctor.

Storage:

P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
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Hazardous components which must be listed on the label:

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate
1,2-Benzisothiazol-3(2H)-one
2-Methyl-2H-isothiazol-3-one

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.

Inhalation of decomposition products in high concentration may cause shortness of breath (lung oedema).

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SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate	1224429-82-6	Acute Tox. 2; H330 STOT SE 1; H370 (Lungs, larynx) Aquatic Chronic 3; H412	>= 20 - < 25
2-Methyl-2H-isothiazol-3-one	2682-20-4 220-239-6 613-326-00-9	Acute Tox. 3; H301 Acute Tox. 2; H330 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1A; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 1 specific concentration limit Skin Sens. 1A; H317 >= 0.0015 %	>= 0.0025 - < 0.025
1,2-Benzisothiazol-3(2H)-one	2634-33-5 220-120-9 613-088-00-6	Acute Tox. 4; H302 Acute Tox. 2; H330 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1A; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 1 M-Factor (Chronic	>= 0.0025 - < 0.025

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		aquatic toxicity): 1 specific concentra- tion limit Skin Sens. 1A; H317 >= 0.036 %	
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For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

- | | |
|----------------------------|---|
| General advice | : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice. |
| Protection of first-aiders | : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists (see section 8). |
| If inhaled | : If inhaled, remove to fresh air.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.
Get medical attention immediately. |
| In case of skin contact | : In case of contact, immediately flush skin with soap and plenty of water.
Remove contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse. |
| In case of eye contact | : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists. |
| If swallowed | : If swallowed, DO NOT induce vomiting.
Get medical attention if symptoms occur.
Rinse mouth thoroughly with water. |

4.2 Most important symptoms and effects, both acute and delayed

- | | |
|----------|---|
| Symptoms | : Inhalation may provoke the following symptoms:
Irritation
Shortness of breath
Symptoms may be delayed.

Eye contact may provoke the following symptoms
Discomfort
Lachrymation |
|----------|---|

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Redness

Risks : May cause an allergic skin reaction.
Fatal if inhaled.
Causes damage to organs if inhaled.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically and supportively.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical

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.

Hazardous combustion products : Hydrogen fluoride
carbonyl fluoride
potentially toxic fluorinated compounds
aerosolized particulates
Carbon oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Evacuate personnel to safe areas.
Only trained personnel should re-enter the area.
Follow safe handling advice (see section 7) and personal pro-

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ective equipment recommendations (see section 8).

6.2 Environmental precautions

Environmental precautions : Avoid release to the environment.
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.
If spillage enters rivers or watercourses, inform the Environment Agency (emergency telephone number 0800 807060).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Soak up with inert absorbent material.
For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.
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 the cleanup of releases. You will need to determine which regulations are applicable.
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : If sufficient ventilation is unavailable, use with local exhaust ventilation.

Advice on safe handling : Do not get on skin or clothing.
Do not breathe mist or vapours.
Do not swallow.
Avoid contact with eyes.
Wash skin thoroughly after handling.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Keep container tightly closed.
Do not eat, drink or smoke when using this product.
Take care to prevent spills, waste and minimize release to the environment.

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Do not breathe decomposition products.

Hygiene measures : If exposure to chemical is likely during typical use, provide eye flushing systems and safety showers close to the working place. When using do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations.

Advice on common storage : Do not store with the following product types:
Self-reactive substances and mixtures
Organic peroxides
Flammable liquids
Flammable solids
Pyrophoric liquids
Pyrophoric solids
Self-heating substances and mixtures
Substances and mixtures, which in contact with water, emit flammable gases
Explosives
Gases

Recommended storage temperature : 5 - 40 °C

Further information on storage stability : Do not freeze.

Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Contains no substances with occupational exposure limit values.

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
hydrofluoric acid	7664-39-3	TWA	1.8 ppm 1.5 mg/m ³	GB EH40

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			(Fluorine)	
		STEL	3 ppm 2.5 mg/m3 (Fluorine)	GB EH40
		TWA	1.8 ppm 1.5 mg/m3	2000/39/EC
	Further information: Indicative			
		STEL	3 ppm 2.5 mg/m3	2000/39/EC
	Further information: Indicative			
Carbonyl difluoride	353-50-4	TWA	2.5 mg/m3 (Fluorine)	2000/39/EC
	Further information: Indicative			
Carbon dioxide	124-38-9	TWA	5,000 ppm 9,150 mg/m3	GB EH40
		STEL	15,000 ppm 27,400 mg/m3	GB EH40
		TWA	5,000 ppm 9,000 mg/m3	2006/15/EC
	Further information: Indicative			
Carbon monoxide	630-08-0	TWA	30 ppm 35 mg/m3	GB EH40
		STEL	200 ppm 232 mg/m3	GB EH40
		TWA	20 ppm 23 mg/m3	GB EH40
		STEL	100 ppm 117 mg/m3	GB EH40
		STEL	100 ppm 117 mg/m3	2017/164/EU
	Further information: Indicative			
		TWA	20 ppm 23 mg/m3	2017/164/EU
	Further information: Indicative			
		TWA	20 ppm 23 mg/m3	2004/37/EC
	Further information: Carcinogens or mutagens			
		STEL	100 ppm 117 mg/m3	2004/37/EC
	Further information: Carcinogens or mutagens			

Derived No Effect Level (DNEL)

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	Skin contact	Long-term systemic effects	0.966 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1.2 mg/m3
	Consumers	Skin contact	Long-term systemic effects	0.345 mg/kg bw/day

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Predicted No Effect Concentration (PNEC)

Substance name	Environmental Compartment	Value
1,2-Benzisothiazol-3(2H)-one	Fresh water	11 µg/l
	Intermittent use/release	0.403 µg/l
	Marine water	1.1 µg/l
	Intermittent use/release	0.0403 µg/l
	Sewage treatment plant	1.03 mg/l
	Fresh water sediment	0.0499 mg/kg dry weight (d.w.)
	Marine sediment	0.00499 mg/kg dry weight (d.w.)
	Soil	3 mg/kg dry weight (d.w.)

8.2 Exposure controls

Engineering measures

Processing may form hazardous compounds (see section 10).
Minimize workplace exposure concentrations.
If sufficient ventilation is unavailable, use with local exhaust ventilation.

Personal protective equipment

- Eye/face protection : Wear the following personal protective equipment:
Safety glasses
Equipment should conform to BS EN 166
- Hand protection :
Material : butyl-rubber
Break through time : 480 min
Glove thickness : 0.89 mm
- Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.
- Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).
- Respiratory protection : If adequate local exhaust ventilation is not available or exposure assessment demonstrates exposures outside the recommended guidelines, use respiratory protection.
Equipment should conform to BS EN 14387
- Filter type : Combined particulates and acidic gas/vapour type (E-P)

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: liquid
Colour	: colourless, yellow
Odour	: odourless
Odour Threshold	: No data available
pH	: 7.5 - 9
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: 100 °C
Flash point	: does not flash
Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable
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	: 1.1
Bulk density	: 1,078 kg/m ³
Solubility(ies) Water solubility	: soluble
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: No data available
Decomposition temperature	: > 200 °C
Viscosity Viscosity, kinematic	: No data available
Explosive properties	: Not explosive

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

9.2 Other information

Flammability (liquids) : No data available

Particle size : Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

Not classified as a reactivity hazard.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Hazardous decomposition products will be formed at elevated temperatures.

10.4 Conditions to avoid

Conditions to avoid : None known.

10.5 Incompatible materials

Materials to avoid : None.

10.6 Hazardous decomposition products

Thermal decomposition : hydrofluoric acid
Carbonyl difluoride
Carbon dioxide
Carbon monoxide

SECTION 11: Toxicological information

11.1 Information on toxicological effects

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

Acute toxicity

Fatal if inhaled.

Product:

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

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Acute inhalation toxicity : Acute toxicity estimate (Rat): 0.5 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgement

Components:

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate:

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

Acute inhalation toxicity : Acute toxicity estimate (Rat): 0.12 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgement

2-Methyl-2H-isothiazol-3-one:

Acute oral toxicity : LD50 (Rat): 120 mg/kg

Acute inhalation toxicity : LC50 (Rat): 0.11 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
Assessment: Corrosive to the respiratory tract.

Acute dermal toxicity : LD50 (Rat): 242 mg/kg
Method: OECD Test Guideline 402

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

Acute oral toxicity : LD50 (Rat, male): 450 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male): 0.21 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Not classified based on available information.

Product:

Species : Rabbit
Method : OECD Test Guideline 404

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Result : No skin irritation

Components:

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate:

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

2-Methyl-2H-isothiazol-3-one:

Result	: Corrosive after 3 minutes to 1 hour of exposure
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1,2-Benzisothiazol-3(2H)-one:

Result	: Skin irritation
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Serious eye damage/eye irritation

Not classified based on available information.

Product:

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

Components:

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate:

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

2-Methyl-2H-isothiazol-3-one:

Result	: Irreversible effects on the eye
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1,2-Benzisothiazol-3(2H)-one:

Species	: Rabbit
Result	: Irreversible effects on the eye

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

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Components:

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate:

Exposure routes	: Skin contact
Species	: Mouse
Result	: negative

2-Methyl-2H-isothiazol-3-one:

Exposure routes	: Skin contact
Result	: positive

Assessment	: Probability or evidence of high skin sensitisation rate in humans
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1,2-Benzisothiazol-3(2H)-one:

Test Type	: Maximisation Test
Exposure routes	: Skin contact
Species	: Guinea pig
Method	: OECD Test Guideline 406
Result	: positive

Assessment	: Probability or evidence of high skin sensitisation rate in humans
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Germ cell mutagenicity

Not classified based on available information.

Product:

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

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate:

Germ cell mutagenicity- Assessment	: Weight of evidence does not support classification as a germ cell mutagen.
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2-Methyl-2H-isothiazol-3-one:

Genotoxicity in vitro	: Test Type: Chromosome aberration test in vitro Result: negative
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Genotoxicity in vivo	: Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo Species: Rat Application Route: Ingestion Method: OECD Test Guideline 486 Result: negative
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1,2-Benzisothiazol-3(2H)-one:

Genotoxicity in vitro	: Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: negative Test Type: In vitro mammalian cell gene mutation test Method: OECD Test Guideline 476 Result: negative Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: positive
Genotoxicity in vivo	: Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo Species: Rat Application Route: Ingestion Method: OECD Test Guideline 486 Result: negative

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

Product:

Reproductive toxicity - Assessment	: Weight of evidence does not support classification for reproductive toxicity
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Components:

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate:

Reproductive toxicity - Assessment	: Weight of evidence does not support classification for reproductive toxicity
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2-Methyl-2H-isothiazol-3-one:

Effects on fertility	: Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Ingestion Method: OECD Test Guideline 416 Result: negative
Effects on foetal development	: Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Method: OECD Test Guideline 414 Result: negative

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

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Effects on fertility	:	Test Type: Fertility/early embryonic development
	:	Species: Rat
	:	Application Route: Ingestion
	:	Method: OPPTS 870.3800
	:	Result: negative

STOT - single exposure

Causes damage to organs (Lungs, larynx) if inhaled.

Product:

Exposure routes	:	inhalation (dust/mist/fume)
Target Organs	:	Lungs, larynx
Assessment	:	Shown to produce significant health effects in animals at concentrations of 1.0 mg/l/4h or less.
Remarks	:	Based on data from similar materials

Components:

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate:

Exposure routes	:	inhalation (dust/mist/fume)
Target Organs	:	Lungs, larynx
Assessment	:	Shown to produce significant health effects in animals at concentrations of 1.0 mg/l/4h or less.
Remarks	:	Based on data from similar materials

STOT - repeated exposure

Not classified based on available information.

Product:

Assessment	:	No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.
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Components:

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate:

Assessment	:	No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.
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1,2-Benzisothiazol-3(2H)-one:

Assessment	:	No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.
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Repeated dose toxicity

Product:

Species	:	Mouse
NOAEL	:	300 mg/kg
LOAEL	:	> 300 mg/kg

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Application Route : Ingestion
Exposure time : 28 d
Remarks : No significant adverse effects were reported

Components:

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

Species	: Dog
NOAEL	: 5 mg/kg
LOAEL	: 20 mg/kg
Application Route	: Ingestion
Exposure time	: 90 Days
Method	: Directive 67/548/EEC, Annex, B.27

Aspiration toxicity

Not classified based on available information.

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish	: LC50 (Oncorhynchus mykiss (rainbow trout)): > 485 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): > 113 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic plants	: ErC50 (Pseudokirchneriella subcapitata (green algae)): 94 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
	: NOEC (Pseudokirchneriella subcapitata (green algae)): 19.8 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

Components:

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate:

Toxicity to fish	: LC50 (Oncorhynchus mykiss (rainbow trout)): > 117 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): > 22.6 mg/l Exposure time: 48 h Method: OECD Test Guideline 202

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Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 18.8 mg/l Exposure time: 72 h Method: OECD Test Guideline 201
		NOEC (Pseudokirchneriella subcapitata (green algae)): 3.9 mg/l Exposure time: 72 h Method: OECD Test Guideline 201

2-Methyl-2H-isothiazol-3-one:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 4.77 - 6 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 0.93 - 1.9 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Skeletonema costatum (marine diatom)): 0.1 mg/l Exposure time: 72 h
		ErC50 (Skeletonema costatum (marine diatom)): 0.0695 mg/l Exposure time: 24 h
		EC10 (Pseudokirchneriella subcapitata (green algae)): 0.024 mg/l Exposure time: 24 h
M-Factor (Acute aquatic toxicity)	:	10
Toxicity to fish (Chronic toxicity)	:	NOEC: 2.1 mg/l Exposure time: 33 d Species: Pimephales promelas (fathead minnow)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.04 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)
M-Factor (Chronic aquatic toxicity)	:	1

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

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 0.74 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 2.24 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 0.1087 mg/l Exposure time: 24 h

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		EC10 (Pseudokirchneriella subcapitata (green algae)): 0.0268 mg/l Exposure time: 24 h
M-Factor (Acute aquatic toxicity)	:	1
Toxicity to microorganisms	:	NOEC : 10.3 mg/l Exposure time: 3 h Method: OECD Test Guideline 209
Toxicity to fish (Chronic toxicity)	:	NOEC: 0.28 mg/l Exposure time: 33 d Species: Pimephales promelas (fathead minnow) Method: OECD Test Guideline 210
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.91 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211
M-Factor (Chronic aquatic toxicity)	:	1

12.2 Persistence and degradability

Product:

Biodegradability : Result: Not readily biodegradable.

Components:

Ammonium salts of mono- and bis[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl and/or poly (substituted alkene)] phosphate:

Biodegradability : Result: Not readily biodegradable.

2-Methyl-2H-isothiazol-3-one:

Biodegradability : Result: Not readily biodegradable.

12.3 Bioaccumulative potential

Components:

2-Methyl-2H-isothiazol-3-one:

Partition coefficient: n-octanol/water : log Pow: -0.34

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

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 6.62

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Partition coefficient: n-octanol/water : log Pow: 0.7

12.4 Mobility in soil

No data available

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.

12.6 Other adverse effects

Product:

Endocrine disrupting potential : This substance/mixture does not contain components considered to have endocrine disrupting properties for environment according to UK REACH Article 57(f).

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of in accordance with local regulations.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.
Do not dispose of waste into sewer.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
If not otherwise specified: Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number

ADN : Not regulated as a dangerous good
ADR : Not regulated as a dangerous good
RID : Not regulated as a dangerous good
IMDG : Not regulated as a dangerous good
IATA : Not regulated as a dangerous good

14.2 UN proper shipping name

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ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA	:	Not regulated as a dangerous good

14.4 Packing group

ADN	:	Not regulated as a dangerous good
ADR	:	Not regulated as a dangerous good
RID	:	Not regulated as a dangerous good
IMDG	:	Not regulated as a dangerous good
IATA (Cargo)	:	Not regulated as a dangerous good
IATA (Passenger)	:	Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

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

Remarks : 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 List of restrictions (Annex 17)	:	Number on list 65: Diammonium hydrogenorthophosphate, Ammonium dihydrogen phosphate
UK REACH List of restrictions (Annex 17)	:	Substance(s) or mixture(s) are listed

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		here according to their appearance in the regulation, irrespective of their use/purpose or the conditions of the restriction. Please refer to the conditions in corresponding Regulation to determine whether an entry is applicable to the placing on the market or not.
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 (EC) 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)		
H2	ACUTE TOXIC	Quantity 1 50 t
		Quantity 2 200 t

Other regulations:

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to protection of young people at work contained in Regulation 19) and of Directive 94/33/EC on the protection of young people at work.

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

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Full text of H-Statements

H301	: Toxic if swallowed.
H302	: Harmful if swallowed.
H311	: Toxic in contact with skin.
H314	: Causes severe skin burns and eye damage.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H318	: Causes serious eye damage.
H330	: Fatal if inhaled.
H370	: Causes damage to organs if inhaled.
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
Skin Corr.	: Skin corrosion
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
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
2004/37/EC	: Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
2006/15/EC	: Europe. Indicative occupational exposure limit values
2017/164/EU	: Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
GB EH40	: UK. EH40 WEL - Workplace Exposure Limits
2000/39/EC / TWA	: Limit Value - eight hours
2000/39/EC / STEL	: Short term exposure limit
2004/37/EC / STEL	: Short term exposure limit
2004/37/EC / TWA	: Long term exposure limit
2006/15/EC / TWA	: Limit Value - eight hours
2017/164/EU / STEL	: Short term exposure limit
2017/164/EU / TWA	: Limit Value - eight hours
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 - 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 car-

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rying 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

Further information

Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Classification of the mixture:

Acute Tox. 2	H330
Skin Sens. 1	H317
STOT SE 1	H370

Classification procedure:

Expert judgement and weight of evidence determination.
Calculation method
Based on product data or assessment

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GB / EN