

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

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

1.1 Product identifier

Trade name : Capstone™ FS-61 Fluorosurfactant

SDS-Identcode : 130000051565

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 this product in consumer spray applications except in water-based coatings where the maximum concentration of active ingredient does not exceed 0.1 wt percent.
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)

Acute toxicity, Category 1	H330: Fatal if inhaled.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Specific target organ toxicity - repeated exposure, Category 2	H373: May cause damage to organs through prolonged or repeated exposure.

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

Long-term (chronic) aquatic hazard, Category 1

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

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements :
H317 May cause an allergic skin reaction.
H330 Fatal if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P273 Avoid release to the environment.
P280 Wear protective gloves.

Response:

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P314 Get medical advice/ attention if you feel unwell.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P391 Collect spillage.

Hazardous components which must be listed on the label:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts
1,2-Benzisothiazol-3(2H)-one
2-Methyl-2H-isothiazol-3-one

2.3 Other hazards

This substance/mixture contains components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB).
Inhalation of decomposition products in high concentration may cause shortness of breath (lung oedema).

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No.	Classification	Concentration (% w/w)

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version 7.0 Revision Date: 26.11.2024 SDS Number: 6682887-00013 Date of last issue: 01.08.2024
Date of first issue: 10.10.2020

	Registration number		
Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts	Not Assigned 01-2119436357-36	Acute Tox. 1; H330 STOT RE 2; H373 (Liver) Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 10	$\geq 10 - < 20$
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	$\geq 0.0025 - < 0.025$
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 aquatic toxicity): 1	$\geq 0.0025 - < 0.025$

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.

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

- | | | |
|----------------------------|---|---|
| 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
Lung oedema
Cough

Eye contact may provoke the following symptoms
Lachrymation
Redness
Discomfort |
| Risks | : | May cause an allergic skin reaction.
Fatal if inhaled.
May cause damage to organs through prolonged or repeated exposure. |

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 (CO ₂)
Dry chemical |
| Unsuitable extinguishing | : | None known. |

Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

media

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 protective 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.
Local authorities should be advised if significant spillages cannot be contained.

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 deter-

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

mine 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 vapours.
Do not swallow.
Avoid contact with eyes.
Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment
Keep container tightly closed.
Take care to prevent spills, waste and minimize release to the environment.

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 |

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version 7.0 Revision Date: 26.11.2024 SDS Number: 6682887-00013 Date of last issue: 01.08.2024
Date of first issue: 10.10.2020

Recommended storage temperature : 5 - 40 °C

Further information on storage stability : Perishable if frozen.

Do not freeze.

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	2000/39/EC
		STEL	3 ppm 2.5 mg/m ³	2000/39/EC
Carbonyl difluoride	353-50-4	TWA	2.5 mg/m ³ (Fluorine)	2000/39/EC
Carbon dioxide	124-38-9	TWA	5,000 ppm 9,000 mg/m ³	2006/15/EC
Carbon monoxide	630-08-0	STEL	100 ppm 117 mg/m ³	2017/164/EU
		TWA	20 ppm 23 mg/m ³	2017/164/EU
		TWA	20 ppm 23 mg/m ³	2004/37/EC
		STEL	100 ppm 117 mg/m ³	2004/37/EC

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

Substance name	End Use	Exposure routes	Potential health effects	Value
Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts	Workers	Inhalation	Acute local effects	0.3 mg/m ³
	Workers	Skin contact	Long-term systemic effects	1.2 mg/kg bw/day
	Workers	Inhalation	Long-term systemic effects	0.042 mg/m ³

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version 7.0 Revision Date: 26.11.2024 SDS Number: 6682887-00013 Date of last issue: 01.08.2024
Date of first issue: 10.10.2020

	Workers	Inhalation	Long-term local effects	0.24 mg/m3
	Consumers	Skin contact	Long-term systemic effects	0.6 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	0.0104 mg/m3
	Consumers	Ingestion	Long-term systemic effects	0.006 mg/kg bw/day
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

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

Substance name	Environmental Compartment	Value
Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts	Fresh water	0.00093 mg/l
	Marine water	0.000093 mg/l
	Intermittent use/release	0.0303 mg/l
	Fresh water sediment	0.00493 mg/kg dry weight (d.w.)
	Soil	1 mg/kg dry weight (d.w.)
1,2-Benzisothiazol-3(2H)-one	Sewage treatment plant	100 mg/l
	Marine sediment	0.00049 mg/kg dry weight (d.w.)
	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

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

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.
Filter type	: Combined particulates and acidic gas/vapour type (E-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	: viscous liquid
Colour	: colourless, yellow
Odour	: odourless
Odour Threshold	: No data available
pH	: 7.5 - 9
Melting point/freezing point	: 0 °C
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	: No data available

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

flammability limit

Vapour pressure : No data available

Relative vapour density : No data available

Relative density : 1.1

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

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

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

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 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : Acute toxicity estimate (Rat): 0.005 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Expert judgement

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

Components:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:

Acute oral toxicity : LD50 (Rat): > 1,000 mg/kg
Method: OECD Test Guideline 425
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : Approximate Lethal Concentration (Rat): 0.047 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 1,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

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

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

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
Result	: No skin irritation

Components:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:

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
--------	---

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

Result	: Skin irritation
--------	-------------------

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Species	: Rabbit
Result	: No eye irritation

Components:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:

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

Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

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

|||Result : Irreversible effects on the eye

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.

Components:**Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:**

|||Test Type : Local lymph node assay (LLNA)
|||Exposure routes : Skin contact
|||Species : Mouse
|||Method : OECD Test Guideline 429
|||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

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

Germ cell mutagenicity

Not classified based on available information.

Components:**Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:**

|||Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
||| : Method: OECD Test Guideline 471

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version 7.0	Revision Date: 26.11.2024	SDS Number: 6682887-00013	Date of last issue: 01.08.2024 Date of first issue: 10.10.2020
----------------	------------------------------	------------------------------	---

	Result: negative
	Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: negative
Germ cell mutagenicity- Assessment	: Weight of evidence does not support classification as a germ cell mutagen.

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

Genotoxicity in vitro	: Test Type: Chromosome aberration test in vitro Result: negative
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

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.

Components:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:

Effects on fertility	: Test Type: Reproduction/Developmental toxicity screening test Species: Rat
----------------------	---

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

		Application Route: Ingestion Method: OECD Test Guideline 415 Result: negative Remarks: Based on data from similar materials
Effects on foetal development	:	Test Type: Reproduction/Developmental toxicity screening test Species: Rat Application Route: Ingestion Method: OECD Test Guideline 414 Result: negative Remarks: Based on data from similar materials
Reproductive toxicity - Assessment	:	Weight of evidence does not support classification for reproductive toxicity

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:

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

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Components:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:

Exposure routes	:	Ingestion
Target Organs	:	Liver
Assessment	:	Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

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

Assessment	:	No significant health effects observed in animals at concentra-
------------	---	---

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

|| tions of 100 mg/kg bw or less.

Repeated dose toxicity

Components:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:

Species	: Rat, male and female
LOAEL	: 3.6 mg/kg
Application Route	: Ingestion
Exposure time	: 90 Days
Method	: OECD Test Guideline 408
Remarks	: Based on data from similar materials

Species	: Rat, male
NOAEL	: 100 mg/kg
LOAEL	: 1,000 mg/kg
Application Route	: Skin contact
Exposure time	: 28 Days
Method	: OECD Test Guideline 410
Remarks	: Based on data from similar materials

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.

Experience with human exposure

Product:

Inhalation	: Target Organs: Lungs Symptoms: Irritation, Shortness of breath, Symptoms may be delayed.
------------	---

SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to soil dwelling organisms	: LC50: > 1,000 mg/kg Exposure time: 14 d Species: Eisenia fetida (earthworms)
	: NOEC: 125 mg/kg Species: Eisenia fetida (earthworms)

Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

LOEC: 250 mg/kg
Species: Eisenia fetida (earthworms)

Components:**Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:**

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 36.4 mg/l Exposure time: 96 h Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 3.24 mg/l Exposure time: 48 h Method: OECD Test Guideline 202 Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): > 22.44 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials NOEC (Pseudokirchneriella subcapitata (green algae)): 22.44 mg/l Exposure time: 72 h Method: OECD Test Guideline 201 Remarks: Based on data from similar materials
Toxicity to fish (Chronic toxicity)	:	NOEC: 0.88 mg/l Exposure time: 90 d Species: Oncorhynchus mykiss (rainbow trout) Method: OECD Test Guideline 210 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0.0093 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 Remarks: Based on data from similar materials
M-Factor (Chronic aquatic toxicity)	:	10

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

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

	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 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

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

M-Factor (Chronic aquatic toxicity) : 1

12.2 Persistence and degradability

Components:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:

Biodegradability : Result: Not readily biodegradable.
Method: OECD Test Guideline 301D
Remarks: Based on data from similar materials

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

Biodegradability : Result: Not readily biodegradable.

12.3 Bioaccumulative potential

Components:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Bioconcentration factor (BCF): 4
Remarks: Based on data from similar materials

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

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 components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB).

Components:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version 7.0	Revision Date: 26.11.2024	SDS Number: 6682887-00013	Date of last issue: 01.08.2024 Date of first issue: 10.10.2020
----------------	------------------------------	------------------------------	---

Assessment : PBT substance
vPvB substance

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:

Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts:

Additional ecological information : Information given is based on data on the components and the ecotoxicology of similar products.

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

14.2 UN proper shipping name

ADN : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts)

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version 7.0	Revision Date: 26.11.2024	SDS Number: 6682887-00013	Date of last issue: 01.08.2024 Date of first issue: 10.10.2020
----------------	------------------------------	------------------------------	---

ADR : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts)

RID : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts)

IMDG : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts)

IATA : Environmentally hazardous substance, liquid, n.o.s.
(Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts)

14.3 Transport hazard class(es)

	Class	Subsidiary risks
ADN	: 9	
ADR	: 9	
RID	: 9	
IMDG	: 9	
IATA	: 9	

14.4 Packing group

ADN
Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

ADR
Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9
Tunnel restriction code : (-)

RID
Packing group : III
Classification Code : M6
Hazard Identification Number : 90
Labels : 9

IMDG
Packing group : III
Labels : 9
EmS Code : F-A, S-F

IATA (Cargo)
Packing instruction (cargo aircraft) : 964

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

Packing instruction (LQ) : Y964
Packing group : III
Labels : Miscellaneous

IATA (Passenger)

Packing instruction (passenger aircraft) : 964
Packing instruction (LQ) : Y964
Packing group : III
Labels : Miscellaneous

14.5 Environmental hazards

ADN

Environmentally hazardous : yes

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : yes

IATA (Passenger)

Environmentally hazardous : yes

IATA (Cargo)

Environmentally hazardous : yes

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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

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

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Other information : Capstone™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC.
Chemours™ and the Chemours Logo are trademarks of The Chemours Company.
Before use read Chemours safety information.
For further information contact the local Chemours office or nominated distributors.

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

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

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.
H373	: May cause damage to organs through prolonged or repeated exposure.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.

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 RE	: Specific target organ toxicity - repeated 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
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

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-

Capstone™ FS-61 Fluorosurfactant

Version	Revision Date:	SDS Number:	Date of last issue: 01.08.2024
7.0	26.11.2024	6682887-00013	Date of first issue: 10.10.2020

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. 1	H330
Skin Sens. 1	H317
STOT RE 2	H373
Aquatic Chronic 1	H410

Classification procedure:

Expert judgement and weight of evidence determination.
Calculation method
Calculation method
Calculation method

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

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

NG / EN