

SAFETY DATA SHEET



Capstone™ FS-50 Fluorosurfactant

| | | | |
|---------|----------------|---------------|---------------------------------|
| Version | Revision Date: | SDS Number: | Date of last issue: 29.05.2024 |
| 10.1 | 10.02.2025 | 1334690-00050 | Date of first issue: 27.02.2017 |

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

1.1 Product identifier

Trade name : Capstone™ FS-50 Fluorosurfactant

SDS-Identcode : 130000042667

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

Use of the Sub-stance/Mixture : Fluoroaddivitive

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 (France) S.A.S.
Rue Frederic Kuhlmann
60870 Villers-Saint-Paul France

Telephone : +33 (0) 3 44 74 44 58

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

1.4 Emergency telephone number

0-800-983-611 (Toll free in-country) or +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

| | |
|--|--|
| Flammable liquids, Category 3 | H226: Flammable liquid and vapour. |
| Long-term (chronic) aquatic hazard, Category 2 | H411: Toxic to aquatic life with long lasting effects. |

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

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Hazard pictograms :



Signal word : Warning

Hazard statements : H226 Flammable liquid and vapour.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P391 Collect spillage.

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).

Vapours may form explosive mixture with air.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

| Chemical name | CAS-No. EC-No. Index-No. Registration number | Classification | Concentration (% w/w) |
|--|---|--|--------------------------|
| Ethanol | 64-17-5 200-578-6 603-002-00-5 | Flam. Liq. 2; H225 Eye Irrit. 2; H319 | >= 30 - < 50 |
| Carboxymethyldimethyl-3- [[[(3,3,4,4,5,5,6,6,7,7,8,8,8- tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide | 34455-29-3 252-046-8 01-2120119140-76- 0000 | Aquatic Chronic 2; H411 | >= 25 - < 30 |

For explanation of abbreviations see section 16.

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SECTION 4: First aid measures

4.1 Description of first aid measures

- | | | |
|----------------------------|---|---|
| Protection of first-aiders | : | No special precautions are necessary for first aid responders. |
| If inhaled | : | If inhaled, remove to fresh air. Get medical attention if symptoms occur. |
| In case of skin contact | : | Remove contaminated clothing and shoes. |
| 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 | : | Dizziness Blurred vision Headache Irritation Nausea Pain Lachrymation Vomiting Eye contact may provoke the following symptoms tearing Swelling of tissue Redness Impairment of vision |
|----------|---|---|

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 media | : | High volume water jet |

5.2 Special hazards arising from the substance or mixture

- | | | |
|---------------------------------------|---|---|
| Specific hazards during fire-fighting | : | Do not use a solid water stream as it may scatter and spread fire. Flash back possible over considerable distance. |
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Vapours may form explosive mixtures with air.
Exposure to combustion products may be a hazard to health.

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

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 : 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 : Remove all sources of ignition.
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 : Non-sparking tools should be used.
Soak up with inert absorbent material.
Suppress (knock down) gases/vapours/mists with a water spray jet.
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

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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. Use explosion-proof electrical, ventilating and lighting equipment. |
| Advice on safe handling | : | Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure assessment Non-sparking tools should be used. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. 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. 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. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition. |
| Advice on common storage | : | Do not store with the following product types: Strong oxidizing agents Self-reactive substances and mixtures Organic peroxides Flammable solids Pyrophoric liquids Pyrophoric solids Self-heating substances and mixtures Substances and mixtures, which in contact with water, emit flammable gases Explosives Gases Very acutely toxic substances and mixtures |

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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

| Components | CAS-No. | Value type (Form of exposure) | Control parameters | Basis |
|---|---------|-------------------------------|--------------------|--------|
| Ethanol | 64-17-5 | OEL- RL STEL/C | 2.000 ppm | ZA OEL |
| Further information: Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents | | | | |

Occupational exposure limits of decomposition products

| Components | CAS-No. | Value type (Form of exposure) | Control parameters | Basis |
|---|-----------|-------------------------------|--------------------------|------------|
| hydrofluoric acid | 7664-39-3 | OEL- RL STEL/C | 4 ppm (Fluorine) | ZA OEL |
| Further information: danger of cutaneous absorption, Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents, denotes carcinogenicity, which is based on GHS categorisation, including category 1A, 1B | | | | |
| | | OEL-RL | 1 ppm (Fluorine) | ZA OEL |
| Further information: danger of cutaneous absorption, Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents, denotes carcinogenicity, which is based on GHS categorisation, including category 1A, 1B | | | | |
| | | TWA | 1,8 ppm 1,5 mg/m3 | 2000/39/EC |
| | | STEL | 3 ppm 2,5 mg/m3 | 2000/39/EC |
| Carbonyl difluoride | 353-50-4 | OEL-RL | 5 mg/m3 (Fluorine) | ZA OEL |
| Further information: Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents | | | | |
| | | TWA | 2,5 mg/m3 (Fluorine) | 2000/39/EC |
| Carbon dioxide | 124-38-9 | OEL-RL | 10.000 ppm | ZA OEL |
| Further information: Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents | | | | |
| | | OEL- RL STEL/C | 60.000 ppm | ZA OEL |
| Further information: Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents | | | | |
| | | TWA | 5.000 ppm 9.000 mg/m3 | 2006/15/EC |
| Carbon monoxide | 630-08-0 | OEL-RL | 50 ppm | ZA OEL |
| Further information: Occupational Exposure Limits - Restricted Limits For Hazardous Chemical Agents | | | | |

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| | | | | |
|--|--|------|----------------------------------|-------------|
| | | 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 |
|----------------|-----------|-----------------|----------------------------|-----------------------|
| Ethanol | Workers | Inhalation | Long-term systemic effects | 380 mg/m ³ |
| | Workers | Skin contact | Long-term systemic effects | 267 mg/kg bw/day |
| | Consumers | Inhalation | Long-term systemic effects | 114 mg/m ³ |

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

| Substance name | Environmental Compartment | Value |
|---|----------------------------|---|
| Ethanol | Fresh water | 0,96 mg/l |
| | Freshwater - intermittent | 2,75 mg/l |
| | Marine water | 0,79 mg/l |
| | Sewage treatment plant | 580 mg/l |
| | Fresh water sediment | 3,6 mg/kg dry weight (d.w.) |
| | Marine sediment | 2,9 mg/kg dry weight (d.w.) |
| | Soil | 0,63 mg/kg dry weight (d.w.) |
| | Oral (Secondary Poisoning) | 380 mg/kg food |
| Carboxymethyldimethyl-3-[[[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide | Fresh water | 0,00326 mg/l |
| | Freshwater - intermittent | 0,0326 mg/l |
| | Marine water | 0,000326 mg/l |
| | Fresh water sediment | 0,0176 mg/l 0,0176 mg/kg dry weight (d.w.) |
| | Marine sediment | 0,00176 mg/kg dry weight (d.w.) |
| | Sewage treatment plant | 10 mg/l |
| | Soil | 0,00133 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.
Use explosion-proof electrical, ventilating and lighting equipment.

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Personal protective equipment

- Eye/face protection : Wear the following personal protective equipment:
Safety glasses
- Hand protection
- Remarks : Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Take note that the product is flammable, which may impact the selection of hand protection. 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.
Wear the following personal protective equipment:
If assessment demonstrates that there is a risk of explosive atmospheres or flash fires, use flame retardant antistatic protective clothing.
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, acidic gas/vapour and organic vapour type (AE-P)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Appearance : liquid
- Colour : clear, amber
- Odour : alcohol-like
- Odour Threshold : No data available
- pH : 5 - 7
- Melting point/freezing point : No data available
- Initial boiling point and boiling range : 82 °C
- Flash point : 25 °C
- Evaporation rate : No data available
- Flammability (solid, gas) : Not applicable

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| | | |
|--|---|--|
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower flammability limit | : | No data available |
| Vapour pressure | : | 53 hPa (20 °C) |
| Relative vapour density | : | No data available |
| Relative density | : | 1 |
| Solubility(ies) Water solubility | : | completely soluble |
| Partition coefficient: n-octanol/water | : | Not applicable |
| Auto-ignition temperature | : | > 100 °C |
| Decomposition temperature | : | > 200 °C |
| Viscosity Viscosity, kinematic | : | 9,7 mm ² /s (20 °C) |
| Explosive properties | : | Not explosive |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |

9.2 Other information

| | | |
|------------------------|---|-----------------------------|
| Flammability (liquids) | : | Ignitable (see flash point) |
| 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 | : | Flammable liquid and vapour. Vapours may form explosive mixture with air. Can react with strong oxidizing agents. Hazardous decomposition products will be formed at elevated temperatures. |
|---------------------|---|--|

10.4 Conditions to avoid

| | | |
|---------------------|---|--------------------------|
| Conditions to avoid | : | Heat, flames and sparks. |
|---------------------|---|--------------------------|

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10.5 Incompatible materials

Materials to avoid : Oxidizing agents

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

Not classified based on available information.

Components:

Ethanol:

Acute oral toxicity : LD50 (Rat): 10.470 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat, male): 116,9 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): > 15.800 mg/kg

Carboxymethyldimethyl-3-[[[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 425
Assessment: The substance or mixture has no acute oral toxicity

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.

Components:

Ethanol:

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

Carboxymethyldimethyl-3-[[[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide:

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

Serious eye damage/eye irritation

Not classified based on available information.

Components:

Ethanol:

| | | |
|---------|---|--|
| Species | : | Rabbit |
| Method | : | OECD Test Guideline 405 |
| Result | : | Irritation to eyes, reversing within 21 days |

Carboxymethyldimethyl-3-[[[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide:

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

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Respiratory sensitisation

Not classified based on available information.

Components:

Ethanol:

| | | |
|-----------------|---|--------------------------------|
| Test Type | : | Mouse ear swelling test (MEST) |
| Exposure routes | : | Skin contact |
| Species | : | Mouse |
| Result | : | negative |

Carboxymethyldimethyl-3-[[[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide:

| | | |
|-----------------|---|-------------------------|
| Exposure routes | : | Skin contact |
| Species | : | Guinea pig |
| Method | : | OECD Test Guideline 406 |
| Result | : | negative |

Germ cell mutagenicity

Not classified based on available information.

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Components:

Ethanol:

| | | |
|-----------------------|---|--|
| 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 Result: negative |
| Genotoxicity in vivo | : | Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Rat Application Route: Ingestion Result: negative |

Carboxymethyldimethyl-3-[[[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide:

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

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

Components:

Ethanol:

| | | |
|----------------------|---|---|
| Effects on fertility | : | Test Type: Two-generation reproduction toxicity study Species: Mouse Application Route: Ingestion Result: negative |
|----------------------|---|---|

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Components:

Carboxymethyldimethyl-3-[[[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide:

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

Components:

Ethanol:

| | |
|-------------------|---------------|
| Species | : Rat |
| NOAEL | : 1.730 mg/kg |
| LOAEL | : 3.200 mg/kg |
| Application Route | : Ingestion |
| Exposure time | : 90 Days |

Carboxymethyldimethyl-3-[[[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide:

| | |
|-------------------|---------------|
| Species | : Rat |
| NOAEL | : 200 mg/kg |
| LOAEL | : 1.000 mg/kg |
| Application Route | : Ingestion |
| Exposure time | : 28 d |

Aspiration toxicity

Not classified based on available information.

Experience with human exposure

Product:

| | |
|--------------|--|
| Inhalation | : Symptoms: Irritation, Headache, Dizziness |
| Skin contact | : Symptoms: Irritation |
| Eye contact | : Symptoms: Irritation, Lachrymation, Pain, Blurred vision |
| Ingestion | : Symptoms: Dizziness, Nausea, Irritation, Pain, Vomiting |

SECTION 12: Ecological information

12.1 Toxicity

Components:

Ethanol:

| | |
|---|--|
| Toxicity to fish | : LC50 (Pimephales promelas (fathead minnow)): 14.200 mg/l Exposure time: 96 h |
| Toxicity to daphnia and other aquatic invertebrates | : EC50 (Ceriodaphnia dubia (water flea)): 5.012 mg/l Exposure time: 48 h |
| Toxicity to algae/aquatic plants | : ErC50 (Chlorella vulgaris (Fresh water algae)): 275 mg/l Exposure time: 72 h EC10 (Chlorella vulgaris (Fresh water algae)): 11,5 mg/l Exposure time: 72 h |

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Toxicity to microorganisms : EC50 (Protozoa): 5.800 mg/l
Exposure time: 4 h

Toxicity to fish (Chronic toxicity) : NOEC: \geq 79 mg/l
Exposure time: 100 d
Species: *Oryzias latipes* (Japanese medaka)

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 9,6 mg/l
Exposure time: 9 d
Species: *Daphnia magna* (Water flea)

Carboxymethyldimethyl-3-[[[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide:

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 144 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (*Pseudokirchneriella subcapitata* (green algae)): 3,26 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

12.2 Persistence and degradability

Components:

Ethanol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 84 %
Exposure time: 20 d

Carboxymethyldimethyl-3-[[[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide:

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

12.3 Bioaccumulative potential

Components:

Ethanol:

Partition coefficient: n-octanol/water : log Pow: -0,35

Carboxymethyldimethyl-3-[[[3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide:

Partition coefficient: n-octanol/water : log Pow: 1

12.4 Mobility in soil

No data available

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

SECTION 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. Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death. If not otherwise specified: Dispose of as unused product.

SECTION 14: Transport information**14.1 UN number**

| | |
|------|-----------|
| ADN | : UN 1170 |
| ADR | : UN 1170 |
| RID | : UN 1170 |
| IMDG | : UN 1170 |
| IATA | : UN 1170 |

14.2 UN proper shipping name

| | |
|-----|--------------------|
| ADN | : ETHANOL SOLUTION |
| ADR | : ETHANOL SOLUTION |

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| | | |
|-------------|---|---|
| RID | : | ETHANOL SOLUTION |
| IMDG | : | ETHANOL SOLUTION (Carboxymethyldimethyl-3-[[[(3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl)sulphonyl]amino]propylammonium hydroxide) |
| IATA | : | Ethanol solution |

14.3 Transport hazard class(es)

| | Class | Subsidiary risks |
|-------------|-------|------------------|
| ADN | : | 3 |
| ADR | : | 3 |
| RID | : | 3 |
| IMDG | : | 3 |
| IATA | : | 3 |

14.4 Packing group

| | |
|--|---------------------|
| ADN | |
| Packing group | : III |
| Classification Code | : F1 |
| Hazard Identification Number | : 30 |
| Labels | : 3 |
| ADR | |
| Packing group | : III |
| Classification Code | : F1 |
| Hazard Identification Number | : 30 |
| Labels | : 3 |
| Tunnel restriction code | : (D/E) |
| RID | |
| Packing group | : III |
| Classification Code | : F1 |
| Hazard Identification Number | : 30 |
| Labels | : 3 |
| IMDG | |
| Packing group | : III |
| Labels | : 3 |
| EmS Code | : F-E, S-D |
| IATA (Cargo) | |
| Packing instruction (cargo aircraft) | : 366 |
| Packing instruction (LQ) | : Y344 |
| Packing group | : III |
| Labels | : Flammable Liquids |
| IATA (Passenger) | |
| Packing instruction (passenger aircraft) | : 355 |
| Packing instruction (LQ) | : Y344 |
| Packing group | : III |
| Labels | : Flammable Liquids |

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14.5 Environmental hazards

ADN

Environmentally hazardous : yes

ADR

Environmentally hazardous : yes

RID

Environmentally hazardous : yes

IMDG

Marine pollutant : 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.

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

H225 : Highly flammable liquid and vapour.
H319 : Causes serious eye irritation.
H411 : Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Aquatic Chronic : Long-term (chronic) aquatic hazard
Eye Irrit. : Eye irritation
Flam. Liq. : Flammable liquids
2000/39/EC : Europe. Commission Directive 2000/39/EC establishing a first

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| | | |
|-------------------------|---|--|
| 2004/37/EC | : | list of indicative occupational exposure limit values 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 |
| ZA OEL | : | South Africa. The Regulations for Hazardous Chemical Agents, Occupational 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 |
| ZA OEL / OEL-RL | : | Occupational Exposure Limit Restricted limit - 8- hour exposure or equivalent (12 hour shifts) |
| ZA OEL / OEL- RL STEL/C | : | Occupational Exposure Limit Restricted limit - Short term occupational exposure limits / ceiling limits |

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 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

Further information

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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:

| | |
|-------------------|------|
| Flam. Liq. 3 | H226 |
| Aquatic Chronic 2 | H411 |

Classification procedure:

Based on product data or assessment
Calculation method

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.

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