

SAFETY DATA SHEET



Capstone™ FS-61 Fluorosurfactant

Version 16.0	Revision Date: 2024/11/26	SDS Number (Internal): 1336709-00055	MSDS number: AA00152-0000051565 Date of last issue: 2024/08/01 Date of first issue: 2017/02/27
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Capstone™ FS-61 Fluorosurfactant

SDS-Identcode : 130000051565

Recommended use of the chemical and restrictions on use

Recommended use : Surfactant

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.

Manufacturer or supplier's details

Company : Chemours Korea Inc.

Address : 12FL, Majestarcity Tower 1, 12, Seocho-daero 38-gil, Seocho-gu, Seoul 06655, Korea

Telephone : 82-2-2015-5000

Emergency telephone number : 080-880-0454

Telefax : 82-2-2015-5091

2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Inhalation) : Category 1

Skin sensitisation : Category 1

Specific target organ toxicity - repeated exposure : Category 2 (Liver)

Long-term (chronic) aquatic hazard : Category 1

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GHS label elements

Hazard pictograms



Signal word

: Danger

Hazard statements

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

Precautionary statements

: **Prevention:**

P260 Do not breathe vapours.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves.
P284 Wear respiratory protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of water.
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.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal:

P501 Dispose of contents/ container according to waste-related laws

Other hazards which do not result in classification

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

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Substance / Mixture : Mixture

Components

Chemical name	Common Name	CAS-No.	Concentration (% w/w)
Reaction mass of mixed (3,3,4,4,5,5,6,6,7,7,8,8,8-tridecafluorooctyl) phosphates, ammonium salts	No data available	Not Assigned	$\geq 10 - < 20$
2-Methyl-2H-isothiazol-3-one	3(2H)-Isothiazolone, 2-methyl-	2682-20-4	$\geq 0.0025 - < 0.025$

4. 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.
In case of eye contact	: Flush eyes with water as a precaution. Get medical attention if irritation develops and persists.
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.
If inhaled	: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
If swallowed	: If swallowed, DO NOT induce vomiting. Get medical attention if symptoms occur. Rinse mouth thoroughly with water.
Most important symptoms and effects, both acute and delayed	: Inhalation may provoke the following symptoms: Irritation Shortness of breath Lung oedema Cough Eye contact may provoke the following symptoms Lachrymation Redness Discomfort May cause an allergic skin reaction. Fatal if inhaled. May cause damage to organs through prolonged or repeated exposure.

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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).

Notes to physician : Treat symptomatically and supportively.

5. FIREFIGHTING MEASURES

Suitable and unsuitable extinguishing media

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

Unsuitable extinguishing media : None known.

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

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.

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : 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).

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- 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.
- Methods and materials for containment and 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.

7. HANDLING AND STORAGE

- 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.
- Conditions for safe storage : 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.
- Materials to avoid : Do not store with the following product types:
Strong oxidizing agents

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Recommended storage temperature : 5 - 40 °C

Further information on storage stability : Perishable if frozen.

Do not freeze.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Occupational exposure limits of decomposition products

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
hydrofluoric acid	7664-39-3	TWA	0.5 ppm (Fluorine)	KR OEL
	Further information: Substances designated by 'Skin' may be absorbed into the bloodstream through the skin, mucous membrane and eye and contribute to the overall effect. (Skin notation does not apply to the skin irritant)			
		C	3 ppm (Fluorine)	KR OEL
	Further information: Substances designated by 'Skin' may be absorbed into the bloodstream through the skin, mucous membrane and eye and contribute to the overall effect. (Skin notation does not apply to the skin irritant)			
		TWA	0.5 ppm (Fluorine)	ACGIH
		C	2 ppm (Fluorine)	ACGIH
Carbonyl difluoride	353-50-4	TWA	2 ppm	KR OEL
		STEL	5 ppm	KR OEL
		TWA	2 ppm	ACGIH
		STEL	5 ppm	ACGIH
Carbon dioxide	124-38-9	TWA	5,000 ppm	KR OEL
		STEL	30,000 ppm	KR OEL
		TWA	5,000 ppm	ACGIH
		STEL	30,000 ppm	ACGIH
Carbon monoxide	630-08-0	TWA	30 ppm	KR OEL
	Further information: Known human reproductive toxicant			
		STEL	200 ppm	KR OEL

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	Further information: Known human reproductive toxicant			
		TWA	30 ppm	KR PEL
		STEL	200 ppm	KR PEL
		TWA	25 ppm	ACGIH

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. Among the following personal protective equipment, the PPEs which require safety certification need to be certified by KOSHA.

Respiratory protection : Use respiratory protection (gas mask) unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Combined particulates and acidic gas/vapour type

Eye protection : Wear the following personal protective equipment:
Safety glasses

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).

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.

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9. 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
Flammability (liquids)	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Vapour pressure	: No data available
Solubility(ies) Water solubility	: soluble
Relative vapour density	: No data available
Relative density	: 1.1
Partition coefficient: n-octanol/water	: Not applicable
Auto-ignition temperature	: No data available
Decomposition temperature	: > 200 °C

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Viscosity Viscosity, kinematic	: No data available
Explosive properties	: Not explosive
Oxidizing properties	: The substance or mixture is not classified as oxidizing.
Molecular weight	: No data available
Particle characteristics Particle size	: Not applicable

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions	: Reactivity: Not classified as a reactivity hazard. Chemical stability: Stable under normal conditions. Possibility of hazardous reactions: Hazardous decomposition products will be formed at elevated temperatures.
Conditions to avoid	: None known.
Incompatible materials	: None.

Hazardous decomposition products

Thermal decomposition	: hydrofluoric acid Carbonyl difluoride Carbon dioxide Carbon monoxide
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11. TOXICOLOGICAL INFORMATION

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

Acute toxicity

Fatal if inhaled.

Product:

Acute oral toxicity	: LD50 (Rat): > 5,000 mg/kg
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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 Method: OECD Test Guideline 402

Skin corrosion/irritation

No data available

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
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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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Serious eye damage/eye irritation

No data available

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
Result	: No eye irritation
Method	: OECD Test Guideline 405

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

Result	: Irreversible effects on the eye
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Respiratory or skin sensitisation

Respiratory sensitisation

No data available

Skin sensitisation

May cause an allergic skin reaction.

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
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Carcinogenicity

No data available

Components:

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

|| No data available

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

|| No data available

Germ cell mutagenicity

No data available

Components:

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

|| No data available

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

|| No data available

|| 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

Reproductive toxicity

No data available

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Components:

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

|| No data available

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

|| No data available

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

STOT - single exposure

No data available

STOT - repeated exposure

May cause damage to organs (Liver) 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

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

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

Aspiration toxicity

No data available

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

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

NOEC (Eisenia fetida (earthworms)): 125 mg/kg

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

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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 (Oncorhynchus mykiss (rainbow trout)): 0.88 mg/l Exposure time: 90 d Method: OECD Test Guideline 210 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Daphnia magna (Water flea)): 0.0093 mg/l Exposure time: 21 d 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

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	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 (Pimephales promelas (fathead minnow)): 2.1 mg/l Exposure time: 33 d
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	: NOEC (Daphnia magna (Water flea)): 0.04 mg/l Exposure time: 21 d
M-Factor (Chronic aquatic toxicity)	: 1

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

Biodegradability	: Result: Not readily biodegradable.
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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
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2-Methyl-2H-isothiazol-3-one:

Partition coefficient: n-octanol/water	: log Pow: -0.34
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Mobility in soil

No data available

Other adverse effects

Components:

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

Results of PBT and vPvB assessment	:	PBT substance
Additional ecological information	:	Information given is based on data on the components and the ecotoxicology of similar products.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of contents and container according to wastes control act. 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.

Disposal precautions

Dispose of contents and container according to wastes control act.

14. TRANSPORT INFORMATION

International Regulations

UNRTDG

UN number	:	UN 3082
Proper shipping name	:	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)
Class	:	9
Packing group	:	III
Labels	:	9
Environmentally hazardous	:	yes

IATA-DGR

UN/ID No.	:	UN 3082
Proper shipping name	:	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)

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Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964
Environmentally hazardous : yes

IMDG-Code

UN number : UN 3082
Proper shipping name : 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)

Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations

Refer to section 15 for specific national regulation.

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.

15. REGULATORY INFORMATION

National regulatory information

Regulation under the Occupational Safety and Health Act

Harmful Substances Prohibited from Manufacturing

Not applicable

Harmful Substances Required Permission for Manufacture

Not applicable

Harmful Agents to be kept below Occupational Exposure Limits

Not applicable

Harmful Agents Required to be kept below Permission Levels

Not applicable

Hazardous substances requiring management

Not applicable

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Special Management Materials

Not applicable

Controlled Substances Subject to Environment Monitoring

Not applicable

Controlled Substances Subject to Health Examination

Not applicable

Hazardous Substances Subject to Process Safety Management (PSM) Reporting Obligation

Not applicable

K-OSHA Hazardous Substances (Occupational Safety and Health Regulations, Table 1)

Category
Acute toxic substances (inhalation)

K-OSHA Hazardous Substances (Occupational Safety and Health Regulations, Table 9)

Category	Manufacturing or handling quantity
Acute toxic substances (inhalation)	5 kilogram

Regulation under the Chemicals Control Act

Toxic Chemicals

Not applicable

Restricted Chemicals

Not applicable

Prohibited Chemicals

Not applicable

Toxic Release Inventory

Not applicable

Accident Precaution Chemicals

Not applicable

Dangerous Substances Safety Management Act

Not Applicable to Dangerous Materials

Wastes Control Act

Industrial general wastes

Follow article 13 of the act to dispose the product waste

16. OTHER INFORMATION

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

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nominated distributors.

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/>

Issuing date : 2017/02/27

Revision number and date

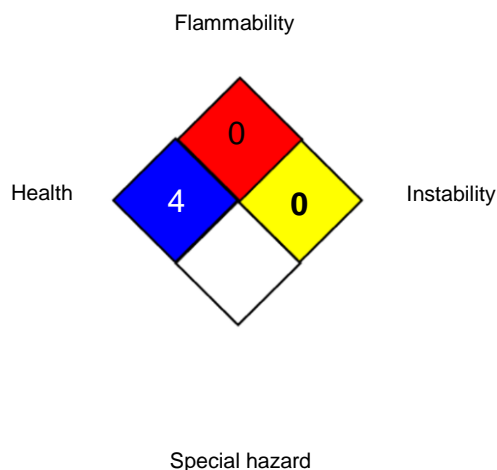
Number of Revision : 54

Revision Date : 2024/11/26

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

Date format : yyyy/mm/dd

NFPA:



Full text of other abbreviations

ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
KR OEL	: Harmful Agents to be kept below Occupational Exposure Limits
KR PEL	: Harmful Agents Required to be kept below Permission Levels
ACGIH / TWA	: 8-hour, time-weighted average
ACGIH / STEL	: Short-term exposure limit
ACGIH / C	: Ceiling limit
KR OEL / TWA	: Time Weighted Average

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KR OEL / STEL : Short Term Exposure Limit
KR OEL / C : Ceiling
KR PEL / TWA : TWA
KR PEL / STEL : STEL

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); 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; ERG - Emergency Response Guide; 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; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; 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; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

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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