

Safety Data Sheet

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

1.1 Product identifier

Fluo-ST2

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

Laboratory Chemical

1.3 Details of the supplier of the safety data sheet

Emulseo
Cheminnov - 14 avenue Pey Berland
33600 Pessac
France
contact@emulseo.com

1.4 Emergency telephone number

In case of emergency: +33(0) 535 541 006

Section 2: Hazards identification

2.1 Classification of the substances or mixture

Not classified according to regulation (EC) no. 1272/2008

2.2 Label elements

Not applicable

2.3 Other hazards

Not known

Section 3: Composition

3.1 Substances

Not applicable – product is a mixture.

3.2 Mixtures

General information

Ingredient	C.A.S. No.	% by Wt	Common Name
Methyl nonafluoroisobutyl ether	163702-08-7	54-90	Propane, 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoro-
Methyl nonafluorobutyl ether	163702-07-6	9-45	Butane, 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-
Polyfluorinated surfactant	-	<0.1	Polymer

Section 4: First aid measures

4.1 Description of the first aid measures

Inhalation Solvent not classified Aspiration Toxic. If spray is inhaled, seek medical advice if any discomfort.

Skin contact Wash with soap and water. If irritation or rash develops, seek medical attention.

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Seek medical attention if irritation arises.

Ingestion If swallowed, DO NOT INDUCE VOMITING. May enter airways. Rinse mouth with water and drink cup of water. If continued discomfort, seek medical attention.

4.2 Most important symptoms and effects, both acute and delayed

INGESTION: No known symptoms

INHALATION: No known symptoms

EYES: Discomfort if first aid not administered

SKIN: Mild discomfort and possible reaction such as itching or redness

4.3 Indication of any immediate medical attention and special treatments needed

Dilute affects area. No special medical treatment needed

Section 5: Firefight measures

5.1 Extinguishing media

Product will not support combustion

Carbon dioxide, water spray, dry chemical for small fires, foam or water spray for large fires (>10 litres)

5.2 Special hazards arising from substances or mixture

None

5.3 Advice for fire fighters

No special precautions

Section 6: Accidental releases measures

6.1 Personal precautions, precaution equipment and emergency procedures

Ventilate the area with fresh air. Observe precautions from other sections.

6.2 Environmental precautions

Avoid release to the environment

6.3 Methods and materials for containment and clearing up

SMALL SPILLS (under 1 litre): Use absorbent material and place in a suitable container for disposal. Wash area with water and detergent.

LARGE SPILLS: (more than 1 litre): Use appropriate containment to avoid contamination of surrounding area.

Section 7: Handling and storage

7.1 Precautions for safe handling

Avoid contact with eye and skin.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed when not in use. For professional use only.

7.3 Specific end uses

Use only as directed as a laboratory chemical

Section 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No occupational exposure limit values exist for any of the components listed in Section 3 of this SDS

Biological limit values

No biological exposure limits noted for the ingredient(s).

8.2 Exposure controls

Appropriate engineering controls

Eye/face protection

Wear safety glasses with side shields (or goggles).

Skin protection

- Hand protection

Wear protective gloves. Nitrile gloves are recommended but be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.

- Other

Wear suitable protective clothing. Full body suit and boots are recommended when handling large volumes or in emergency situations. Wear protective gloves.

Respiratory protection

During heating:

Use a positive pressure supplied-air respirator if there is a potential for over exposure from an uncontrolled release, exposure levels are not known, or under any other circumstances where air-purifying respirators may not provide adequate protection.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

Hygiene measures

Do not get in eyes. Avoid contact with skin. Do not get this material on clothing. When using, do not eat, drink or smoke. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practices.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state Liquid.

Form Liquid.

Colour Colourless.

Odour slide ether odour.

Odour threshold Not available.

pH Not available.

Melting point/freezing point -135°C

Initial boiling point and boiling range 61°C

Flash point No flash point

Evaporation rate 49.

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit None detected

Vapour pressure 26.931 Pa (@ 25°C).

Vapour density 8.6.

Relative density 1.5

Water solubility <12 ppm.
Partition coefficient (n-octanol/water) 3.9
Auto-ignition temperature 405°C
Decomposition temperature Not available.
Viscosity 0.6 mPa.s.
Explosive properties Not classified.
Oxidizing properties Not classified.

9.2 Other information

EU Volatile Organic Compounds 1.5000 g/L
Molecular weight No data available
Percent volatile >90%

Section 10: Stability and reactivity

10.1 Reactivity

This material may be reactive with certain agents under certain conditions – see the remaining headings in this section.

10.2 Chemical Stability

Stable at normal conditions.

10.3 Possibility of hazardous reactions

Hazardous polymerisation does not occur.

10.4 Conditions to avoid

Not determined

10.5 Incompatible materials

Strong bases.

10.6 Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
Tetrafluoroethylene	At Elevated Temperatures – extreme conditions of heat
Carbonyl Fluoride	At Elevated Temperatures – extreme conditions of heat
Carbon monoxide	At Elevated Temperatures – extreme conditions of heat
Carbon dioxide	At Elevated Temperatures – extreme conditions of heat
Silicon tetrafluoride	At Elevated Temperatures – extreme conditions of heat
Hydrogen Fluoride	At Elevated Temperatures – extreme conditions of heat
Perfluoroisobutylene (PFIB)	At Elevated Temperatures – extreme conditions of heat
Toxic Vapor, Gas, Particulate	At Elevated Temperatures – extreme conditions of heat

Refer to section 5.2 for hazardous decomposition products during combustion.

If the product is exposed to extreme condition of heat from misuse or equipment failure, toxic decomposition products that include hydrogen fluoride and perfluoroisobutylene can occur.

Section 11: Toxicology information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1 Information on toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:

No known health effects

Skin Contact:

Contact with the skin during product use is not expected to result in significant irritation

Eye Contact:

Contact with the eyes during product use is not expected to result in significant irritation

Ingestion:

No known health effects.

Toxicological Data:

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for the endpoint or the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Methyl nonafluoroisobutyl ether	Dermal		LD50 estimated to be > 5,000 mg/kg
Methyl nonafluoroisobutyl ether	Inhalation-Vapor (4 hours)	Rat	LC50> 1,000 mg/L
Methyl nonafluoroisobutyl ether	Ingestion	Rat	LD50>5,000 mg/kg
Methyl nonafluorobutyl ether	Dermal		LD50 estimated to be > 5,000 mg/kg
Methyl nonafluorobutyl ether	Inhalation-Vapor (4 hours)	Rat	LC50> 1,000 mg/L
Methyl nonafluorobutyl ether	Ingestion	Rat	LD50>5,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Methyl nonafluoroisobutyl ether	Rabbit	No significant irritation
Methyl nonafluorobutyl ether	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Methyl nonafluoroisobutyl ether	Rabbit	No significant irritation
Methyl nonafluorobutyl ether	Rabbit	No significant irritation

Skin Sensitization

Name	Species	Value
Methyl nonafluoroisobutyl ether	Guinea pig	Not classified
Methyl nonafluorobutyl ether	Guinea pig	Not classified

Respiratory Sensitization

For the component/components, either no data are currently available or the data are not sufficient for classification.

Germ Cell Mutagenicity

Name	Route	Value
Methyl nonafluoroisobutyl ether	In Vitro	Not mutagenic
Methyl nonafluoroisobutyl ether	In Vivo	Not mutagenic
Methyl nonafluorobutyl ether	In Vitro	Not mutagenic
Methyl nonafluorobutyl ether	In Vivo	Not mutagenic

Carcinogenicity

For the component/components, either no data are currently available or the data are not sufficient for classification.

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
Methyl nonafluoroisobutyl ether	Inhalation	Not classified for female reproduction	Rat	NOAEL 129 mg/L	1 generation
Methyl nonafluoroisobutyl ether	Inhalation	Not classified for male reproduction	Rat	NOAEL 129 mg/L	1 generation
Methyl nonafluoroisobutyl ether	Inhalation	Not classified for development	Rat	NOAEL 307 mg/L	During gestation
Methyl nonafluorobutyl ether	Inhalation	Not classified for female reproduction	Rat	NOAEL 129 mg/L	1 generation
Methyl nonafluorobutyl ether	Inhalation	Not classified for male reproduction	Rat	NOAEL 129 mg/L	1 generation
Methyl nonafluorobutyl ether	Inhalation	Not classified for development	Rat	NOAEL 307 mg/L	During gestation

Target Organ(s)

Specific Target Organ Toxicity – single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Methyl nonafluoroisobutyl ether	Inhalation	Nervous system	Not classified	Dog	LOAEL 913 mg/L	10 minutes
Methyl nonafluoroisobutyl ether	Inhalation	Cardiac sensitization	Not classified	Dog	NOAEL 913 mg/L	10 minutes
Methyl nonafluorobutyl ether	Inhalation	Nervous system	Not classified	Dog	LOAEL 913 mg/L	10 minutes
Methyl nonafluorobutyl ether	Inhalation	Cardiac sensitization	Not classified	Dog	NOAEL 913 mg/L	10 minutes

Specific Target Organ Toxicity – repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Methyl nonafluoroisobutyl ether	Inhalation	liver	Not classified	Rat	NOAEL 155 mg/L	13 weeks
Methyl nonafluoroisobutyl ether	Inhalation	Bone, teeth, nails, and/or hair	Not classified	Rat	NOAEL 129 mg/L	11 weeks
Methyl nonafluoroisobutyl ether	Inhalation	Heart/ skin/ endocrine system/ gastrointestinal tract/	Not classified	Rat	NOAEL 155 mg/L	13 weeks

		hematopoietic system/ immune system/ muscles/ nervous system/ eyes/ kidney and/or bladder/ respiratory system				
Methyl nonafluoroisobutyl ether	Ingestion	Endocrine system/ liver/ heart/ hematopoietic system/ immune system/ nervous system/ eyes/ kidney and/or bladder/ respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 weeks
Methyl nonafluorobutyl ether	Inhalation	liver	Not classified	Rat	NOAEL 155 mg/L	13 weeks
Methyl nonafluorobutyl ether	Inhalation	Bone, teeth, nails, and/or hair	Not classified	Rat	NOAEL 129 mg/L	11 weeks
Methyl nonafluorobutyl ether	Inhalation	Heart/ skin/ endocrine system/ gastrointestinal tract/ hematopoietic system/ immune system/ muscles/ nervous system/ eyes/ kidney and/or bladder/ respiratory system	Not classified	Rat	NOAEL 155 mg/L	13 weeks
Methyl nonafluorobutyl ether	Ingestion	Endocrine system/ liver/ heart/ hematopoietic system/ immune system/ nervous system/ eyes/ kidney and/or bladder/ respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 weeks

Aspiration Hazard

For the component/components, either no data are currently available or the data are not sufficient for classification.

Section 12: Ecological information

No data available.

Section 13: Disposal consideration

13.1 Disposal methods

Dispose of contents/ container in accordance with local/regional/national/international regulations.

Prior to disposal, consult all applicable authorities and regulations to insure proper classification. Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, incinerate in permitted waste incineration facility. Proper destruction may require the use of additional fuel during incineration processes. Combustion products will include HF. Facility must be capable of handling halogenated materials. Empty and clean product containers may be disposed as non-hazardous waste. Consult your specific regulations and service providers to determine available options and requirements.

Section 14: Transport information

ADR/IMDG/IATA: Not restricted for transport

Section 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Global inventory status

The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out.

Section 16: Other information

Disclaimer

The information contained in this data sheet is based on present scientific and technical knowledge. The purpose of this information is to draw attention to the health and safety aspects concerning the products supplied by Emulseo, and to recommend precautionary measures for the storage and handling of the products. No liability can be accepted for any failure to observe the precautionary measures described in this data sheet or for any misuse of the products.