



Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the REACH Regulation (EC) 1907/2006 and its modifications.

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

1.1. Product identifier

3M™ Fluorosurfactant FC-4430

Product Identification Numbers

98-0212-3628-0	98-0212-3629-8	UU-0100-7696-4	UU-0100-7697-2
7000006317	7100034640	7100195151	7100195152

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

Identified uses

Industrial use.

1.3. Details of the supplier of the safety data sheet

Address: 3M United Kingdom PLC, 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT.
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E Mail: tox.uk@mmm.com
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1.4. Emergency telephone number

+44 (0)1344 858 000

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

CLP REGULATION (EC) No 1272/2008

CLASSIFICATION:

Hazardous to the Aquatic Environment (Chronic), Category 2 - Aquatic Chronic 2; H411

For full text of H phrases, see Section 16.

2.2. Label elements

CLP REGULATION (EC) No 1272/2008

3M™ Fluorosurfactant FC-4430**Symbols:**

GHS09 (Environment) |

Pictograms**HAZARD STATEMENTS:**

H411 Toxic to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS**Prevention:**

P273 Avoid release to the environment.

Disposal:

P501 Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

SUPPLEMENTAL INFORMATION:**Supplemental Hazard Statements:**

EUH208 Contains 2-[Methyl[(nonafluorobutyl)sulfonyl]amino]ethyl acrylate. May produce an allergic reaction.

Contains 9% of components with unknown hazards to the aquatic environment.

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EC No.	REACH Registration No.	% by Wt	Classification
2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	1017237-78-3			85 - 95	Aquatic Chronic 2, H411
Polyether Polymer (NJTSRN 04499600-6417P)	Trade Secret			5 - 10	Substance not classified as hazardous
(2-Methoxymethylethoxy)propanol	34590-94-8	252-104-2	01-2119450011-60	<= 5	Substance with a Community level exposure limit in the workplace
1-butan Sulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4			< 1	Acute Tox. 4, H302; Eye Irrit. 2, H319; Repr. 2, H361df; Aquatic Chronic 2, H411

3M™ Fluorosurfactant FC-4430

2-[Methyl[(nonafluorobutyl)sulphonyl]amino]ethyl acrylate	67584-55-8	266-733-5		< 1	Skin Sens. 1B, H317; Aquatic Chronic 2, H411
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	34454-97-2	252-043-1		<= 1	Repr. 2, H361d; STOT SE 2, H371; STOT RE 2, H373
toluene	108-88-3	203-625-9		< 1	Flam. Liq. 2, H225; Asp. Tox. 1, H304; Skin Irrit. 2, H315; Repr. 2, H361d; STOT SE 3, H336; STOT RE 2, H373 Aquatic Chronic 3, H412 Eye Irrit. 2, H319

Please see section 16 for the full text of any H statements referred to in this section

For information on ingredient occupational exposure limits or PBT or vPvB status, see sections 8 and 12 of this SDS

SECTION 4: First aid measures**4.1. Description of first aid measures****Inhalation**

Remove person to fresh air. If you feel unwell, get medical attention.

Skin contact

Wash with soap and water. If you feel unwell, get medical attention.

Eye contact

Flush with large amounts of water. Remove contact lenses if easy to do. Continue rinsing. If signs/symptoms persist, get medical attention.

If swallowed

Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

See Section 11.1 Information on toxicological effects

4.3. Indication of any immediate medical attention and special treatment required

Not applicable

SECTION 5: Fire-fighting measures**5.1. Extinguishing media**

In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture

Exposure to extreme heat can give rise to thermal decomposition.

Hazardous Decomposition or By-Products**Substance**

Carbonyl fluoride.
Carbon monoxide
Carbon dioxide.
Hydrogen Fluoride

Condition

During combustion.
During combustion.
During combustion.
During combustion.

Toxic vapour, gas, particulate.

During combustion.

5.3. Advice for fire-fighters

Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapours, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions

Avoid release to the environment. For larger spills, cover drains and build dykes to prevent entry into sewer systems or bodies of water.

6.3. Methods and material for containment and cleaning up

Contain spill. Working from around the edges of the spill inward, cover with bentonite, vermiculite, or commercially available inorganic absorbent material. Mix in sufficient absorbent until it appears dry. Remember, adding an absorbent material does not remove a physical, health, or environmental hazard. Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue with water. Seal the container. Dispose of collected material as soon as possible.

6.4. Reference to other sections

Refer to Section 8 and Section 13 for more information

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

Avoid inhalation of thermal decomposition products. Avoid skin contact with hot material. Not intended for use as a medical device or drug. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment. Use personal protective equipment (eg. gloves, respirators...) as required.

7.2. Conditions for safe storage including any incompatibilities

No special storage requirements.

7.3. Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See Section 8 for exposure controls and personal protection recommendations.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Occupational exposure limits**

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	CAS Nbr	Agency	Limit type	Additional comments
toluene	108-88-3	UK HSC	TWA: 191 mg/m ³ (50 ppm); STEL: 384 mg/m ³ (100 ppm)	SKIN
1,1,2,2,3,3,4,4,4-Nonafluoro-N-	34454-97-2	Manufacturer	TWA:1 mg/m ³ (0.07 ppm)	

3M™ Fluorosurfactant FC-4430

(2-hydroxyethyl)-N-methylbutane-1-sulphonamide		determined		
(2-Methoxymethylethoxy)propanol	34590-94-8	UK HSC	TWA:308 mg/m3(50 ppm)	SKIN
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Manufacturer determined	TWA:3 mg/m3(0.24 ppm)	

UK HSC : UK Health and Safety Commission
TWA: Time-Weighted-Average
STEL: Short Term Exposure Limit
CEIL: Ceiling

Biological limit values

No biological limit values exist for any of the components listed in Section 3 of this safety data sheet.

Recommended monitoring procedures: Information on recommended monitoring procedures can be obtained from UK HSC

8.2. Exposure controls

8.2.1. Engineering controls

Provide appropriate local exhaust when product is heated. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapours/spray. If ventilation is not adequate, use respiratory protection equipment.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended:
Safety glasses with side shields.

Applicable Norms/Standards

Use eye protection conforming to EN 166

Skin/hand protection

Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing. Note: Nitrile gloves may be worn over polymer laminate gloves to improve dexterity.
Gloves made from the following material(s) are recommended:

Material	Thickness (mm)	Breakthrough Time
Polymer laminate	No data available	No data available

Applicable Norms/Standards

Use gloves tested to EN 374

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - polymer laminate

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part

of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

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.

Half facepiece or full facepiece air-purifying respirator suitable for organic vapours and particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

Applicable Norms/Standards

Use a respirator conforming to EN 140 or EN 136: filter types A & P

Thermal hazards

Wear heat insulating gloves when handling hot material to prevent thermal burns.

Applicable Norms/Standards

Use gloves tested to EN 407

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Physical state

Liquid.

Colour

Amber

Specific Physical Form:

Viscous. liquid

Odor

Mercaptan

Odour threshold

No data available.

pH

Not applicable.

Boiling point/boiling range

>=200 °C

Melting point

Not applicable.

Flammability (solid, gas)

Not applicable.

Explosive properties

Not classified

Oxidising properties

Not classified

Flash point

Flash point > 93 °C (200 °F)

Autoignition temperature

Not applicable.

Flammable Limits(LEL)

No data available.

Flammable Limits(UEL)

No data available.

Vapour pressure

<=38.7 Pa [@ 20 °C]

Relative density

1.15 [Ref Std: WATER=1]

Water solubility

Complete

Solubility- non-water

No data available.

Partition coefficient: n-octanol/water

No data available.

Evaporation rate

No data available.

Vapour density

5.7 [@ 20 °C] [Ref Std: AIR=1]

Decomposition temperature

No data available.

Viscosity

2,000 mPa-s - 10,000 mPa-s

Density

1.15 g/ml

9.2. Other information

EU Volatile Organic Compounds

79.4 g/l

Molecular weight

No data available.

Percent volatile

<=3 %

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is considered to be non reactive under normal use conditions

10.2 Chemical stability

Stable.

10.3 Possibility of hazardous reactions

Hazardous polymerisation will not occur.

10.4 Conditions to avoid

None known.

10.5 Incompatible materials

None known.

10.6 Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>
None known.	

Refer to section 5.2 for hazardous decomposition products during combustion.

Extreme heat arising from situations such as misuse or equipment failure can generate hydrogen fluoride as a decomposition product.

SECTION 11: Toxicological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 11 are based on UN GHS calculation rules and classifications derived from 3M assessments.

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

May cause additional health effects (see below).

Skin contact

May be harmful in contact with skin.

Eye contact

No known health effects.

Ingestion

May be harmful if swallowed.

Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea.

May cause additional health effects (see below).

3M™ Fluorosurfactant FC-4430

Additional Health Effects:

Single exposure may cause target organ effects:

Neurological effects: Signs/symptoms may include personality changes, lack of coordination, sensory loss, tingling or numbness of the extremities, weakness, tremors, and changes in blood pressure and heart rate.

Prolonged or repeated exposure may cause target organ effects:

Liver effects: Signs/symptoms may include loss of appetite, weight loss, fatigue, weakness, abdominal tenderness and jaundice.

Reproductive/Developmental Toxicity:

Contains a chemical or chemicals which can cause birth defects or other reproductive harm.

Toxicological Data

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

Acute Toxicity

Name	Route	Species	Value
Overall product	Dermal		No data available; calculated ATE2,000 - 5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE2,000 - 5,000 mg/kg
2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	Dermal	Rat	LD50 > 2,000 mg/kg
2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	Ingestion	Rat	LD50 > 2,000 mg/kg
Polyether Polymer (NJTSRN 04499600-6417P)	Dermal	Professional judgement	LD50 estimated to be > 5,000 mg/kg
Polyether Polymer (NJTSRN 04499600-6417P)	Ingestion	Rat	LD50 5,700 mg/kg
(2-Methoxymethylethoxy)propanol	Dermal	Rabbit	LD50 > 19,000 mg/kg
(2-Methoxymethylethoxy)propanol	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 50 mg/l
(2-Methoxymethylethoxy)propanol	Ingestion	Rat	LD50 5,180 mg/kg
toluene	Dermal	Rat	LD50 12,000 mg/kg
toluene	Inhalation-Vapour (4 hours)	Rat	LC50 30 mg/l
toluene	Ingestion	Rat	LD50 5,550 mg/kg
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Dermal	Rat	LD50 > 2,000 mg/kg
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Ingestion	Rat	LD50 > 2,000 mg/kg
1-butanepulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	Rat	LD50 200-2000 mg/kg
2-[Methyl]([nonafluorobutyl)sulphonyl]amino]ethyl acrylate	Dermal	Rat	LD50 > 2,000 mg/kg
2-[Methyl]([nonafluorobutyl)sulphonyl]amino]ethyl acrylate	Ingestion	Rat	LD50 > 2,000 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
(2-Methoxymethylethoxy)propanol	Human and animal	No significant irritation
toluene	Rabbit	Irritant
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-	Rabbit	No significant irritation

3M™ Fluorosurfactant FC-4430

sulphonamide		
1-butan Sulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Rabbit	No significant irritation
2-[Methyl]((nonafluorobutyl)sulphonyl)amino]ethyl acrylate	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
(2-Methoxymethylethoxy)propanol	Rabbit	Mild irritant
toluene	Rabbit	Moderate irritant
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Rabbit	Mild irritant
1-butan Sulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Rabbit	Severe irritant
2-[Methyl]((nonafluorobutyl)sulphonyl)amino]ethyl acrylate	Rabbit	Mild irritant

Skin Sensitisation

Name	Species	Value
2-Propenoic acid, 2-[methyl]((1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl)amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	Guinea pig	Not classified
(2-Methoxymethylethoxy)propanol	Human	Not classified
toluene	Guinea pig	Not classified
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Guinea pig	Not classified
1-butan Sulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Guinea pig	Not classified
2-[Methyl]((nonafluorobutyl)sulphonyl)amino]ethyl acrylate	Guinea pig	Sensitising

Respiratory Sensitisation

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

Germ Cell Mutagenicity

Name	Route	Value
2-Propenoic acid, 2-[methyl]((1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl)amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	In Vitro	Not mutagenic
(2-Methoxymethylethoxy)propanol	In Vitro	Not mutagenic
toluene	In Vitro	Not mutagenic
toluene	In vivo	Not mutagenic
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	In Vitro	Not mutagenic
1-butan Sulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	In Vitro	Not mutagenic
2-[Methyl]((nonafluorobutyl)sulphonyl)amino]ethyl acrylate	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
toluene	Dermal	Mouse	Some positive data exist, but the data are not sufficient for classification
toluene	Ingestion	Rat	Some positive data exist, but the data are not sufficient for classification
toluene	Inhalation	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity**Reproductive and/or Developmental Effects**

Name	Route	Value	Species	Test result	Exposure Duration
(2-Methoxymethylethoxy)propanol	Inhalation	Not classified for development	Multiple animal	NOAEL 1.82 mg/l	during organogenesis

3M™ Fluorosurfactant FC-4430

			species		
toluene	Inhalation	Not classified for female reproduction	Human	NOAEL Not available	occupational exposure
toluene	Inhalation	Not classified for male reproduction	Rat	NOAEL 2.3 mg/l	1 generation
toluene	Ingestion	Toxic to development	Rat	LOAEL 520 mg/kg/day	during gestation
toluene	Inhalation	Toxic to development	Human	NOAEL Not available	poisoning and/or abuse
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Ingestion	Not classified for female reproduction	Rat	NOAEL 250 mg/kg/day	prematuring & during gestation
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Ingestion	Not classified for male reproduction	Rat	NOAEL 250 mg/kg/day	prematuring & during gestation
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Ingestion	Toxic to development	Rat	NOAEL 50 mg/kg/day	prematuring & during gestation
1-butanedisulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	Toxic to female reproduction	Rat	NOAEL 150 mg/kg/day	prematuring & during gestation
1-butanedisulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	Toxic to male reproduction	Rat	NOAEL 150 mg/kg/day	28 days
1-butanedisulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	Toxic to development	Rat	NOAEL 150 mg/kg/day	prematuring & during gestation
2-[Methyl[(nonafluorobutyl)sulphonyl]amino]ethyl acrylate	Ingestion	Not classified for development	Rat	NOAEL 100 mg/kg/day	during gestation

Target Organ(s)
Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
(2-Methoxymethylethoxy)propanol	Dermal	central nervous system depression	Not classified	Rabbit	NOAEL 2,850 mg/kg	
(2-Methoxymethylethoxy)propanol	Inhalation	central nervous system depression	Not classified	Rat	LOAEL 3.07 mg/l	7 hours
(2-Methoxymethylethoxy)propanol	Ingestion	central nervous system depression	Not classified	Rat	LOAEL 5,000 mg/kg	
toluene	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	
toluene	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Human	NOAEL Not available	
toluene	Inhalation	immune system	Not classified	Mouse	NOAEL 0.004 mg/l	3 hours
toluene	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Ingestion	nervous system	May cause damage to organs	Rat	LOAEL 2,000 mg/kg	not applicable
1-butanedisulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	nervous system	Not classified	Rat	NOAEL 200 mg/kg	not applicable

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
2-Propenoic acid, 2-	Ingestion	heart endocrine	Not classified	Rat	NOAEL	28 days

3M™ Fluorosurfactant FC-4430

[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,		system hematopoietic system liver immune system nervous system kidney and/or bladder respiratory system			1,000 mg/kg/day	
(2-Methoxymethylethoxy)propanol	Dermal	kidney and/or bladder heart endocrine system hematopoietic system liver respiratory system	Not classified	Rabbit	NOAEL 9,500 mg/kg/day	90 days
(2-Methoxymethylethoxy)propanol	Inhalation	heart hematopoietic system liver immune system nervous system eyes kidney and/or bladder	Not classified	Rat	NOAEL 1.21 mg/l	90 days
(2-Methoxymethylethoxy)propanol	Ingestion	liver heart endocrine system bone, teeth, nails, and/or hair hematopoietic system immune system nervous system kidney and/or bladder respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	28 days
toluene	Inhalation	auditory system eyes olfactory system	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
toluene	Inhalation	nervous system	May cause damage to organs though prolonged or repeated exposure	Human	NOAEL Not available	poisoning and/or abuse
toluene	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Rat	LOAEL 2.3 mg/l	15 months
toluene	Inhalation	heart liver kidney and/or bladder	Not classified	Rat	NOAEL 11.3 mg/l	15 weeks
toluene	Inhalation	endocrine system	Not classified	Rat	NOAEL 1.1 mg/l	4 weeks
toluene	Inhalation	immune system	Not classified	Mouse	NOAEL Not available	20 days
toluene	Inhalation	bone, teeth, nails, and/or hair	Not classified	Mouse	NOAEL 1.1 mg/l	8 weeks
toluene	Inhalation	hematopoietic system vascular system	Not classified	Human	NOAEL Not available	occupational exposure
toluene	Inhalation	gastrointestinal tract	Not classified	Multiple animal species	NOAEL 11.3 mg/l	15 weeks
toluene	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 625 mg/kg/day	13 weeks
toluene	Ingestion	heart	Not classified	Rat	NOAEL 2,500 mg/kg/day	13 weeks
toluene	Ingestion	liver kidney and/or bladder	Not classified	Multiple animal species	NOAEL 2,500 mg/kg/day	13 weeks
toluene	Ingestion	hematopoietic system	Not classified	Mouse	NOAEL 600 mg/kg/day	14 days
toluene	Ingestion	endocrine system	Not classified	Mouse	NOAEL 105 mg/kg/day	28 days
toluene	Ingestion	immune system	Not classified	Mouse	NOAEL 105	4 weeks

3M™ Fluorosurfactant FC-4430

					mg/kg/day	
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Ingestion	liver	May cause damage to organs though prolonged or repeated exposure	Rat	NOAEL 50 mg/kg/day	28 days
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Ingestion	immune system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 50 mg/kg/day	28 days
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	Ingestion	kidney and/or bladder heart endocrine system hematopoietic system nervous system respiratory system	Not classified	Rat	NOAEL 250 mg/kg/day	28 days
1-butanedisulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	nervous system	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 150 mg/kg/day	premating & during gestation
1-butanedisulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	Ingestion	hematopoietic system liver immune system heart endocrine system kidney and/or bladder respiratory system	Not classified	Rat	NOAEL 1,000 mg/kg/day	premating & during gestation
2-[Methyl]((nonafluorobutyl) sulphonyl)amino]ethyl acrylate	Ingestion	liver kidney and/or bladder	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL 100 mg/kg/day	
2-[Methyl]((nonafluorobutyl) sulphonyl)amino]ethyl acrylate	Ingestion	endocrine system gastrointestinal tract hematopoietic system immune system heart bone, teeth, nails, and/or hair nervous system eyes respiratory system vascular system	Not classified	Rat	NOAEL 600 mg/kg/day	

Aspiration Hazard

Name	Value
toluene	Aspiration hazard

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

The information below may not agree with the EU material classification in Section 2 and/or the ingredient classifications in Section 3 if specific ingredient classifications are mandated by a competent authority. In addition, statements and data presented in Section 12 are based on UN GHS calculation rules and classifications derived from 3M assessments.

12.1. Toxicity

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
2-Propenoic acid, 2-[methyl]((1,1,2,2,3,3,4,4,4	1017237-78-3	Copepods	Experimental	48 hours	EC50	132 mg/l

3M™ Fluorosurfactant FC-4430

,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,						
2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	1017237-78-3	Diatom	Experimental	72 hours	EC50	3.24 mg/l
2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	1017237-78-3	Fathead minnow	Experimental	96 hours	LC50	765 mg/l
2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	1017237-78-3	Fish	Experimental	96 hours	LC50	>3.2 mg/l
2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	1017237-78-3	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	1017237-78-3	Water flea	Experimental	48 hours	EC50	99 mg/l
Polyether Polymer (NJTSRN 04499600-6417P)	Trade Secret		Data not available or insufficient for classification			
(2-Methoxymethylethoxy)	34590-94-8	Fathead minnow	Experimental	96 hours	LC50	>10,000 mg/l

3M™ Fluorosurfactant FC-4430

propanol						
(2-Methoxymethylethoxy) propanol	34590-94-8	Green Algae	Experimental	72 hours	EC50	>969 mg/l
(2-Methoxymethylethoxy) propanol	34590-94-8	Water flea	Experimental	48 hours	LC50	1,919 mg/l
(2-Methoxymethylethoxy) propanol	34590-94-8	Green Algae	Experimental	72 hours	Effect Concentration 10%	133 mg/l
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	34454-97-2	Crustacea other	Experimental	96 hours	EC50	4.4 mg/l
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	34454-97-2	Fathead minnow	Experimental	96 hours	LC50	25 mg/l
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	34454-97-2	Green Algae	Experimental	72 hours	EC50	79 mg/l
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	34454-97-2	Green Algae	Experimental	72 hours	NOEC	21 mg/l
1-butanedisulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Fathead minnow	Experimental	96 hours	LC50	44 mg/l
1-butanedisulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Green Algae	Experimental	96 hours	EC50	13 mg/l
1-butanedisulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Mysid Shrimp	Experimental	96 hours	EC50	2.4 mg/l
1-butanedisulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Green Algae	Experimental	96 hours	NOEC	1.9 mg/l
2-[Methyl[(nonafluorobutyl)sulphonyl]amino]ethyl acrylate	67584-55-8	Water flea	Experimental	48 hours	EC50	1.2 mg/l
2-[Methyl[(nonafluorobutyl)sulphonyl]amino]ethyl acrylate	67584-55-8	Green algae	Experimental	72 hours	NOEC	0.34 mg/l
toluene	108-88-3	Coho Salmon	Experimental	96 hours	LC50	5.5 mg/l
toluene	108-88-3	Fish other	Experimental	96 hours	LC50	6.41 mg/l
toluene	108-88-3	Green Algae	Experimental	72 hours	EC50	12.5 mg/l
toluene	108-88-3	Water flea	Experimental	48 hours	EC50	3.78 mg/l
toluene	108-88-3	Coho salmon	Experimental	40 days	NOEC	3.2 mg/l
toluene	108-88-3	Water flea	Experimental	7 days	NOEC	0.74 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
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3M™ Fluorosurfactant FC-4430

2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	1017237-78-3	Experimental Hydrolysis		Hydrolytic half-life	48.5 years (t 1/2)	Other methods
2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	1017237-78-3	Experimental Biodegradation	28 days	BOD	3 % weight	OECD 301D - Closed bottle test
Polyether Polymer (NJTSRN 04499600-6417P)	Trade Secret	Data not availbl-insufficient			N/A	
(2-Methoxymethylethoxy)propanol	34590-94-8	Experimental Biodegradation	28 days	BOD	75 % BOD/ThBOD	OECD 301F - Manometric respirometry
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-methylbutane-1-sulphonamide	34454-97-2	Experimental Biodegradation	28 days	CO2 evolution	2 % weight	OECD 301B - Modified sturm or CO2
1-butan Sulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Estimated Photolysis		Photolytic half-life (in air)	25.2 days (t 1/2)	Other methods
1-butan Sulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Estimated Biodegradation	28 days	BOD	0 % weight	Estimated: MITI biodegradability tests
2-[Methyl[(nonafluorobutyl)sulphonyl]amino]ethyl acrylate	67584-55-8	Experimental Hydrolysis		Hydrolytic half-life	0.6 years (t 1/2)	Other methods
2-[Methyl[(nonafluorobutyl)sulphonyl]amino]ethyl acrylate	67584-55-8	Experimental Aquatic Biodegrad. - Aerobic	28 days	% CO2 produced	2 % weight	OECD 301B - Modified sturm or CO2
toluene	108-88-3	Experimental Photolysis		Photolytic half-life (in air)	5.2 days (t 1/2)	Other methods
toluene	108-88-3	Experimental Biodegradation	20 days	BOD	80 % weight	

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
2-Propenoic acid, 2-[methyl[(1,1,2,2,3,3,4,4,4-nonafluorobutyl)sulfonyl]amino]ethyl ester,telomer with 3-mercapto-1,2-propanediol, 2-methyloxirane polymer with oxirane di-2-propenoate,	1017237-78-3	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Polyether Polymer (NJTSRN 04499600-6417P)	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
(2-Methoxymethylethoxy)propanol	34590-94-8	Experimental Bioconcentration		Log Kow	0.0061	Other methods
1,1,2,2,3,3,4,4,4-Nonafluoro-N-(2-hydroxyethyl)-N-	34454-97-2	Estimated Bioconcentration		Log Kow	2.83	Estimated: Bioconcentration factor

3M™ Fluorosurfactant FC-4430

methylbutane-1-sulphonamide						
1-butanesulphonamide, 1,1,2,2,3,3,4,4,4-nonafluoro-N-methyl-	68298-12-4	Estimated Bioconcentration		Bioaccumulation factor	970	Estimated: Bioconcentration factor
2-[Methyl[(nonafluorobutyl)sulphonyl]amino]ethyl acrylate	67584-55-8	Estimated Bioconcentration		Bioaccumulation factor	5	Other methods
toluene	108-88-3	Experimental Bioconcentration		Log Kow	2.73	Other methods

12.4. Mobility in soil

Please contact manufacturer for more details

12.5. Results of the PBT and vPvB assessment

This material does not contain any substances that are assessed to be a PBT or vPvB

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations**13.1 Waste treatment methods**

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

Incinerate in a 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. As a disposal alternative, utilize an acceptable permitted waste disposal facility. Empty drums/barrels/containers used for transporting and handling hazardous chemicals (chemical substances/mixtures/preparations classified as Hazardous as per applicable regulations) shall be considered, stored, treated & disposed of as hazardous wastes unless otherwise defined by applicable waste regulations. Consult with the respective regulating authorities to determine the available treatment and disposal facilities.

The coding of a waste stream is based on the application of the product by the consumer. Since this is out of the control of 3M, no waste code(s) for products after use will be provided. Please refer to the European Waste Code (EWC - 2000/532/EC and amendments) to assign the correct waste code to your waste stream. Ensure national and/or regional regulations are complied with and always use a licensed waste contractor.

EU waste code (product as sold)

070103* Organic halogenated solvents, washing liquids and mother liquors

SECTION 14: Transportation information

98-0212-3628-0

ADR/RID: UN3082, NOT RESTRICTED AS PER SPECIAL PROVISION 375, ENVIRONMENTALLY HAZARDOUS SUBSTANCE EXEMPTION, (FLUOROACRYLATE COPOLYMER), III, --.

IMDG-CODE: UN3082, NOT RESTRICTED AS PER IMDG CODE 2.10.2.7, MARINE POLLUTANT EXCEPTION, (FLUOROACRYLATE COPOLYMER), III, IMDG-Code segregation code: NONE, EMS: --.

ICAO/IATA: UN3082, NOT RESTRICTED AS PER SPECIAL PROVISION A197, ENVIRONMENTALLY HAZARDOUS SUBSTANCE EXCEPTION, (FLUOROACRYLATE COPOLYMER), III.

98-0212-3629-8

3M™ Fluorosurfactant FC-4430

ADR/RID: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (FLUOROACRYLATE COPOLYMER), 9, III, (-), ENVIRONMENTALLY HAZARDOUS, ADR Classification Code: M6.

IMDG-CODE: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (FLUOROACRYLATE COPOLYMER), 9., III, IMDG-Code segregation code: NONE, Marine Pollutant, (FLUOROACRYLATE COPOLYMER), EMS: FA, SF.

ICAO/IATA: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (FLUOROACRYLATE COPOLYMER), 9., III, fish and tree marking may be required (> 5kg/l).

UU-0100-7696-4, UU-0100-7697-2

ADR/RID: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (FLUOROACRYLATE COPOLYMER), 9, III, (-), ENVIRONMENTALLY HAZARDOUS, ADR Classification Code: M6.

IMDG-CODE: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (FLUOROACRYLATE COPOLYMER), 9., III, IMDG-Code segregation code: NONE, EMS: FA, SF.

ICAO/IATA: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (FLUOROACRYLATE COPOLYMER), 9., III, fish and tree marking may be required (> 5kg/l).

SECTION 15: Regulatory information

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

Carcinogenicity

Ingredient

toluene

CAS Nbr

108-88-3

Classification

Gr. 3: Not classifiable

Regulation

International Agency for Research on Cancer

Restrictions on the manufacture, placing on the market and use:

The following substance(s) contained in this product is/are subject through Annex XVII of REACH regulation to restrictions on the manufacture, placing on the market and use when present in certain dangerous substances, mixtures and articles. Users of this product are required to comply with the restrictions placed upon it by the aforementioned provision.

Ingredient

toluene

CAS Nbr

108-88-3

Restriction status: listed in REACH Annex XVII

Restricted uses: See Annex XVII to Regulation (EC) No 1907/2006 for Conditions of Restriction

15.2. Chemical Safety Assessment

A chemical safety assessment has not been carried out for this mixture. Chemical safety assessments for the contained substances may have been carried out by the registrants of the substances in accordance with Regulation (EC) No 1907/2006, as amended.

SECTION 16: Other information

List of relevant H statements

H225	Highly flammable liquid and vapour.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H361df	Suspected of damaging fertility. Suspected of damaging the unborn child.

H371	May cause damage to organs.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Revision information:

Label: CLP Percent Unknown information was modified.
Section 3: Composition/ Information of ingredients table information was modified.
Section 5: Fire - Advice for fire fighters information information was modified.
Section 7: Conditions safe storage information was modified.
Section 7: Precautions safe handling information information was modified.
Section 8: Appropriate Engineering controls information information was modified.
Section 8: glove data value information was modified.
Section 8: Personal Protection - Respiratory Information information was modified.
Section 8: Personal Protection - Skin/body information information was added.
Section 8: Personal Protection - Skin/hand information information was modified.
Section 8: Personal Protection - Thermal hazards information information was added.
Section 8: Skin protection - protective clothing information information was added.
Section 11: Health Effects - Eye information information was modified.
Section 12: Component ecotoxicity information information was modified.
Section 12: Persistence and Degradability information information was modified.
Section 12: Biocumulative potential information information was modified.
Section 13: Standard Phrase Category Waste GHS information was modified.

DISCLAIMER: The information on this Safety Data Sheet is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this Data Sheet or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own test to satisfy themselves as to the suitability of the product for their own intended applications. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into the European Union, you are responsible for all regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration.

3M United Kingdom MSDSs are available at www.3M.com/uk