Safety Data Sheet

Document group:	39-4997-1	**Version number:**	3.00
Revision date:	10/10/2023	**Supersedes date:**	14/02/2023

This Safety Data Sheet has been prepared in accordance with the REACH Regulation (1907/2006), as amended for GB.

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

1.1. Product identifier
3M™ Dyneon™ Fluoroelastomer FC 2152

Product Identification Numbers
ZF-0002-0220-8

7000117243

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

Identified uses
Fluoroelastomer

1.3. Details of the supplier of the safety data sheet

Address: 3M United Kingdom PLC, 3M Centre, Cain Road, Bracknell, Berkshire, RG12 8HT.
Telephone: +44 (0)1344 858 000
E Mail: tox.uk@mmm.com
Website: www.3M.com/uk

1.4. Emergency telephone number
+44 (0)1344 858 000

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture
The retained CLP Regulation (EU) No 1272/2008 as amended for Great Britain

The health and environmental classifications of this material have been derived using the calculation method, except in cases where test data are available or the physical form impacts classification. Classification(s) based on test data or physical form are noted below, if applicable.

CLASSIFICATION:

Serious Eye Damage/Eye Irritation, Category 2 - Eye Irrit. 2; H319
Skin Sensitization, Category 1A - Skin Sens. 1A; H317
Reproductive Toxicity, Category 1B - Repr. 1B; H360FD
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
The retained CLP Regulation (EU) No 1272/2008 as amended for Great Britain

SIGNAL WORD
DANGER.

Symbols
GHS07 (Exclamation mark) |GHS08 (Health Hazard) |

Pictograms

Ingredient	CAS Nbr	EC No.	% by Wt
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	216-036-7	0.1 - 2
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	921213-47-0	469-080-6	0.1 - 2
tetrahydrothiophene-1,1-dioxide	126-33-0	204-783-1	< 1

HAZARD STATEMENTS:

H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H360FD	May damage fertility. May damage the unborn child.

PRECAUTIONARY STATEMENTS

Prevention:

P280E	Wear protective gloves.

Response:

P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

SUPPLEMENTAL INFORMATION:

Supplemental Precautionary Statements:
Firefighting instructions: Does not burn without external flame. Wear self-contained breathing apparatus and protection from acidic hydrogen fluoride. Vapours liberated during processing may be hazardous if inhaled. Eye, nose, throat and lung irritation can occur from such vapours. Restricted to professional users. Avoid contamination of tobacco with polymer resin. Before using, read the most current Safety Data Sheet.

Notes on labelling
The retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain, Annex I, Section 1.3.4: Metals in massive form, alloys, mixtures containing polymers and mixtures containing elastomers do not require a label if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market, although classified as hazardous in accordance with criteria of Annex I of GB CLP. Based on available data, the environmental classification does not need to be applied to the label.

2.3. Other hazards

May cause thermal burns. Vapours liberated during processing may be hazardous if inhaled. Eye, nose, throat and lung irritation can occur from such vapours.
This material does not contain any substances that are assessed to be a PBT or vPvB

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

Ingredient	Identifier(s)	%	Classification according to Regulation (EC) No. 1272/2008 [CLP], as amended for GB
Vinylidene fluoride-hexafluoropropylene polymer	(CAS-No.) 9011-17-0	90 - 99	Substance not classified as hazardous
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	(CAS-No.) 921213-47-0 (EC-No.) ELINCS 469-080-6	0.1 - 2	Skin Sens. 1, H317 Aquatic Acute 1, H400,M=10 Aquatic Chronic 1, H410,M=10
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	(CAS-No.) 1478-61-1 (EC-No.) 216-036-7	0.1 - 2	Eye Dam. 1, H318 Repr. 1B, H360FD STOT RE 2, H373 Aquatic Chronic 1, H410,M=1
Bis(4-chlorophenyl) sulphone	(CAS-No.) 80-07-9 (EC-No.) 201-247-9	< 1	Aquatic Chronic 2, H411 Eye Irrit. 2, H319
tetrahydrothiophene-1,1-dioxide	(CAS-No.) 126-33-0 (EC-No.) 204-783-1	< 1	Acute Tox. 4, H302 Repr. 1B, H360D
Silicon dioxide	(CAS-No.) 7631-86-9 (EC-No.) 231-545-4	< 1	Substance with a national occupational exposure limit

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
Immediately flush skin with large amounts of cold water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Cover affected area with a clean dressing. Get immediate medical attention.

Eye contact
Immediately flush eyes with large amounts of water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Get immediate medical attention.

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

4.2. Most important symptoms and effects, both acute and delayed
No critical symptoms or effects. 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.

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. 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.

6.3. Methods and material for containment and cleaning up
Collect as much of the spilled material as possible. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. 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 skin contact with hot material. Store work clothes separately from other clothing, food and tobacco products. 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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. No smoking: Smoking while using this product can result in contamination of the tobacco and/or smoke and lead to

the formation of hazardous decomposition products. 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
DUST, INERT OR NUISANCE	7631-86-9	UK HSC	TWA(as respirable dust):4 mg/m3;TWA(as inhalable dust):10 mg/m3	

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.

8.2. Exposure controls

8.2.1. Engineering controls
For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines. 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. Local exhaust required above 400 C.

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:
Full face shield.
Indirect vented goggles.

Applicable Norms/Standards
Use eye/face 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:
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, indirect vented goggles, and a full face shield 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

Physical state	Solid.
Specific Physical Form:	Solid block or slab
Colour	Straw, White
Odor	Odourless
Odour threshold	*No data available.*
Melting point/freezing point	*Not applicable.*
Boiling point/boiling range	*Not applicable.*
Flammability (solid, gas)	Not classified
Flammable Limits(LEL)	*Not applicable.*
Flammable Limits(UEL)	*Not applicable.*
Flash point	No flash point
Autoignition temperature	*Not applicable.*
Decomposition temperature	*No data available.*
pH	*substance/mixture is non-soluble (in water)*
Kinematic Viscosity	*Not applicable.*
Water solubility	Negligible
Solubility- non-water	*No data available.*
Partition coefficient: n-octanol/water	*No data available.*
Vapour pressure	*Not applicable.*
Density	1.8 g/cm3
Relative density	1.8 [*Ref Std:*WATER=1]

Relative Vapour Density	*Not applicable.*

9.2. Other information

9.2.2 Other safety characteristics

EU Volatile Organic Compounds	*No data available.*
Evaporation rate	*No data available.*
Molecular weight	*No data available.*

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
Aluminium or magnesium powder and high/shear temperature conditions.

10.6 Hazardous decomposition products

Substance	Condition
Carbon monoxide	At elevated temperatures.
Carbon dioxide.	At elevated temperatures.
Hydrogen Fluoride	At elevated temperatures.
Perfluoroisobutylene (PFIB).	At elevated temperatures.
Oxides of sulphur.	At elevated temperatures.
Toxic vapour, gas, particulate.	At elevated temperatures.

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

SECTION 11: Toxicological information

The information below may not agree with the 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 hazard classes as defined in the retained CLP Regulation (EU) No 1272/2008, as amended for Great Britain.

Signs and Symptoms of Exposure

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

Inhalation
Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose and throat pain. May cause additional health effects (see below).

During heating:

Polymer fume fever: Sign/symptoms may include chest pain or tightness, shortness of breath, cough, malaise, muscle aches, increased heart rate, fever, chills, sweats, nausea and headache.

Skin contact

Thermal burns: Signs/symptoms may include intense pain, redness and swelling, and tissue destruction. Allergic skin reaction (non-photo induced): Signs/symptoms may include redness, swelling, blistering, and itching.

Eye contact

Thermal burns: Signs/symptoms may include severe pain, redness and swelling, and tissue destruction. Severe eye irritation: Signs/symptoms may include significant redness, swelling, pain, tearing, cloudy appearance of the cornea, and impaired vision.

Ingestion

Gastrointestinal irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhoea. May cause additional health effects (see below).

Additional Health Effects:

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 ATE >5,000 mg/kg
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
Vinylidene fluoride-hexafluoropropylene polymer	Dermal		LD50 estimated to be > 5,000 mg/kg
Vinylidene fluoride-hexafluoropropylene polymer	Ingestion	Rat	LD50 6,000 mg/kg
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	Dermal	Rat	LD50 > 2,000 mg/kg
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	Ingestion	Rat	LD50 > 2,000 mg/kg
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Dermal	Rat	LD50 > 2,000 mg/kg
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Ingestion	Rat	LD50 > 2,000 mg/kg
Bis(4-chlorophenyl) sulphone	Dermal	Professional judgement	LD50 estimated to be 2,000 - 5,000 mg/kg
Bis(4-chlorophenyl) sulphone	Ingestion	Rat	LD50 4,810 mg/kg
tetrahydrothiophene-1,1-dioxide	Dermal	Rabbit	LD50 4,897 mg/kg
tetrahydrothiophene-1,1-dioxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 12 mg/l
tetrahydrothiophene-1,1-dioxide	Ingestion	Rat	LD50 1,846 mg/kg
Silicon dioxide	Dermal	Rabbit	LD50 > 5,000 mg/kg
Silicon dioxide	Inhalation-Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
Silicon dioxide	Ingestion	Rat	LD50 > 5,110 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value

Vinylidene fluoride-hexafluoropropylene polymer	Rabbit	No significant irritation
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	Rabbit	No significant irritation
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Rabbit	No significant irritation
Bis(4-chlorophenyl) sulphone	Rabbit	Minimal irritation
tetrahydrothiophene-1,1-dioxide	Rabbit	Minimal irritation
Silicon dioxide	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Vinylidene fluoride-hexafluoropropylene polymer	Rabbit	Mild irritant
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	Rabbit	Severe irritant
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Rabbit	Corrosive
Bis(4-chlorophenyl) sulphone	Rabbit	Severe irritant
tetrahydrothiophene-1,1-dioxide	Rabbit	Moderate irritant
Silicon dioxide	Rabbit	No significant irritation

Skin Sensitisation

Name	Species	Value
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	Mouse	Sensitising
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Guinea pig	Not classified
Bis(4-chlorophenyl) sulphone	Mouse	Not classified
tetrahydrothiophene-1,1-dioxide	Guinea pig	Not classified
Silicon dioxide	Human and animal	Not classified

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
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	In Vitro	Some positive data exist, but the data are not sufficient for classification
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	In vivo	Not mutagenic
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	In Vitro	Some positive data exist, but the data are not sufficient for classification
Bis(4-chlorophenyl) sulphone	In Vitro	Not mutagenic
Bis(4-chlorophenyl) sulphone	In vivo	Some positive data exist, but the data are not sufficient for classification
tetrahydrothiophene-1,1-dioxide	In Vitro	Not mutagenic
Silicon dioxide	In Vitro	Not mutagenic

Carcinogenicity

Name	Route	Species	Value
Bis(4-chlorophenyl) sulphone	Ingestion	Multiple animal species	Not carcinogenic
Silicon dioxide	Not specified.	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
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	Ingestion	Not classified for reproduction and/or development	Rat	NOAEL 150 mg/kg/day	28 days
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Ingestion	Toxic to female reproduction	Rat	LOAEL 338 ppm in the diet	2 generation
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Ingestion	Toxic to male reproduction	Rat	LOAEL 338 ppm in the diet	2 generation
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Ingestion	Toxic to development	Rat	LOAEL 338 ppm in the diet	2 generation
Bis(4-chlorophenyl) sulphone	Ingestion	Not classified for female reproduction	Rat	NOAEL 50 mg/kg/day	42 days
Bis(4-chlorophenyl) sulphone	Ingestion	Not classified for male reproduction	Rat	NOAEL 50 mg/kg/day	premating into lactation
Bis(4-chlorophenyl) sulphone	Ingestion	Not classified for development	Rat	NOAEL 15 mg/kg/day	premating into lactation
tetrahydrothiophene-1,1-dioxide	Ingestion	Not classified for male reproduction	Rat	NOAEL 700 mg/kg/day	14 days
tetrahydrothiophene-1,1-dioxide	Ingestion	Not classified for female reproduction	Rat	NOAEL 200 mg/kg/day	premating & during gestation
tetrahydrothiophene-1,1-dioxide	Ingestion	Toxic to development	Rat	NOAEL 60 mg/kg/day	premating & during gestation
Silicon dioxide	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
Silicon dioxide	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
Silicon dioxide	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	
Bis(4-chlorophenyl) sulphone	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	similar health hazards	NOAEL Not available	

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test result	Exposure Duration
Vinylidene fluoride-hexafluoropropylene polymer	Ingestion	liver	Not classified	Rat	NOAEL 10,000 mg/kg/day	2 weeks
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	Ingestion	endocrine system | liver | kidney and/or bladder | auditory system | heart | bone, teeth, nails, and/or hair | bone marrow | hematopoietic system | immune system | nervous	Not classified	Rat	NOAEL 150 mg/kg/day	28 days

		system | respiratory system | vascular system				
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Ingestion	heart | endocrine system | gastrointestinal tract | hematopoietic system | liver | nervous system | kidney and/or bladder	Not classified	Rat	NOAEL 100 mg/kg/day	28 days
Bis(4-chlorophenyl) sulphone	Ingestion	hematopoietic system | liver | immune system	Not classified	Rat	NOAEL 200 mg/kg/day	14 weeks
Bis(4-chlorophenyl) sulphone	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 19 mg/kg/day	14 weeks
Bis(4-chlorophenyl) sulphone	Ingestion	heart | endocrine system | gastrointestinal tract | bone, teeth, nails, and/or hair | muscles | nervous system | respiratory system | vascular system	Not classified	Rat	NOAEL 200 mg/kg/day	14 weeks
tetrahydrothiophene-1,1-dioxide	Inhalation	nervous system	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	LOAEL 0.5 mg/l	27 days
tetrahydrothiophene-1,1-dioxide	Inhalation	respiratory system	Some positive data exist, but the data are not sufficient for classification	Multiple animal species	NOAEL 0.02 mg/l	90 days
tetrahydrothiophene-1,1-dioxide	Inhalation	liver	Not classified	Monkey	LOAEL 0.5 mg/l	27 days
tetrahydrothiophene-1,1-dioxide	Inhalation	blood	Not classified	Guinea pig	NOAEL 0.16 mg/l	90 days
tetrahydrothiophene-1,1-dioxide	Ingestion	hematopoietic system	Not classified	Rat	NOAEL 700 mg/kg/day	28 days
tetrahydrothiophene-1,1-dioxide	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 60 mg/kg/day	28 days
Silicon dioxide	Inhalation	respiratory system | silicosis	Not classified	Human	NOAEL Not available	occupational exposure

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

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.

11.2. Information on other hazards

This material does not contain any substances that are assessed to be an endocrine disruptor for human health.

SECTION 12: Ecological information

The information below may not agree with the 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

CLP Acute 1 & Chronic 1 or 2 : Toxic to aquatic life with long lasting effects. Aquatic testing on the mixture was conducted with the following results:Actual loading for 48h-EC50 Daphnia magna and 72h-EC50 for Pseudokirchnerialla subcapitata between 1000 & 6000 mg/l. Conditions of exposure of the test medium to the elastomer formulation were considered worst

case because:(1) Extractable solids were present in the fluoroelastomer formulation at the highest possible concentrations,(2) Only a small fraction of the extractable solids (< 1%) leached out of the elastomer, and(3) Effects were induced on these freshwater species only when the loading tested exceeded the regulatory value of 100 mg/l.

No product test data available.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
Vinylidene fluoride-hexafluoropropylene polymer	9011-17-0	N/A	Data not available or insufficient for classification	N/A	N/A	n/a
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Green algae	Experimental	72 hours	ErC50	>0.808 mg/l
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Water flea	Experimental	48 hours	EC50	2.7 mg/l
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Green algae	Experimental	72 hours	NOEC	0.0522 mg/l
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Water flea	Experimental	21 days	NOEC	0.23 mg/l
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Zebra Fish	Experimental	28 days	NOEC	0.05 mg/l
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Activated sludge	Experimental	3 hours	EC50	126.8
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	921213-47-0	Green algae	Analogous Compound	96 hours	ErC50	0.18 mg/l
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	921213-47-0	Water flea	Analogous Compound	48 hours	EC50	0.088 mg/l
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	921213-47-0	Zebra Fish	Analogous Compound	96 hours	LC50	>1.5 mg/l
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products	921213-47-0	Green algae	Analogous Compound	96 hours	NOEC	0.12 mg/l

with benzene, chlorine and sulphur chloride (S2Cl2)						
Bis(4-chlorophenyl) sulphone	80-07-9	Green algae	Endpoint not reached	72 hours	EC50	>100 mg/l
Bis(4-chlorophenyl) sulphone	80-07-9	Activated sludge	Experimental	3 hours	EC10	>1,000 mg/l
Bis(4-chlorophenyl) sulphone	80-07-9	Water flea	Experimental	48 hours	EC50	>100 mg/l
Bis(4-chlorophenyl) sulphone	80-07-9	Zebra Fish	Experimental	96 hours	LC50	>100 mg/l
Bis(4-chlorophenyl) sulphone	80-07-9	Green algae	Experimental	72 hours	NOEC	0.28 mg/l
Bis(4-chlorophenyl) sulphone	80-07-9	Water flea	Experimental	21 days	NOEC	0.32 mg/l
Silicon dioxide	7631-86-9	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
tetrahydrothiophene-1,1-dioxide	126-33-0	Green algae	Experimental	72 hours	EC50	>1,000 mg/l
tetrahydrothiophene-1,1-dioxide	126-33-0	Medaka	Experimental	96 hours	LC50	>100 mg/l
tetrahydrothiophene-1,1-dioxide	126-33-0	Water flea	Experimental	48 hours	EC50	40 mg/l
tetrahydrothiophene-1,1-dioxide	126-33-0	Green algae	Experimental	72 hours	NOEC	310 mg/l
tetrahydrothiophene-1,1-dioxide	126-33-0	Water flea	Experimental	21 days	NOEC	25 mg/l

12.2. Persistence and degradability

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Vinylidene fluoride-hexafluoropropylene polymer	9011-17-0	Data not availbl-insufficient	N/A	N/A	N/A	N/A
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Experimental Biodegradation	28 days	CO2 evolution	0 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Estimated Hydrolysis		Hydrolytic half-life (pH 7)	>1 years (t 1/2)	EC C.7 Hydrolysis at pH
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	921213-47-0	Analogous Compound Biodegradation	28 days	CO2 evolution	<=14 %CO2 evolution/THCO2 evolution	OECD 301B - Modified sturm or CO2
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and	921213-47-0	Analogous Compound Hydrolysis		Hydrolytic half-life (pH 7)	>1 years (t 1/2)	

sulphur chloride (S2Cl2)						
Bis(4-chlorophenyl) sulphone	80-07-9	Experimental Biodegradation	28 days	BOD	0 %BOD/ThOD	OECD 301C - MITI test (I)
Silicon dioxide	7631-86-9	Data not availbl-insufficient	N/A	N/A	N/A	N/A
tetrahydrothiophene-1,1-dioxide	126-33-0	Experimental Biodegradation	14 days	BOD	10.1 %BOD/ThOD	OECD 301C - MITI test (I)

12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
Vinylidene fluoride-hexafluoropropylene polymer	9011-17-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Experimental BCF - Other	168 hours	Bioaccumulation factor	9.0	OECD305-Bioconcentration
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Experimental Bioconcentration		Log Kow	2.79	EC A.8 Partition Coefficient
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	921213-47-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Bis(4-chlorophenyl) sulphone	80-07-9	Experimental BCF - Fish	35 days	Bioaccumulation factor	82	OECD305-Bioconcentration
Silicon dioxide	7631-86-9	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
tetrahydrothiophene-1,1-dioxide	126-33-0	Experimental BCF - Fish	42 days	Bioaccumulation factor	<13	

12.4. Mobility in soil

Material	Cas No.	Test type	Study Type	Test result	Protocol
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	Experimental Mobility in Soil	Koc	2,290 l/kg	EC C.19 Estim. of Koc by HPLC
Bis(4-chlorophenyl) sulphone	80-07-9	Estimated Mobility in Soil	Koc	2,900 l/kg	Episuite™
tetrahydrothiophene-1,1-dioxide	126-33-0	Estimated Mobility in Soil	Koc	9 l/kg	Episuite™

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

This material does not contain any substances that are assessed to be an endocrine disruptor for environmental effects

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/ container in accordance with the local/regional/national/international regulations.

Dispose of waste product in a permitted industrial waste facility. As a disposal alternative, 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. 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)
070214* Wastes from additives containing dangerous substances

SECTION 14: Transportation information

Not hazardous for transportation.

	Ground Transport (ADR)	Air Transport (IATA)	Marine Transport (IMDG)
14.1 UN number	No data available.	No data available.	No data available.
14.2 UN proper shipping name	No data available.	No data available.	No data available.
14.3 Transport hazard class(es)	No data available.	No data available.	No data available.
14.4 Packing group	No data available.	No data available.	No data available.
14.5 Environmental hazards	No data available.	No data available.	No data available.
14.6 Special precautions for user	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.	Please refer to the other sections of the SDS for further information.
14.7 Transport in bulk according to Annex II of Marpol 73/78 and IBC Code	No data available.	No data available.	No data available.
Control Temperature	No data available.	No data available.	No data available.
Emergency Temperature	No data available.	No data available.	No data available.
ADR Classification Code	No data available.	No data available.	No data available.

IMDG Segregation Code	No data available.	No data available.	No data available.

Please contact the address or phone number listed on the first page of the SDS for additional information on the transport/shipment of the material by rail (RID) or inland waterways (ADN).

SECTION 15: Regulatory information

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

Carcinogenicity

Ingredient	CAS Nbr	Classification	Regulation
Silicon dioxide	7631-86-9	Gr. 3: Not classifiable	International Agency for Research on Cancer

Global inventory status
Contact 3M for more information. 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.

COMAH Regulation, SI 2015/483
Seveso hazard categories, Annex 1, Part 1
None

Seveso named dangerous substances, Annex 1, Part 2
None

Regulation (EU) No 649/2012, as amended for GB
No chemicals listed

15.2. Chemical Safety Assessment
A chemical safety assessment has not been carried out for this substance/mixture in accordance with Regulation (EC) No 1907/2006, as amended for GB.

SECTION 16: Other information

List of relevant H statements

H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H360D	May damage the unborn child.
H360FD	May damage fertility. May damage the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Revision information:
Section 3: Composition/ Information of ingredients table information was modified.
Section 8: Personal Protection - Thermal hazards information information was modified.

Section 11: Acute Toxicity table information was modified.
Section 11: Germ Cell Mutagenicity Table information was modified.
Section 11: Reproductive Toxicity Table information was modified.
Section 11: Skin Sensitization Table information was modified.
Section 11: Target Organs - Repeated Table information was modified.
Section 11: Target Organs - Single Table information was modified.
Two-column table displaying the unique list of H Codes and statements (std phrases) for all components of the given material. 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 SDSs for Great Britain are available at www.3M.com/uk
For Northern Ireland documents, please contact your 3M representative to obtain a copy.