



## Safety Data Sheet

Copyright, 2019, 3M Company All rights reserved. Copying and/or downloading of this information for the purpose of properly utilising 3M products is allowed provided that: (1) the information is copied in full with no changes unless prior written agreement is obtained from 3M, and (2) neither the copy nor the original is resold or otherwise distributed with the intention of earning a profit thereon.

<b>Document group:</b>	39-4997-1	<b>Version number:</b>	1.00
<b>Revision date:</b>	04/09/2019	<b>Supersedes date:</b>	Initial issue.
<b>Transportation version number:</b>	1.00 (04/09/2019)		

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™ 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

CLP REGULATION (EC) No 1272/2008

##### 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; H360  
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****SIGNAL WORD**

DANGER.

**Symbols:**

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

**Pictograms****Ingredients:**

Ingredient	CAS Nbr	EC No.	% by Wt
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2C12)	921213-47-0	469-080-6	0.1 - 2
Tetrahydrothiophene 1,1-dioxide	126-33-0	204-783-1	< 1
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	216-036-7	0.1 - 2

**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.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P308 + P313	IF exposed or concerned: 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. Avoid contamination of tobacco with polymer resin. Before using, read the most current Safety Data Sheet.

**Notes on labelling**

Regulation 1272/2008, 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 the 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.

## SECTION 3: Composition/information on ingredients

Ingredient	CAS Nbr	EC No.	REACH Registration No.	% by Wt	Classification
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S <sub>2</sub> Cl <sub>2</sub> )	921213-47-0	ELINCS 469-080-6		0.1 - 2	Eye Irrit. 2, H319; Skin Sens. 1A, H317; Aquatic Acute 1, H400,M=10; Aquatic Chronic 1, H410,M=10
Bis(4-chlorophenyl) sulphone	80-07-9	201-247-9		< 1	Aquatic Chronic 2, H411 Eye Irrit. 2, H319
Tetrahydrothiophene 1,1-dioxide	126-33-0	204-783-1		< 1	Acute Tox. 4, H302 Repr. 1B, H360D
Silicon dioxide	7631-86-9	231-545-4		< 1	Substance with a Community level exposure limit in the workplace
Vinylidene Fluoride - Hexafluoropropylene Polymer	9011-17-0			90 - 99	Substance not classified as hazardous
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1	216-036-7		0.1 - 2	Aquatic Chronic 1, H410,M=1 Eye Dam. 1, H318; Repr. 1B, H360F; STOT RE 2, H373

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

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

When fire fighting conditions are severe and total thermal decomposition of the product is possible, wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, tunic and trousers (leggings), bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head. 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
Silicon dioxide	7631-86-9	UK HSC	TWA(as inhalable dust):6 mg/m <sup>3</sup> ;TWA(as respirable dust):2.4 mg/m <sup>3</sup>	

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

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:

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

Solid.

Colour

Straw, White

**Specific Physical Form:**

Solid block or slab

**Odor**

Odourless

**Odour threshold**

*No data available.*

**pH**

*Not applicable.*

**Boiling point/boiling range**

*Not applicable.*

**Melting point**

*Not applicable.*

**Flammability (solid, gas)**

Not classified

**Explosive properties**

Not classified

**Oxidising properties**

Not classified

**Flash point**

No flash point

**Autoignition temperature**

*Not applicable.*

**Flammable Limits(LEL)**

*Not applicable.*

**Flammable Limits(UEL)**

*Not applicable.*

**Vapour pressure**

*Not applicable.*

**Relative density**

1.8 [Ref Std: WATER=1]

**Water solubility**

Negligible

**Solubility- non-water**

*No data available.*

**Partition coefficient: n-octanol/water**

*No data available.*

**Evaporation rate**

*No data available.*

Vapour density	<i>Not applicable.</i>
Decomposition temperature	<i>No data available.</i>
Viscosity	<i>Not applicable.</i>
Density	1.8 g/cm <sup>3</sup>

#### 9.2. Other information

EU Volatile Organic Compounds	<i>No data available.</i>
Molecular weight	<i>No data available.</i>

## 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

<u>Substance</u>	<u>Condition</u>
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 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

Respiratory tract irritation: Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, and nose

and throat pain.

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.

May cause additional health effects (see below).

### Skin contact

During heating:

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

During heating:

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		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



**3M™ Dyneon™ Fluoroelastomer FC 2152**

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
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 Vitro	Some positive data exist, but the data are not sufficient for classification
Bis(4-chlorophenyl) sulphone	In Vitro	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
------	-------	-------	---------	-------------	-------------------

**3M™ Dyneon™ Fluoroelastomer FC 2152**

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	Not classified for development	Rat	NOAEL 100 mg/kg/day	prematuring into lactation
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Ingestion	Toxic to female reproduction	Rat	NOAEL 30 mg/kg/day	prematuring into lactation
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	Ingestion	Toxic to male reproduction	Rat	NOAEL 30 mg/kg/day	55 days
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	prematuring & during gestation
Tetrahydrothiophene 1,1-dioxide	Ingestion	Toxic to development	Rat	NOAEL 60 mg/kg/day	prematuring & 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	

**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 system   respiratory system   vascular system	Not classified	Rat	NOAEL 150 mg/kg/day	28 days
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	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)	Ingestion	nervous system	Not classified	Rat	NOAEL 200	14 weeks

**3M™ Dyneon™ Fluoroelastomer FC 2152**

substance	Route	Target Organ	Classification	Species	mg/kg/day	Duration
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.**

**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**

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 Pseudokirchneriella 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.

Material	CAS #	Organism	Type	Exposure	Test endpoint	Test result
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2C12)	921213-47-0	Green Algae	Estimated	96 hours	EC50	0.18 mg/l
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2C12)	921213-47-0	Water flea	Estimated	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 (S2C12)	921213-47-0	Zebra Fish	Estimated	96 hours	LC50	>1.5 mg/l

**3M™ Dyneon™ Fluoroelastomer FC 2152**

Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2C12)	921213-47-0	Green Algae	Estimated	96 hours	NOEC	0.12 mg/l
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	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		Data not available or insufficient for classification			
Tetrahydrothiophene 1,1-dioxide	126-33-0	Green Algae	Experimental	72 hours	EC50	>1,000 mg/l
Tetrahydrothiophene 1,1-dioxide	126-33-0	Ricefish	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
Vinylidene Fluoride - Hexafluoropropylene Polymer	9011-17-0		Data not available or insufficient for classification			
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]diphenol	1478-61-1		Experimental	72 hours	EC50	0.45 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		Experimental	72 hours	NOEC	0.0087 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	96 hours	NOEC	0.05 mg/l

**12.2. Persistence and degradability**

Material	CAS Nbr	Test type	Duration	Study Type	Test result	Protocol
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene] bis-, reaction products with benzene, chlorine and sulphur chloride (S2C12)	921213-47-0	Estimated Hydrolysis		Hydrolytic half-life	>1 years (t 1/2)	Other methods
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene] bis-, reaction products with benzene, chlorine and sulphur chloride (S2C12)	921213-47-0	Estimated Biodegradation	28 days	CO2 evolution	<=14 % weight	OECD 301B - Modified sturm or CO2
Bis(4-chlorophenyl) sulphone	80-07-9	Experimental Biodegradation	28 days	BOD	0 % BOD/ThBOD	OECD 301C - MITI test (I)
Silicon dioxide	7631-86-9	Data not availbl-			N/A	

## 3M™ Dyneon™ Fluoroelastomer FC 2152

		insufficient				
Tetrahydrothiophene 1,1-dioxide	126-33-0	Experimental Biodegradation	14 days	BOD	10.1 % BOD/ThBOD	OECD 301C - MITI test (I)
Vinylidene Fluoride - Hexafluoropropylene Polymer	9011-17-0	Data not available - insufficient			n/a	
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene] diphenol	1478-61-1	Estimated Photolysis		Photolytic half-life (in air)	4.8 hours (t 1/2)	Other methods
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene] diphenol	1478-61-1	Experimental Biodegradation	28 days	CO2 evolution	0 %CO2 evolution/THC O2 evolution	OECD 301B - Modified sturm or CO2

### 12.3 : Bioaccumulative potential

Material	Cas No.	Test type	Duration	Study Type	Test result	Protocol
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-Carp	35 days	Bioaccumulation factor	82	OECD 305E - Bioaccumulation flow-through fish test
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-Carp	42 days	Bioaccumulation factor	<13	Other methods
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	9.8	OECD 305E - Bioaccumulation flow-through fish test

### 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.

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™ Dyneon™ Fluoroelastomer FC 2152

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

ZF-0002-0220-8

Not hazardous for transportation

## SECTION 15: Regulatory information

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

#### Carcinogenicity

##### Ingredient

Silicon dioxide

##### CAS Nbr

7631-86-9

##### Classification

Gr. 3: Not classifiable

##### Regulation

International Agency  
for Research on Cancer

### 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.

## 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.
H360F	May damage fertility.
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:

No revision information

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.

**3M United Kingdom MSDSs are available at [www.3M.com/uk](http://www.3M.com/uk)**