



Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice (Safe Work Australia, December 2011)

SECTION 1: Identification

1.1. Product identifier

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

Product Identification Numbers

98-0211-0099-9 98-0211-9664-1 98-0211-9667-4

1.2. Recommended use and restrictions on use

Recommended use

Fluoroelastomer

For Industrial or Professional use only.

1.3. Supplier's details

Address: 3M Australia - Building A, 1 Rivett Road, North Ryde NSW 2113
Telephone: 136 136
E Mail: productinfo.au@mmm.com
Website: www.3m.com.au

1.4. Emergency telephone number

EMERGENCY: 1800 097 146 (Australia only)

SECTION 2: Hazard identification

This product is classified as a hazardous chemical according to the Model Work Health and Safety Regulations, 2011, in accordance with applicable State and Territory legislation.

Refer to Section 14 of this Safety Data Sheets for product Dangerous Goods Classification.

2.1. Classification of the substance or mixture

Serious Eye Damage/Irritation: Category 2.

Skin Sensitizer: Category 1.

Reproductive Toxicity: Category 1B.

2.2. Label elements

The label elements below were prepared in accordance with the Code of Practice on Preparation of Safety Data Sheets for Hazardous Chemicals (Safe Work Australia, December 2011). This information may be different from the actual product label.

Signal word

DANGER!

Symbols

Exclamation mark | Health Hazard |

Pictograms



Hazard statements

H319	Causes serious eye irritation.
H317	May cause an allergic skin reaction.
H360	May damage fertility or the unborn child.

Precautionary statements

Prevention:

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280A	Wear eye/face protection.
P280E	Wear protective gloves.
P281	Use personal protective equipment as required.
P264	Wash thoroughly after handling.
P272	Contaminated work clothing should not be allowed out of the workplace.

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.
P337 + P313	If eye irritation persists: Get medical advice/attention.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P308 + P313	IF exposed or concerned: Get medical advice/attention.

Storage:

P405	Store locked up.
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Disposal:

P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.
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2.3. Other assigned/identified product hazards

May cause thermal burns. 3M Vapours liberated during processing may be hazardous if inhaled. Eye, nose, throat and lung irritation can occur from such vapours.

2.4. Other hazards which do not result in classification

None known.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	CAS Nbr	% by Weight
1-Propene,1,1,2,3,3,3-hexafluoro-,polmer with 1,1-difluoroethene and tetrafluoroethene	25190-89-0	0 - 100
Tetrafluoroethylene-propylene-vinylidene fluoride polymer	54675-89-7	0 - 100
Vinylidene Fluoride - Hexafluoropropylene Polymer	9011-17-0	0 - 100
Fluoropolymer (NJTS Reg. No. 04499600-7052)	Trade Secret	0 - 4
Phenol, 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]bis-,ion(1), tributyl(2-methoxypropyl)phosphonium, sodium salt	181531-28-2	0 - 4
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	1478-61-1	0 - 4
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	921213-47-0	0 - 4
4,4'-Dichlorodiphenyl Sulfone	80-07-9	0 - 4
Phosphonium, tributyl (2-ethoxypropyl)-, salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] monosodium salt (1:1)	Trade Secret	0 - 4
Tetrahydrothiophene 1,1-dioxide	126-33-0	0 - 4
Methanol	67-56-1	0 - 0.9
Triphenylbenzylphosphonium salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)	75768-65-9	0 - 2.5

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. Suitable 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. Special protective actions 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. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, 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 in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid inhalation of thermal decomposition products. 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.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

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
Methanol	67-56-1	ACGIH	TWA:200 ppm;STEL:250 ppm	SKIN
Methanol	67-56-1	Australia OELs	TWA(8 hours):262 mg/m3(200 ppm);STEL(15 minutes):328 mg/m3(250 ppm)	SKIN

ACGIH : American Conference of Governmental Industrial Hygienists

AIHA : American Industrial Hygiene Association

Australia OELs : Australia. Adopted National Exposure Standards for Atmospheric Contaminants in the Occupational Environment

CMRG : Chemical Manufacturer's Recommended Guidelines

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit

CEIL: Ceiling

Sen: Sensitiser

Sk: Absorption through the skin may be a significant source of exposure.

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.

Select and use eye protection in accordance with AS/NZS 1336. Eye protection should comply with the performance specifications of AS/NZS 1337.

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: Polymer laminate

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

Select and use gloves according to AS/NZ 2161.

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

Half facepiece or full facepiece supplied-air respirator.

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

Select and use respirators according to AS/NZS 1715. Respirators should comply with AS/NZS 1716 performance specifications. For information about respirators, call 3M on 1800 024 464.

Thermal hazards

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

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
Appearance/Odour	White-to-straw coloured, translucent, rubbery solid.
Odour threshold	<i>No data available.</i>
pH	<i>Not applicable.</i>
Melting point/Freezing point	<i>Not applicable.</i>
Boiling point/Initial boiling point/Boiling range	<i>Not applicable.</i>
Flash point	No flash point
Evaporation rate	<i>No data available.</i>
Flammability (solid, gas)	Not classified
Flammable Limits(LEL)	<i>Not applicable.</i>
Flammable Limits(UEL)	<i>Not applicable.</i>
Vapour pressure	<i>Not applicable.</i>
Vapour density	<i>Not applicable.</i>
Density	1.8 g/cm ³
Relative density	1.8 [Ref Std: WATER=1]
Water solubility	Negligible
Solubility- non-water	<i>No data available.</i>
Partition coefficient: n-octanol/water	<i>No data available.</i>
Autoignition temperature	<i>Not applicable.</i>
Decomposition temperature	<i>No data available.</i>
Viscosity	<i>Not applicable.</i>
Molecular weight	<i>No data available.</i>
Volatile organic compounds (VOC)	<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. Conditions to avoid

None known.

10.4. Possibility of hazardous reactions

Hazardous polymerisation will not occur.

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

11.1 Information on Toxicological effects

Signs and Symptoms of Exposure

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

Inhalation

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

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.

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

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.

Additional information:

This product contains ethanol. Alcoholic beverages and ethanol in alcoholic beverages have been classified by the International Agency for Research on Cancer as carcinogenic to humans. There are also data associating human consumption of alcoholic beverages with developmental toxicity and liver toxicity. Exposure to ethanol during the foreseeable use of this product is not expected to cause cancer, developmental toxicity, or liver toxicity.

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
1-Propene,1,1,2,3,3,3-hexafluoro-,polmer with 1,1-difluoroethene and tetrafluoroethene	Dermal		LD50 estimated to be > 5,000 mg/kg
Tetrafluoroethylene-propylene-vinylidene fluoride polymer	Dermal		LD50 estimated to be > 5,000 mg/kg
Vinylidene Fluoride - Hexafluoropropylene Polymer	Dermal		LD50 estimated to be > 5,000 mg/kg
1-Propene,1,1,2,3,3,3-hexafluoro-,polmer with 1,1-difluoroethene and tetrafluoroethene	Ingestion	Rat	LD50 > 5,000 mg/kg
Tetrafluoroethylene-propylene-vinylidene fluoride polymer	Ingestion	Rat	LD50 > 5,000 mg/kg
Vinylidene Fluoride - Hexafluoropropylene Polymer	Ingestion	Rat	LD50 6,000 mg/kg
Fluoropolymer (NJTS Reg. No. 04499600-7052)	Dermal		LD50 estimated to be > 5,000 mg/kg
Fluoropolymer (NJTS Reg. No. 04499600-7052)	Ingestion		LD50 estimated to be > 5,000 mg/kg
Phenol, 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]bis-,ion(1), tributyl(2-methoxypropyl)phosphonium, sodium salt	Ingestion	Rat	LD50 > 2,000 mg/kg
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	Dermal		LD50 estimated to be 2,000 - 5,000 mg/kg
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	Ingestion	Rat	LD50 3,400 mg/kg
Triphenylbenzylphosphonium salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)	Dermal	Rat	LD50 > 2,000 mg/kg
Triphenylbenzylphosphonium salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	Ingestion	Rat	LD50 25-200 mg/kg

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

ol] (1:1)			
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'-Dichlorodiphenyl Sulfone	Dermal		LD50 estimated to be 2,000 - 5,000 mg/kg
4,4'-Dichlorodiphenyl Sulfone	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
Methanol	Dermal		LD50 estimated to be 1,000 - 2,000 mg/kg
Methanol	Inhalation-Vapour		LC50 estimated to be 10 - 20 mg/l
Methanol	Ingestion		LD50 estimated to be 50 - 300 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene and tetrafluoroethene	Professional judgement	No significant irritation
Vinylidene Fluoride - Hexafluoropropylene Polymer	Rabbit	No significant irritation
Fluoropolymer (NJTS Reg. No. 04499600-7052)	Professional judgement	No significant irritation
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	Guinea pig	Mild irritant
Triphenylbenzylphosphonium salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)	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'-Dichlorodiphenyl Sulfone	Rabbit	Minimal irritation
Tetrahydrothiophene 1,1-dioxide	Rabbit	Minimal irritation
Methanol	Rabbit	Mild irritant

Serious Eye Damage/Irritation

Name	Species	Value
1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene and tetrafluoroethene	Professional judgement	No significant irritation
Vinylidene Fluoride - Hexafluoropropylene Polymer	Rabbit	Mild irritant
Fluoropolymer (NJTS Reg. No. 04499600-7052)	Professional judgement	No significant irritation
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	Professional judgement	Moderate irritant
Triphenylbenzylphosphonium salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)	Rabbit	Corrosive
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'-Dichlorodiphenyl Sulfone	Rabbit	Severe irritant
Tetrahydrothiophene 1,1-dioxide	Rabbit	Moderate irritant
Methanol	Rabbit	Moderate irritant

Skin Sensitisation

Name	Species	Value
Triphenylbenzylphosphonium salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)	Guinea pig	Not classified
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2C12)	Mouse	Sensitising
Tetrahydrothiophene 1,1-dioxide	Guinea pig	Not classified
Methanol	Guinea pig	Not classified

Respiratory Sensitisation

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

Germ Cell Mutagenicity

Name	Route	Value
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	In Vitro	Some positive data exist, but the data are not sufficient for classification
Triphenylbenzylphosphonium salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)	In Vitro	Not mutagenic
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2C12)	In Vitro	Some positive data exist, but the data are not sufficient for classification
4,4'-Dichlorodiphenyl Sulfone	In Vitro	Some positive data exist, but the data are not sufficient for classification
Tetrahydrothiophene 1,1-dioxide	In Vitro	Not mutagenic
Methanol	In Vitro	Some positive data exist, but the data are not sufficient for classification
Methanol	In vivo	Some positive data exist, but the data are not sufficient for classification

Carcinogenicity

Name	Route	Species	Value
4,4'-Dichlorodiphenyl Sulfone	Ingestion	Multiple animal species	Not carcinogenic
Methanol	Inhalation	Multiple animal species	Not carcinogenic

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	Ingestion	Not classified for male reproduction	Rat	NOAEL 600 mg/kg/day	10 days
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2C12)	Ingestion	Not classified for reproduction and/or development	Rat	NOAEL 150 mg/kg/day	28 days
Tetrahydrothiophene	Ingestion	Not classified for	Rat	NOAEL 700	14 days

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

1,1-dioxide		male reproduction		mg/kg/day	
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
Methanol	Ingestion	Not classified for male reproduction	Rat	NOAEL 1,600 mg/kg/day	21 days
Methanol	Ingestion	Toxic to development	Mouse	LOAEL 4,000 mg/kg/day	during organogenesis
Methanol	Inhalation	Toxic to development	Mouse	NOAEL 1.3 mg/l	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]bis[phenol]	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification		NOAEL Not available	
Methanol	Inhalation	blindness	Causes damage to organs	Human	NOAEL Not available	occupational exposure
Methanol	Inhalation	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	not available
Methanol	Inhalation	respiratory irritation	Some positive data exist, but the data are not sufficient for classification	Rat	NOAEL Not available	6 hours
Methanol	Ingestion	blindness	Causes damage to organs	Human	NOAEL Not available	poisoning and/or abuse
Methanol	Ingestion	central nervous system depression	May cause drowsiness or dizziness	Human	NOAEL Not available	poisoning and/or abuse

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
Triphenylbenzylphosphonium salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)	Ingestion	endocrine system heart liver central nervous system nervous system respiratory system vascular system	Not classified	Rat	NOAEL 20 mg/kg/day	28 days
Phenol, 4,4'-[2,2,2-trifluoro-1-	Ingestion	endocrine system liver kidney and/or	Not classified	Rat	NOAEL 150 mg/kg/day	28 days

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

(trifluoromethyl)ethylene] bis-, reaction products with benzene, chlorine and sulphur chloride (S2C12)		bladder auditory system heart bone, teeth, nails, and/or hair bone marrow hematopoietic system immune system nervous system respiratory system vascular system				
4,4'-Dichlorodiphenyl Sulfone	Ingestion	hematopoietic system liver	Not classified	Rat	NOAEL 200 mg/kg/day	14 weeks
4,4'-Dichlorodiphenyl Sulfone	Ingestion	kidney and/or bladder	Not classified	Rat	NOAEL 19 mg/kg/day	14 weeks
4,4'-Dichlorodiphenyl Sulfone	Ingestion	nervous 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
Methanol	Inhalation	liver	Not classified	Rat	NOAEL 6.55 mg/l	4 weeks
Methanol	Inhalation	respiratory system	Not classified	Rat	NOAEL 13.1 mg/l	6 weeks
Methanol	Ingestion	liver nervous system	Not classified	Rat	NOAEL 2,500 mg/kg/day	90 days

Aspiration Hazard

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

Exposure Levels

Refer Section 8.1 Control Parameters of this Safety Data Sheet.

Interactive Effects

Not determined.

SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labelling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:

Not acutely toxic to aquatic life by GHS criteria. Aquatic toxicity classifications based on the results from a leachate study conducted per methodology allowed for in Annex 10 of UN GHS.

Chronic aquatic hazard:

Not chronically toxic to aquatic life by GHS criteria. Aquatic toxicity classifications based on the results from a leachate study conducted per methodology allowed for in Annex 10 of UN GHS.

No product test data available.

Material	CAS Number	Organism	Type	Exposure	Test endpoint	Test result
1-Propene,1,1,2,3,3,3-hexafluoro-,polymer with 1,1-difluoroethene and tetrafluoroethene	25190-89-0		Laboratory		LC50	>100 mg/l
1-Propene,1,1,2,3,3,3-hexafluoro-,polymer with 1,1-difluoroethene and tetrafluoroethene	25190-89-0		Data not available or insufficient for classification			
1-Propene,1,1,2,3,3,3-hexafluoro-,polymer with 1,1-difluoroethene and tetrafluoroethene	25190-89-0		Laboratory		NOEC	>100 mg/l
Tetrafluoroethylene-propylene-vinylidene fluoride polymer	54675-89-7		Laboratory		LC50	>100 mg/l
Tetrafluoroethylene-propylene-	54675-89-7		Data not available or			

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

vinylidene fluoride polymer			insufficient for classification			
Tetrafluoroethylene-propylene-vinylidene fluoride polymer	54675-89-7		Laboratory		NOEC	>100 mg/l
Vinylidene Fluoride - Hexafluoropropylene Polymer	9011-17-0		Data not available or insufficient for classification			
Fluoropolymer (NJTS Reg. No. 04499600-7052)	Trade Secret		Data not available or insufficient for classification			
Phenol, 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]bis-,ion(1), tributyl(2-methoxypropyl)phosphonium, sodium salt	181531-28-2	Rainbow trout	Estimated	96 hours	LC50	<1 mg/l
Phenol, 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]bis-,ion(1), tributyl(2-methoxypropyl)phosphonium, sodium salt	181531-28-2	Green Algae	Experimental	72 hours	EC50	1.3 mg/l
Phenol, 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]bis-,ion(1), tributyl(2-methoxypropyl)phosphonium, sodium salt	181531-28-2	Water flea	Experimental	48 hours	EC50	4.1 mg/l
Phenol, 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]bis-,ion(1), tributyl(2-methoxypropyl)phosphonium, sodium salt	181531-28-2	Green Algae	Experimental	72 hours	NOEC	0.23 mg/l

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

sodium salt						
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	1478-61-1	Rainbow trout	Experimental	96 hours	LC50	<1 mg/l
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	1478-61-1	Water flea	Experimental	48 hours	EC50	3.2 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	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 (S2Cl2)	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 (S2Cl2)	921213-47-0	Zebra Fish	Estimated	96 hours	LC50	>1.5 mg/l
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene,	921213-47-0	Green Algae	Estimated	96 hours	NOEC	0.12 mg/l

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

chlorine and sulphur chloride (S ₂ Cl ₂)						
4,4'-Dichlorodiphenyl Sulfone	80-07-9	Green Algae	Endpoint not reached	72 hours	EC50	>100 mg/l
4,4'-Dichlorodiphenyl Sulfone	80-07-9	Water flea	Experimental	48 hours	EC50	>100 mg/l
4,4'-Dichlorodiphenyl Sulfone	80-07-9	Zebra Fish	Experimental	96 hours	LC50	>100 mg/l
4,4'-Dichlorodiphenyl Sulfone	80-07-9	Green algae	Experimental	72 hours	NOEC	0.28 mg/l
4,4'-Dichlorodiphenyl Sulfone	80-07-9	Water flea	Experimental	21 days	NOEC	0.32 mg/l
Phosphonium, tributyl (2-ethoxypropyl)-, salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] monosodium salt (1:1)	Trade Secret		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
Methanol	67-56-1	Algae or other aquatic plants	Experimental	96 hours	EC50	16.9 mg/l
Methanol	67-56-1	Bluegill	Experimental	96 hours	LC50	15,400 mg/l
Methanol	67-56-1	Green Algae	Experimental	96 hours	EC50	22,000 mg/l
Methanol	67-56-1	Water flea	Experimental	24 hours	EC50	20,803 mg/l
Methanol	67-56-1	Algae or other aquatic plants	Experimental	96 hours	NOEC	9.96 mg/l
Methanol	67-56-1	Water flea	Experimental	21 days	NOEC	122 mg/l
Triphenylbenzylphosphonium	75768-65-9	Rainbow trout	Estimated	96 hours	LC50	<1 mg/l

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)						
Triphenylbenzylphosphonium salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)	75768-65-9	Water flea	Estimated	48 hours	EC50	3.2 mg/l

12.2. Persistence and degradability

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
1-Propene, 1,1,2,3,3,3-hexafluoro-polymer with 1,1-difluoroethene and tetrafluoroethene	25190-89-0	Data not available-insufficient			N/A	
Tetrafluoroethylene-propylene-vinylidene fluoride polymer	54675-89-7	Data not available-insufficient			N/A	
Vinylidene Fluoride - Hexafluoropropylene Polymer	9011-17-0	Data not available-insufficient			n/a	
Fluoropolymer (NJTS Reg. No. 04499600-7052)	Trade Secret	Data not available-insufficient			N/A	
Phenol, 4,4'-[2,2,2-Trifluoro-1-(trifluoromethyl)ethylidene]bis-, ion(1), tributyl(2-methoxypropyl)phosphonium, sodium salt	181531-28-2	Experimental Biodegradation	28 days	CO2 evolution	8 % weight	OECD 301B - Modified sturm or CO2
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	1478-61-1	Estimated Biodegradation	28 days	BOD	0.67 % weight	OECD 301C - MITI test (I)

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, reaction products with benzene, chlorine and sulphur chloride (S2Cl2)	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 (S2Cl2)	921213-47-0	Estimated Biodegradation	28 days	CO2 evolution	<=14 % weight	OECD 301B - Modified sturm or CO2
4,4'-Dichlorodiphenyl Sulfone	80-07-9	Experimental Biodegradation	28 days	BOD	0 % BOD/ThBOD	OECD 301C - MITI test (I)
Phosphonium, tributyl (2-ethoxypropyl)-, salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis [phenol] monosodium salt (1:1)	Trade Secret	Data not available-insufficient			N/A	
Tetrahydrothiophene 1,1-dioxide	126-33-0	Experimental Biodegradation	14 days	BOD	10.1 % BOD/ThBOD	OECD 301C - MITI test (I)
Methanol	67-56-1	Experimental Biodegradation	14 days	BOD	92 % BOD/ThBOD	OECD 301C - MITI test (I)
Triphenylbenzylphosphonium salt with 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis [phenol] (1:1)	75768-65-9	Estimated Biodegradation	28 days	BOD	0.67 % BOD/ThBOD	OECD 301C - MITI test (I)

12.3 : Bioaccumulative potential

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
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3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

1-Propene, 1,1,2,3,3,3-hexafluoro-, polymer with 1,1-difluoroethene and tetrafluoroethene	25190-89-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Tetrafluoroethylene-propylene-vinylidene fluoride polymer	54675-89-7	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Vinylidene Fluoride - Hexafluoropropylene Polymer	9011-17-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Fluoropolymer (NJTS Reg. No. 04499600-7052)	Trade Secret	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Phenol, 4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis-, ion(1), tributyl(2-methoxypropyl)phosphonium, sodium salt	181531-28-2	Estimated Bioconcentration		Bioaccumulation factor	115	Other methods
4,4'-[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol]	1478-61-1	Estimated Bioconcentration		Bioaccumulation factor	11.5	Estimated: Bioconcentration factor
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
4,4'-Dichlorodiphenyl Sulfone	80-07-9	Experimental BCF-Carp	35 days	Bioaccumulation factor	82	OECD 305E - Bioaccumulation flow-through fish test
Phosphonium, tributyl(2-methoxypropyl)-,	Trade Secret	Data not available or insufficient for	N/A	N/A	N/A	N/A

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

salt with 4,4' - [2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] monosodium salt (1:1)		classification				
Tetrahydrothiophene 1,1-dioxide	126-33-0	Experimental BCF-Carp	42 days	Bioaccumulation factor	<13	Other methods
Methanol	67-56-1	Experimental Bioconcentration		Log Kow	-0.77	Other methods
Triphenylbenzylphosphonium salt with 4,4' - [2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis[phenol] (1:1)	75768-65-9	Experimental Bioconcentration		Log Kow	2.6	Other methods

12.4. Mobility in soil

Please contact manufacturer for more details

12.5 Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Disposal 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.

SECTION 14: Transport Information

Australian Dangerous Goods Code (ADG) - Road/Rail Transport

UN No.: Not applicable.

Proper shipping name: Not applicable.

Class/Division: Not applicable.

Sub Risk: Not applicable.

Packing Group: Not applicable.

Hazchem Code: Not applicable

IERG: Not applicable.

International Air Transport Association (IATA) - Air Transport

UN No.: Not applicable.

Proper shipping name: Not applicable.

Class/Division: Not applicable.

Sub Risk: Not applicable.

3M™ Dyneon™ Fluoroelastomers FC 2110Q, FC 2122, FC 2123C, FC 2124, FC 2146X, FC 2152, FC 2153, FC 2161, FC 2180, FC 2181, FC 2181PS

Packing Group: Not applicable.

International Maritime Dangerous Goods Code (IMDG)- Marine Transport

UN No.: Not applicable.

Proper shipping name: Not applicable.

Class/Division: Not applicable.

Sub Risk: Not applicable.

Packing Group: Not applicable.

Marine Pollutant: Not applicable.

SECTION 15: Regulatory information

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

Australian Inventory Status:

An ingredient(s) in this product is being introduced under the no unreasonable risk non-cosmetic (<100 Kg) exemption provisions specified in Section 21(4) of the Industrial Chemicals (Notification and Assessment) Act 1989 as amended. This 3M safety data sheet represents a group of products. Products imported by 3M Australia are listed on the Australian Inventory of Chemical Substances and are in compliance with the requirements of the Industrial Chemicals (Notification and Assessment) Act 1989 as amended.

Poison Schedule: This product is intended for Industrial or Professional Use only and therefore is not packaged and labelled in accordance with the requirements of the Standard for the Uniform Scheduling of Medicines and Poisons.

SECTION 16: Other information

Revision information:

Initial issue.

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 Safety 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.

Greenguard ® is a United States based program. The 'Low VOC' reference related to United States Federal and State regulations exemptions for some solvents.

3M Australia SDSs are available at www.3m.com.au