

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[™] Dynamar[™] Elastomer Additive FC 2172

Product Identification Numbers 98-0211-0099-9 98-0211-0100-5

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. Reproductive Toxicity: Category 1.

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 H360

Causes serious eye irritation. May damage fertility or the unborn child.

Precautionary statements

Prevention: P201 P202 P264	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling.
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.
P337 + P313	IF eye irritation persists: Get medical advice/attention.
Storage: P405	Store locked up.
Disposal:	
P501	Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

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
Vinylidene Fluoride - Hexafluoropropylene	9011-17-0	90 - 99
Polymer		
Tributyl(2-methoxypropyl)phosphonium	121848-13-3	1 - 10
chloride		

4,4'-[2,2,2-trifluoro-1-	1478-61-1	< 3
(trifluoromethyl)ethylidene]bis[phenol]		
Benzyltriphenylphosphonium chloride	1100-88-5	<1

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. 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

No special protective actions for fire-fighters are anticipated.

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 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. 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

Occupational exposure limits

No occupational exposure 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.

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:

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. 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, indirect vented goggles, and a full face shield when handling hot material to prevent thermal burns.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

information on basic physical and chemical properti	
Physical state	Solid.
Specific Physical Form:	Solid Block or Slab
Colour	Straw, White
Odour	Odourless
Odour threshold	No data available.
рН	Not applicable.
Melting point/Freezing point	Not applicable.
Boiling point/Initial boiling point/Boiling range	Not applicable.
Flash point	No flash point
Evaporation rate	No data available.
Flammability (solid, gas)	Not classified
Flammable Limits(LEL)	Not applicable.
Flammable Limits(UEL)	Not applicable.
Vapour pressure	Not applicable.
Vapor Density and/or Relative Vapor Density	Not applicable.
Density	1.8 g/cm3
Relative density	1.8 [<i>Ref Std</i> :WATER=1]
Water solubility	Negligible
Solubility- non-water	No data available.
Partition coefficient: n-octanol/water	No data available.
Autoignition temperature	Not applicable.
Decomposition temperature	No data available.
Viscosity/Kinematic Viscosity	Not applicable.
Volatile organic compounds (VOC)	No data available.
Percent volatile	No data available.
VOC less H2O & exempt solvents	No data available.
Molecular weight	No data available.
	1

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.

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 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.

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.

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
Tributyl(2- methoxypropyl)phosphonium chloride	Ingestion	Rat	LD50 >300, <2000 mg/kg
4,4'-[2,2,2-trifluoro-1- (trifluoromethyl)ethylidene]bis[phen ol]	Dermal	Rat	LD50 > 2,000 mg/kg
4,4'-[2,2,2-trifluoro-1- (trifluoromethyl)ethylidene]bis[phen ol]	Ingestion	Rat	LD50 > 2,000 mg/kg
Benzyltriphenylphosphonium chloride	Ingestion	Rat	LD50 >100, <300 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
Vinylidene Fluoride - Hexafluoropropylene Polymer	Rabbit	No significant irritation
4,4'-[2,2,2-trifluoro-1-	Rabbit	No significant irritation
(trifluoromethyl)ethylidene]bis[phenol]		C C
Benzyltriphenylphosphonium chloride	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
Vinylidene Fluoride - Hexafluoropropylene	Rabbit	Mild irritant
Polymer		
4,4'-[2,2,2-trifluoro-1-	Rabbit	Corrosive
(trifluoromethyl)ethylidene]bis[phenol]		
Benzyltriphenylphosphonium chloride	Rabbit	Corrosive

Skin Sensitisation

Name	Species	Value
4,4'-[2,2,2-trifluoro-1- (trifluoromethyl)ethylidene]bis[phenol]	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-	In Vitro	Some positive data exist, but the data are not
(trifluoromethyl)ethylidene]bis[phenol]		sufficient for classification

Carcinogenicity

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

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test result	Exposure Duration
4,4'-[2,2,2-trifluoro-	Ingestion	Not classified for development	Rat	NOAEL 100 mg/kg/day	premating into lactation
1- (trifluoromethyl)ethyl idene]bis[phenol]		development		iiig/kg/day	lactation
4,4'-[2,2,2-trifluoro- 1- (trifluoromethyl)ethyl idene]bis[phenol]	Ingestion	Toxic to female reproduction	Rat	LOAEL 30 mg/kg/day	premating into lactation
4,4'-[2,2,2-trifluoro- 1- (trifluoromethyl)ethyl idene]bis[phenol]	Ingestion	Toxic to male reproduction	Rat	LOAEL 30 mg/kg/day	55 days

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- (trifluorometh yl)ethylidene] bis[phenol]	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 - Hexafluoropr opylene Polymer	Ingestion	liver	Not classified	Rat	NOAEL 10,000 mg/kg/day	2 weeks
4,4-[2,2,2- trifluoro-1- (trifluorometh yl)ethylidene] bis[phenol]	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

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	Туре	Exposure	Test endpoint	Test result
Vinylidene Fluoride - Hexafluoropropyle ne Polymer	9011-17-0	N/A	Data not available or insufficient for classification	N/A	N/A	n/a
Tributyl(2- methoxypropyl)pho sphonium chloride	121848-13-3	Activated sludge	Analogous Compound	3 hours	EC50	>1,000 mg/l
Tributyl(2- methoxypropyl)pho sphonium chloride		Fathead minnow	Analogous Compound	96 hours	LC50	39 mg/l
Tributyl(2- methoxypropyl)pho sphonium chloride		Green algae	Analogous Compound	96 hours	EC50	34 mg/l
Tributyl(2- methoxypropyl)pho sphonium chloride		Water flea	Analogous Compound	48 hours	EC50	53 mg/l
4,4'-[2,2,2- trifluoro-1- (trifluoromethyl)et hylidene]bis[pheno 1]	1478-61-1	Green algae	Experimental	72 hours	ErC50	>0.808 mg/l
4,4'-[2,2,2- trifluoro-1- (trifluoromethyl)et hylidene]bis[pheno 1]	1478-61-1	Water flea	Experimental	48 hours	EC50	2.7 mg/l
4,4'-[2,2,2- trifluoro-1- (trifluoromethyl)et hylidene]bis[pheno 1]	1478-61-1	Green algae	Experimental	72 hours	NOEC	0.0522 mg/l
4,4'-[2,2,2- trifluoro-1- (trifluoromethyl)et hylidene]bis[pheno 1]	1478-61-1	Water flea	Experimental	21 days	NOEC	0.23 mg/l
4,4'-[2,2,2- trifluoro-1- (trifluoromethyl)et hylidene]bis[pheno	1478-61-1	Zebra Fish	Experimental	28 days	NOEC	0.05 mg/l

1]						
4,4'-[2,2,2-	1478-61-1	Activated sludge	Experimental	3 hours	EC50	126.8
trifluoro-1-						
(trifluoromethyl)et						
hylidene]bis[pheno						
1]						
Benzyltriphenylpho	1100-88-5	Green algae	Experimental	72 hours	EC50	0.59 mg/l
sphonium chloride						
Benzyltriphenylpho	1100-88-5	Water flea	Experimental	48 hours	EC50	1 mg/l
sphonium chloride			-			-
Benzyltriphenylpho	1100-88-5	Green algae	Experimental	72 hours	EC10	0.25 mg/l
sphonium chloride		-	-			-

12.2. Persistence and degradability

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
Vinylidene	9011-17-0	Data not	N/A	N/A	N/A	N/A
Fluoride - Hexafluoropropyle ne Polymer		available- insufficient				
Tributyl(2- methoxypropyl)pho sphonium chloride	121848-13-3	Analogous Compound Biodegradation	28 days	BOD	7.7 %BOD/ThOD	
4,4'-[2,2,2- trifluoro-1- (trifluoromethyl)et hylidene]bis[pheno l]	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)et hylidene]bis[pheno l]	1478-61-1	Estimated Hydrolysis		Hydrolytic half-life (pH 7)	>1 years (t 1/2)	EC C.7 Hydrolysis at pH
Benzyltriphenylpho sphonium chloride	1100-88-5	Experimental Biodegradation	28 days	BOD	0-1 %BOD/ThOD	OECD 301D - Closed bottle test

12.3 : Bioaccumulative potential

Material	CAS Number	Test type	Duration	Study Type	Test result	Protocol
Vinylidene Fluoride - Hexafluoropropyle ne Polymer	9011-17-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
Tributyl(2- methoxypropyl)pho sphonium chloride	121848-13-3	Experimental Bioconcentration		Log Kow	2.0	
4,4'-[2,2,2- trifluoro-1- (trifluoromethyl)et hylidene]bis[pheno l]	1478-61-1	Experimental BCF - Other	168 hours	Bioaccumulation factor	9.0	OECD305-Bioconcentration
4,4'-[2,2,2- trifluoro-1- (trifluoromethyl)et hylidene]bis[pheno l]	1478-61-1	Experimental Bioconcentration		Log Kow	2.79	EC A.8 Partition Coefficient
Benzyltriphenylpho sphonium chloride	1100-88-5	Experimental Bioconcentration		Log Kow	-0.7	

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. 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:

All components of this product are listed on or exempt from the Australian Inventory of Industrial Chemicals (AIIC). Conditions may apply prior to introduction for direct importers of this product, Please contact 3M Australia on 136 136 for further details.

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:

Update to product identification numbers.

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