

## 3M™ Dynamar™ Elastomer Additive FC 2171

### Typical Properties (Data not for specification purposes)

Specific Gravity [3M 14.10]	1.75
Color	Tan
Solubility	Ketones and Esters

### Introduction

Dynamar FC 2171 is a process aid masterbatch designed for use in all bisphenol-curable fluoroelastomers. FC 2171 also contains fluoroelastomer curatives, so it can be used at levels from 5-20 phr without cure adjustment.

### Use

When used as a replacement for a portion of the bisphenol-curable fluoroelastomer, FC 2171 generally exhibits the following:

Dynamar™ FC 2171	Dyneon™ FC 2170	Reduces Mill Sticking	Improved Mold Release	Extrusion Improvements
5	95	Yes	Some	Little
10	90	Yes	Yes	Some
20 or more	80 or less	Yes	Yes	Yes

### ISO 9000

Dynamar™ elastomer additives are manufactured at ISO 9000 registered facilities.

### Product Form

FC 2171 is packaged in slab form. Nominal size is 22" x 12" x 3". Available in 20 kg boxes.

## 3M™ Dynamar™

### Elastomer Additive FC 2171

## Typical Properties of Vulcanizate

(Data not for specification purposes)

Compound	phr	phr
Dyneon™ FC 2170	80	100
Dynamar™ FC 2171	20	–
MT Black (N-990)	30	30
Ca(OH) <sub>2</sub>	6	6
MgO	3	3

## Typical Rheological Properties

Mooney Scorch, MS @ 121 °C (250 °F)

Minimum	19	38
Time to a 10 point rise (min)	25+	25+
Point Rise @ 25 min	0	0

Monsanto Moving Die Rheometer (MDR 2000®)

@177 °C (350 °F) 100 cpm, 0.5° Arc, 6 minutes

ML, Minimum Torque - in-lb (dNm)	0.9 (1.0)	1.1 (1.2)
ts2, Time to 2 in-lb rise from minimum - min	1.8	1.8
t50, Time to 50% cure - min	2.2	2.2
t90, Time to 90% cure - min	3.2	3.1
MH, Maximum Torque - in-lb (dNm)	22.2 (25.1)	23.7 (26.8)

## Typical Physical Properties

Press Cure 10 minutes @ 177 °C (350 °F)

Post Cure 20 hours @ 260 °C (500 °F)

Tensile, psi (MPa)	1960 (13.5)	1900 (12.1)
100% Modulus, psi (MPa)	1040 (7.1)	880 (6.0)
Elongation at break, %	170	180
Hardness, Shore "A" [ASTM D 2240]	73	70

Compression Set, %

[ASTM D395 Method (Molded Disk)]

Aged 70 hours @200 °C (392 ° F)	10	8
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## 3M™ Dynamar™

### Elastomer Additive FC 2171

#### Effect of Various Levels of FC 2171

##### on Typical Physical Properties

Compound					
Dyneon™ FC 2170	100	95	90	80	60
Dynamar™ FC 2171		5	10	20	40
MT Black (N-990)	30	30	30	30	30
Ca(OH) <sub>2</sub>	3	3	3	3	3
MgO	6	6	6	6	6

#### Typical Physical Properties

Press Cure 20 minutes @ 168 °C (335 °F)

Post Cure 24 hours @ 260 °C (500 °F)

Original Properties					
Tensile Strength, psi (MPa)	1900 (13.1)	1870 (12.9)	1960 (13.5)	1810 (12.5)	1680 (11.6)
100% Modulus, psi (MPa)	880 (6.1)	1110 (7.7)	1040 (7.2)	930 (6.4)	1140 (7.9)
Elongation, %	180	180	170	180	150
Hardness, Shore "A" [ASTM D 2240]	70	74	76	77	81

#### Compression set, % [ASTM D395 Method B]

(1/2" disk) 70hrs. @ 200 °C (392 ° F)	8	10	10	12	17
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## 3M™ Dynamar™

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#### Safety Instructions

Follow the normal precautions observed with all fluoropolymer materials.

Please consult the Material Safety Data Sheet and Product Label for information regarding the safe handling of the material. By following all precautions and safety measures, processing these products poses no known health risks. General handling/processing precautions include: 1) Process only in well-ventilated areas. 2) Do not smoke in areas contaminated with powder/residue from these products. 3) Avoid eye contact. 4) If skin comes into contact with these products during handling, wash with soap and water afterwards. 5) Avoid contact with hot fluoropolymer.

Potential hazards, including release of toxic vapours, can arise if processing occurs under excessively high temperature conditions. Vapour extractor units should be installed above processing equipment. When cleaning processing equipment, do not burn off any of this product with a naked flame or in a furnace.

#### Important Notice

All information set forth herein is based on our present state of knowledge and is intended to provide general notes regarding products and their uses. It should not therefore be construed as a guarantee of specific properties of the products described or their suitability for a particular application. Because conditions of product use are outside Dyneon's control and vary widely, user must evaluate and determine whether a Dyneon product will be suitable for user's intended application before using it.

The quality of our products is warranted under our General Terms and Conditions of Sale as now are or hereafter may be in force.

Technical information, test data, and advice provided by Dyneon personnel are based on information and tests we believe are reliable and are intended for persons with knowledge and technical skills sufficient to analyze test types and conditions, and to handle and use raw polymers and related compounding ingredients.

No license under any Dyneon or third party intellectual rights is granted or implied by virtue of this information.

General recommendations on health and safety in processing, on work hygiene and on measures to be taken in the event of accident are detailed in our material safety data sheets.

You will find further notes on the safe handling of fluoropolymers in the brochure „Guide for the safe handling of Fluoropolymers Resins“ (download link) by PlasticsEurope, Box 3, B-1160 Brussels, Tel. +32 (2) 676 17 32.

You can also download it with your smartphone using the QR code below.



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