Science.
Applied to Life.™

3M Advanced Materials Division

3M™ Dyneon™ Fluoroelastomer FPO 3620

Features and Benefits

- Low viscosity
- No metal oxides required for cure
- Process targets: injection molding, compression and transfer molding, extrusion, calendaring
- High resistance against chemical fluids
- Good physical properties right out of the press

Typical Applications

- Suitable for hoses, such as turbo charger hoses
- Molded goods

Note: Data in this document are not for specification purposes.

Typical Properties

Property	Units	Value
Color		White to Light Brown
Fluorine Content	%	67.3
Mooney Viscosity ML 1 + 10 @ 121°C (250°F)	MU	Approximately 20
Solubility		Ketones and Esters
Specific Gravity	%	1.81
Tg	°C (°F)	-17 (1)

Product Description

3M™ Dyneon™ Peroxide Cure Fluoroelastomer FPO 3620 is a terpolymer of vinylidene fluoride, hexafluoropropylene, and tetrafluoroethylene plus cure site monomer.

Processing Guidelines

Dyneon fluoroelastomer FPO 3620 can be compounded using standard water-cooled internal mixers or two-roll mills with standard fillers and ingredients utilized in typical fluoroelastomer formulations. The dry ingredients should be blended before adding to the masticated gum. For best results, Dyneon fluoroelastomer FPO 3620 should be banded on the mill several minutes prior to adding the blended dry ingredients. Low mooney and medium mooney grades can be blended to achieve desired visocity.

Delivered Product Form

FPO 3620 is packaged in crumb form and is available in 25 kg (55 lbs) boxes, comprised of 2 individual polyethylene bags containing 12.5 kg (27.5 lbs) of product. Larger quantities are available in 675 kg (1485 lbs) boxes, comprised of 54 individual polyethylene bags containing 12.5 kg (27.5 lbs) of product. Due to the nature of crumb material, product color may vary within a bag and between bags and lots. It is typical to see variations of opaqueness and color due to product cold flow.

Note: Package size(s) may vary by region.

ISO Registrations

All Dyneon fluoroelastomers are manufactured at ISO 9001 and 14001 registered facilities.

Safety/Toxicology

Follow recommended handling precautions for use of Dyneon fluoroelastomers from 3M. General handling precautions include; (1) Store and use all Dyneon fluoroelastomers only in well-ventilated areas; (2) Do not smoke in areas contaminated with dust from Dyneon fluoroelastomers; (3) Avoid eye contact; (4) After handling Dyneon fluoroelastomers, wash any contacted skin with soap and water.

Potential hazards, including evolution of toxic vapors, do exist during compounding or processing under high-temperature conditions. Before processing Dyneon fluoroelastomers, consult the product Safety Data Sheet (SDS) and follow all label directions and handling precautions. You should also read and follow all directions from other compound ingredient suppliers. Refer to the Dyneon fluoroelastomer safety data sheet for additional safety information.

Typical Properties of Vulcanizate

Compound	Amount (in parts/100) With ZnO	Amount (in parts/100) Without ZnO
3M™ Dyneon™ Fluoroelastomer FPO 3620	100	100
TAIC®-DLCA (72%)	2.5	2.5
Varox® DBPH-50	1.5	1.5
ZnO	3	0
Carbon Black N-990	30	30

Typical Rheological Properties [ASTM D5289]
Moving Die Rheometer (MDR) 100 cpm, 0.5° Arc
12 Minutes @ 177°C (351°F)

Property	Units	With ZnO	Without ZnO
ML, Minimum Torque	dNm (in-lb)	0.6 (0.6)	0.6 (0.5)
MH, Maximum Torque	dNm (in-lb)	24.0 (21.2)	23.0 (20.35)
ts2, Time to 2 Inch-lb Rise from Minimum	Minutes	0.55	0.55
t'50, Time to 50% Cure	Minutes	0.78	0.82
t'90, Time to 90% Cure	Minutes	1.48	1.60

Typical Physical Properties [ASTM D412 Method A, Die D]
Press Cure 10 Minutes @ 177°C (351°F)

Property	Units	With ZnO	Without ZnO
Durometer Type A Hardness [ASTM D2240]	Points	65	64
Tensile	MPa (psi)	14.0 (2031)	14.8 (2150)
Elongation at Break	%	255	283
100% Modulus	MPa (psi)	3.6 (520)	3.3 (473)

Typical Physical Properties [ASTM D412 Method A, Die D]
Press Cure 10 Minutes @ 177°C (351°F)
Post Cure 4 Hours @ 232°C (450°F)

Property	Units	With ZnO	Without ZnO
Durometer Type A Hardness [ASTM D2240]	Points	68	67
Tensile	MPa (psi)	23.1 (3346)	23.0 (3331)
Elongation	%	258	270
100% Modulus	MPa (psi)	4.4 (645)	3.8 (544)

Heat Resistance [ASTM D573]

Press Cure 10 Minutes @ 177°C (351°F)
Post Cure 4 Hours @ 232°C (450°F)

Property	Units	With ZnO	Without ZnO
70 Hours @ 200°C (392°F)			
Change in Hardness	Points	1	1
Change in Tensile Strength	%	-3	3
Change in Ultimate Elongation	%	-2	2
70 Hours @ 232°C (450°F)			
Change in Hardness	Points	1	-1
Change in Tensile Strength	%	-2	-21
Change in Ultimate Elongation	%	9	-5

Compression Set Resistance

Press Cure 10 Minutes @ 177°C (351°F)
Post Cure 4 Hours @ 232°C (450°F)

Test Conditions	Sample Tested	Units	With ZnO	Without ZnO
70 Hours @ 200°C (392°F) ASTM D1414	**-214 O-ring**	%	26	32
22 Hours @ 150°C (302°F) VDA 675 218	**15 × 2 mm Disc**	%	40	43

Low Temperature [ASTM D1329]

		With ZnO	Without ZnO
TR10	°C (°F)	-	-15.5 (4.1)

Customer Service

Europe

Dyneon GmbH
3M Advanced Materials Division
Carl-Schurz-Straße
41453 Neuss
Germany
Phone: +00 800 396 366 27
Fax: +00 800 396 366 39
www.dyneon.eu

Italy
Phone: 0 800 7 910 18
Fax: 0 800 7 910 19

Latin America

3M Brasil
Via Anhanguera km
110 Sumare
Sao Paulo CEP 13181-900
Brasil
Phone: 0800 0132333

3M Mexico
Santa Fe 190, Col. Santa Fe
Deleg. Alvaro Obregon
Mexico D.F., C.P. 01210
México
Phone: 0052 5552700 400
Ext 82935

Asia

3M Japan
6-7-29, Kita-Shinagawa
Shinagawa-ku
Tokyo 141-8684
Japan
Phone: 81 570 022 123

3M Korea
19F, 82, Uisadang-daero
Yeongdeungpo-gu, Seoul, 150-705
Korea
Phone: 82 2 3771 4027

3M Taiwan
6F, No.95, Sec. 2
Dunhua S. Rd.
Taipei 10682
Taiwan
Phone: 886 2 2704 9011

3M Thailand
150 Soi Chalongkrung 31
Ladkrabang Bangkok, 10520
Thailand
Phone: 66 2739 4803 9
Ext 2354

USA

3M Advanced Materials Division
3M Center, 280-01W-03
St. Paul, MN 55144-1000
United States
Phone: 1 800 810 8499

Please visit 3M.com/fluoropolymers for additional regional contact information.

Warranty, Limited Remedy, and Disclaimer: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. User is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application. User is solely responsible for evaluating third party intellectual property rights and for ensuring that user's use of 3M product does not violate any third party intellectual property rights. Unless a different warranty is specifically stated in the applicable product literature or packaging insert, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. 3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OF NON-INFRINGEMENT OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM OR USAGE OF TRADE. If the 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damages arising from the 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

Technical Information: Technical information, recommendations, and other statements contained in this document or provided by 3M personnel are based on tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed. Such information is intended for persons with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. No license under any 3M or third party intellectual property rights is granted or implied with this information.

3M Advanced Materials Division

3M Center
St. Paul, MN 55144 USA

Phone 1-800-810-8499
Web www.3M.com/fluoropolymers