3M Science. Applied to Life.™

3M Advanced Materials Division

3M™ Dyneon™ Fluoroelastomer FG 5630Q

Features and Benefits

- Low viscosity version of 3M™ Dyneon™ Fluoroelastomer FG 5690Q
- In compliance with the FDA regulation 21 CFR 177.2600 for use in the production of rubber articles intended for repeated use in contact with food when used at no more than 60% by weight in the final compound, and properly post-cured for 16 hours at 230°C
- When compared to diamine cured compounds this product gives:
  - Excellent mold release
  - Better mold flow
  - Outstanding compression set resistance
  - Excellent water resistance at elevated temperatures

Typical Applications

- Recommended for O-rings with direct food contact
- Molded shapes, composites and sheet goods
- Can be blended with 3M™ Dyneon™ Fluoroelastomer FC 2230 and 3M™ Dyneon™ Fluoroelastomer FC 2178 to adjust crosslink density

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

Typical Properties

Property	Units	Value
Fluorine Content	%	65.9
Specific Gravity		1.86
Color		Opaque Off-White
Solubility		Ketones and Esters
Mooney Viscosity ML 1 + 10 @ 121°C (250°F)	MU	Approximately 30

Product Description

3M Dyneon Fluoroelastomer FG 5630Q is a dipolymer of vinylidene fluoride and hexafluoropropylene with proprietary incorporated cure technology.

Processing Guidelines

Dyneon fluoroelastomer FG 5630Q can be compounded using standard water-cooled internal mixers or two-roll mills. The dry ingredients should be blended before adding to the masticated gum. For best results, Dyneon fluoroelastomer FG 5630Q should be banded on the mill several minutes prior to adding the blended dry ingredients. Once mixed, the compounded stocks display excellent processing characteristics and storage stability.

Compliance with Regulations

It is the responsibility of the user to determine whether its specific formulation and intended use comply with applicable laws and are suitable for its intended application. For food contact applications, fillers and ingredients utilized must be in compliance with applicable regulations for repeated food contact use.

Delivered Product Form

Dyneon fluoroelastomer FG 5630Q is packaged in bale form and is available in a returnable bulk shipping container system for 600 kg (1,320 lbs) of material. The bulk container system is comprised of 48 individual green polyethylene bags containing 12.5 kg (27.5 lbs) of product. Smaller quantities are available in 25.0 kg (55.1 lbs) boxes.

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

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.

ISO Registrations

All 3M™ Dyneon™ Fluoroelastomers are manufactured at ISO 9001 and 14001 registered facilities.

Typical Properties of Vulcanizate

Compound	Amount (in parts/100)
3M™ Dyneon™ Fluoroelastomer FG 5630Q	100
N990 MT Carbon Black	30
MgO	3
$Ca(OH)_2$	6

Typical Rheological Properties [ASTM D5289]

Moving Die Rheometer (MDR) 100 cpm, 0.5° Arc
6 Minutes @ 177°C (351°F)

Property	Units	Value
ML, Minimum Torque	dN m (inch-lb)	1.1 (1.0)
ts2, Time to 2 Inch-lb Rise from Minimum	Minutes	1.5
t'50, Time to 50% Cure	Minutes	1.7
t'90, Time to 90% Cure	Minutes	2.8
MH, Maximum Torque	dN m (inch-lb)	24.1 (21.3)

Typical Physical Properties [ASTM D412 Method A, Die D]

Press Cure 5 Minutes @ 177°C (351°F)
Post Cure 16 Hours @ 230°C (446°F)

Property	Units	Value
Tensile	MPa (psi)	15.5 (2248)
100% Modulus	MPa (psi)	8.5 (1232)
Elongation at Break	%	170
Durometer Type A Hardness [ASTM D2240]	Points	80

Compression Set Resistance [ASTM D1414]

70 Hours @ 200°C (392°F)

Property	Units	Result
Post Cured 16 Hours @ 230°C (446°F)	%	27
Post Cured 24 Hours @ 260°C (500°F)	%	22

Low Temperature [ASTM D1329]

Property	Units	Value
TR10	°C (°F)	-18 (0)

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

USA

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

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

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

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

3M Advanced Materials Division

3M Center
St. Paul, MN 55144 USA

Phone 1-800-367-8499
Web www.3M.com/fluoropolymers