

3M™ Dyneon™ Fluoroelastomer FE 5641Q

Features and Benefits

- Composition: di-polymer of vinylidene fluoride and hexafluoropropylene
- Low shrinkage version of FE 5640Q
- Process targets: compression molding
- Improved scorch resistance at high molding temperatures
- Proprietary incorporated cure technology
- Excellent mold release
- Improved cure technology resulting in more consistent part size from successive molding cycles
- Clean running
- Compounds prepared from FE5641Q can be formulated to meet Mil-R-83248

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

Typical Properties

Property	
Fluorine Content	65.9%
Specific Gravity	1.80
Color	Opaque Off-White
Solubility	Ketones and Esters
Mooney Viscosity ML 1 + 10 @ 121°C (250°F)	Approximately 40

Product Description

3M™ Dyneon™ Fluoroelastomer FE 5641Q 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, FE 5641Q 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.

Product Form

FE 5641Q is packaged in slab form and is available in a returnable bulk shipping container system for 1,320 lbs (600 kg) of material. The bulk container system is comprised of 48 individual polyethylene bags containing 27.5 lbs (12.5 kg) of product. Smaller quantities are available in 55.1 lb (25.0 kg) boxes.

Safety/Toxicology

When recommended handling precautions are followed, 3M fluoroelastomers present no known health hazards. General handling precautions include: (1) Store and use all 3M fluoroelastomers only in well ventilated areas. (2) Do not smoke in areas contaminated with dust from 3M fluoroelastomers. (3) Avoid eye contact. (4) After handling 3M 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 3M fluoroelastomers, consult the product MSDS (Material Safety Data Sheet) and follow all label directions and handling precautions. You should also read and follow all directions from other compound ingredient suppliers. Material Safety Data Sheets on 3M products are available from your 3M Sales Representative.

ISO 9001

All 3M fluoroelastomers are manufactured at ISO 9001 registered facilities. Our product realization process is also ISO 9001 registered.



Typical Properties of Vulcanizate

Compound	phr
FE 5641Q	100
N990 MT Black	30
MgO	3
Ca(OH) ₂	6

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**Typical Rheological Properties (ASTM D5289)
Moving Die Rheometer (MDR)
100 cpm, 0.5° Arc, 6 Minutes**

Temperature	177°C (350°F)	200°C (392°F)
ML, Minimum Torque, Inch-lb (dN m)	1.4 (1.6)	1.2 (1.4)
t ₂ , Time to 2 Inch-lb Rise from Minimum – Minutes	2.3	0.6
t ₅₀ , Time to 50% Cure – Minutes	2.8	0.7
t ₉₀ , Time to 90% Cure – Minutes	3.8	0.8
MH, Maximum Torque, Inch-lb (dN m)	24.4 (27.6)	20.4 (23.1)

Typical Physical Properties

Press Cure 5 Minutes @ 177°C (350°F)
Post Cure 24 Hours @ 260°C (500°F)

Tensile, psi (Mpa)	2340	(16.1)
100% Modulus, psi (Mpa)	970	(6.7)
Elongation at Break, %	185	
Hardness, Shore A [ASTM D2240]	76	

Compression Set, (ASTM D395 Method B, O-rings -214)

70 Hours @ 200°C (392°F) – % Set	11
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Low Temperature Properties

TR10 [ASTM D1329]	-18°C (0°F)
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