

3M Advanced Materials Division

3M™ Dyneon™ Peroxide Cure Perfluoroelastomer PFE 40Z

Features and Benefits

- Ideal for wet chemical, fluid handling, cleaning and chemical etching processes for CPI, aerospace and semiconductor manufacturing
- Good compression set resistance
- Upper use temperature of 220°C
- Low metal ion content with low extractables in a wide range of chemicals

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

Typical Properties

Property	
Specific Gravity	2.0
Color	White
Form	Crumb
TR 10	-6°C (21°F)
Brittleness Point	-35°C (-31°F)
Mooney Viscosity – ML(1+10) @ 121°C	40

Product Description

3M™ Dyneon™ PFE 40Z is a technically advanced peroxide curable perfluoroelastomer, designed to meet the challenges of demanding sealing applications. This product is designed to have improved acid, water and steam resistance over 3M™ Dyneon™ PFE 90Z, since it can be formulated without the need for an inorganic base such as zinc oxide. It is classified as FFKM per ASTM D1418. Its fully fluorinated backbone structure provides a very broad chemical and thermal stability.

Product Form

Dyneon PFE 40Z is packaged in crumb form. It is available in 2 kg or 10 kg boxes.

Safety and Toxicology

Before processing 3M™ Dyneon™ Perfluoroelastomers, read and follow all precautions and directions for use contained in the product label and Safety Data Sheet (SDS). General handling precautions and directions for use include: (1) Store and use all Dyneon perfluoroelastomers only in well ventilated areas; (2) Do not smoke in areas contaminated with dust from perfluoroelastomers; (3) Avoid eye contact; (4) After handling Dyneon perfluoroelastomers wash any contacted skin with soap and water. Potential hazards, including evolution of toxic vapors, can occur during compounding or processing under excessively high temperature conditions. Appropriate local exhaust ventilation such as vapor extractor units should be installed above compounding or processing equipment. When compounding, be sure to read and follow all precautions and directions for use from other compound ingredient suppliers.

Typical Properties of Vulcanizate

Compound	phr
PFE 40Z	100
N990 MT Carbon Black	20
Peroxide (Trigonox® 101-50D-pd)	1.5
Co-agent (TAIC®, 72% active)	2.5

Typical Rheological Properties [ASTM D412] Moving Die Rheometer (MDR) , 100 cpm, 0.5° Arc, 6 Minutes @ 177°C (350°F)

Property	
ML, Minimum Torque, Inch-lb (dN m)	1.03 (1.2)
t ₂ , Time to 2 Inch-lb Rise from Minimum - Minutes	0.4
t'50, Time to 50% Cure - Minutes	0.5
t'90, Time to 90% Cure - Minutes	0.8
MH, Maximum Torque, Inch-lb (dN m)	25.7 (29.0)

Typical Rheological Properties [ASTM D412] Press Cure 10 Minutes @ 177°C (350°F), Post Cure 8 Hours @ 200°C (392°F)

Property	
Tensile, psi (MPa)	2365 (16.3)
100% Modulus, psi (MPa)	1365 (9.4)
Elongation at Break, %	140
Hardness, Shore A [ASTM D2240]	72

Compression Set Resistance [ASTM D395 Method B, -214 O-rings]

70 Hours @ 200°C (392°F) – 25% Deformation	19
70 Hours @ 232°C (450°F) – 25% Deformation	45

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