

3M Advanced Materials Division

3M™ Dyneon™ Peroxide Cure Perfluoroelastomer PFE 90

Features and Benefits

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

Typical Properties

| Property | Units | Value |
|---|---------|---------------|
| Specific Gravity | | 2.0 |
| Color | | White |
| Form | | Crumb |
| TR 10 | °C (°F) | -2°C (28°F) |
| Brittleness Point | °C (°F) | -35°C (-31°F) |
| Mooney Viscosity ML 1 + 10 @ 121°C (250°F) | MU | 98 |

Product Description

3M™ Dyneon™ PFE 90 is a technically advanced peroxide curable perfluoroelastomer, designed to meet the challenges of demanding sealing applications. It is classified as FFKM per ASTM D1418. Its fully fluorinated backbone structure provides a very broad chemical and thermal stability.

Delivered Product Form

Dyneon PFE 90 is packaged in crumb form. It is available in 1 kg or 10 kg boxes.

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

Safety/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.

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

ISO Registrations

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

Typical Properties of Vulcanizate

| Compound | phr |
|---|-----|
| 3M™ Dyneon™ Peroxide Cure Perfluoroelastomer PFE 90 | 100 |
| N990 MT Carbon Black | 15 |
| Zinc Oxide (USP #1) | 5 |
| Peroxide (VAROX® DBPH - 50) | 1.5 |
| Co-agent (TAIC®, 72% active) | 2.5 |

Typical Rheological Properties [ASTM D5289] Moving Die Rheometer (MDR), 100 cpm, 0.5° Arc 6 Minutes @ 177°C (350°F)

| Property | Units | Result |
|--|----------------|-------------|
| ML, Minimum Torque | dN m (inch-lb) | 2.2 (2.0) |
| ts2, Time to 2 Inch-lb Rise from Minimum | Minutes | 0.5 |
| t'50, Time to 50% Cure | Minutes | 0.7 |
| t'90, Time to 90% Cure | Minutes | 1.7 |
| MH, Maximum Torque, Inch-lb (dN m) | dN m (inch-lb) | 18.1 (16.0) |

Typical Physical Properties [ASTM D412] Press Cure 10 Minutes @ 177°C (350°F) Post Cure 16 Hours @ 232°C (450°F)

| Property | Units | Result |
|--|-----------|-------------|
| Tensile | MPa (psi) | 21.2 (3035) |
| 100% Modulus | MPa (psi) | 10.6 (1545) |
| Elongation at Break | % | 155 |
| Durometer Type A Hardness [ASTM D2240] | Points | 75 |

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

| Property | Units | Result |
|---|-------|--------|
| 70 Hours @ 200°C (392°F) – 25% Deformation | % | 40 |
| 168 Hours @ 200°C (392°F) – 25% Deformation | % | 49 |
| 70 Hours @ 230°C (446°F) – 25% Deformation | % | 37 |
| 168 Hours @ 230°C (446°F) – 25% Deformation | % | 50 |

Customer Service

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