

# 3M™ Dyneon™

## Perfluoroelastomer PFE 40 Gum

### Product Description

3M™ Dyneon™ Perfluoroelastomer PFE 40 is a technically advanced peroxide curable perfluoroelastomer. This product has been designed to have improved acid, water and steam resistance over 3M™ Dyneon™ Perfluoroelastomer PFE 90, since it can be formulated without the need for an inorganic base such as zinc oxide. It is classified as FFKM per ASTM D1418.

### Special Features

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

### Typical Applications

Dyneon Perfluoroelastomer PFE 40 has been designed to meet the challenges of demanding sealing applications. Its fully fluorinated backbone structure provides a very broad chemical and thermal stability. It can be used in applications such as mechanical seals, valves, pumps, reactors, mixers, ink/printing systems, painting systems, rubber-metal bonding parts, among others.

### Typical Polymer Properties

Property	Test method	Unit	Value
Colour			White
Fluorine Content	QCM 50.18.3C	%	~ 72
Mooney Viscosity (raw gum) ML 1 + 10 @ 121 °C	QCM 2.14.4C	Mooney Unit	40
Specific Gravity	QCM 14.10		2.0

### Storage and Handling

Store and use Dyneon Perfluoroelastomer PFE 40 only in a well ventilated area. The shelf life of Dyneon Perfluoroelastomer PFE 40 is 2 years from date of manufacturing.

### Delivery Form

Dyneon Perfluoroelastomer PFE 40 is delivered in crumb form.

Packaging sizes are:

- 5 kg cardboard box, containing up to 5 PE-bags with 1 kg content each

### Processing Recommendations

N/A

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## Typical Properties

Compound	Amount (in Parts/100)
PFE 40	100
Carbon Black MT N-990	20
TAIC® (70 %)	2.5
Trigonox® 101-50D	1.5

TAIC is a registered trademark of Nippon Kasei Co. Ltd. Trigonox is a trademark of Akzo Nobel Chemicals B.V.

## Typical Rheological Properties

Alpha Technologies Moving Die Rheometer (MDR 2000), 100 cpm, 0.5° Arc, (QCM 2.19.1)  
Test Condition, 10' @ 177°C

Property	Unit	Value
ML, Minimum Torque	dNM	1.1
MH, Maximum Torque	dNM	24.8
ts2	Minutes	0.4
t'50, Time to 50 % cure	Minutes	0.5
t'90, Time to 90 % cure	Minutes	0.8

## Typical Physical Properties

Press Cured 10' @ 177 °C  
Post Cured 8 hours @ 200 °C

Property	Unit	Value
<b>Physical Properties DIN 53504 (S2 DIE)</b>		
100 % Modulus	MPa	10.4
Tensile	MPa	19.0
Elongation at break	%	144
Hardness (ASTM D2240)	Shore A	72

### Compression Set on O-rings ASTM D395 method B

70 hours @ 200 °C	%	15
70 hours @ 220 °C	%	28

### Lower Temperature Property

TR10 (ASTM D1329)	°C	-6
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### 3M™ Dyneon™ Perfluoroelastomer PFE 40 Gum

#### Safety Instructions

Follow the normal precautions observed with all fluoropolymer materials.

Please consult the Material Safety Data Sheet and Product Label for information regarding the safe handling of the material. By following all precautions and safety measures, processing these products poses no known health risks. General handling/processing precautions include: 1) Process only in well-ventilated areas. 2) Do not smoke in areas contaminated with powder/residue from these products. 3) Avoid eye contact. 4) If any skin comes into contact with these products during handling, wash with soap and water afterwards. 5) Avoid contact with hot fluoropolymer.

Potential hazards, including release of toxic vapours, can arise if processing occurs under excessively high temperature conditions. Vapour extractor units should be installed above processing equipment. When cleaning processing equipment, do not burn off any of this product with a naked flame or in a furnace.

#### Important Notice

All information set forth herein is based on our present state of knowledge and is intended to provide general notes regarding products and their uses. It should not therefore be construed as a guarantee of specific properties of the products described or their suitability for a particular application. Because conditions of product use are outside Dyneon's control and vary widely, user must evaluate and determine whether a Dyneon product will be suitable for user's intended application before using it.

The quality of our products is warranted under our General Terms and Conditions of Sale as now are or hereafter may be in force.

Technical information, test data, and advice provided by Dyneon personnel are based on information and tests we believe are reliable and are intended for persons with knowledge and technical skills sufficient to analyze test types and conditions, and to handle and use raw polymers and related compounding ingredients.

No license under any Dyneon or third party intellectual rights is granted or implied by virtue of this information.

General recommendations on health and safety in processing, on work hygiene and on measures to be taken in the event of accident are detailed in our material safety data sheets.

You will find further notes on the safe handling of fluoropolymers in the brochure "[Guide for the safe handling of Fluoropolymers Resins](#)" (download link by PlasticsEurope, Box 3, B-1160 Brussels, Tel. +32 (2) 676 17 32).

You can also download it using the QR code below with your smartphone.



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