

Nanofluor® Y75N

An ultra-pure grade of translucent fluoropolymer

Description

A translucent brown fluoropolymer compound reinforced with semi-crystalline perfluoropolymer nano-particles, specially developed to meet the demands of the semiconductor industry.

Nanofluor® Y75N combines a fully fluorinated nano-filler system which significantly reduces gas permeability. The absence of metallic or carbon-based fillers produces an exceptionally pure, translucent elastomer that is less prone to chemical attack with the benefit of reduced swelling following exposure to aggressive media.

Nanofluor® Y75N is a truly novel material which bridges the gap between fluorocarbons (FKM) and perfluoroelastomers (FFKM). Its high fluorine content provides unrivalled purity, excellent high temperature capability and very good chemical resistance. Nanofluor® Y75N is a cost effective upgrade from FKM and fluorosilicone in many semiconductor applications.

Key Attributes

- Good all round chemical and temperature resistance.
- Outstanding mechanical properties.
- Exceptional oxygen plasma resistance.
- Exceptionally pure - does not contain any inorganic fillers or metal oxides which cause particulation problems.
- Extremely low permeability and out-gassing properties making it ideal for vacuum sealing applications.
- High sealing conformity reduces surface permeation.

Typical Applications

Designed for use in semiconductor applications, including:-

- NW and KF flange fittings
- Dry plasma etch
- Wet etch (acid based)
- Dry ashing
- Oxidation/diffusion
- Lithography
- Static seals: O-rings, body seals, cathode seals
- Gaskets



Typical Material Properties

Property	ASTM	ISO	Value
Material Type	Advanced Fluoropolymer		
Colour			Translucent brown
Hardness: (°IRHD) (Shore A)	D1415	ISO48	67
	D2240	ISO7619	68
Tensile Strength (MPa)	D412	ISO37	17.0
Elongation at break (%)	D412	ISO37	360
100% Modulus (MPa)	D412	ISO37	3.5
Compression Set (%): 24 hrs @ 200°C (392°F) 70 hrs @ 204°C (400°F)	D395	ISO815	15
			25
Minimum Operating Temperature		-20°C	-4°F
Maximum Operating Temperature:			
	Continuous	+180°C	+356°F
Short term	+225°C	+437°F	

SPECIAL NOTE: This information is to the best of our knowledge accurate and reliable. However, Perlast Ltd makes no warranty, expressed or implied, that parts manufactured from this material will perform satisfactorily in the customer's application. It is the customer's responsibility to evaluate parts prior to use, especially in applications where their failure may result in injury and/or damage. It should also be noted that all elastomeric parts have a finite life, therefore a regular program of inspection and replacement is strongly recommended.

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Nanofluor™ is a registered trademark of Precision Polymer Engineering Ltd.

Nanofluor[®] Y75N

Chemical Compatibility

Media	Perlast [®] G74P (FFKM)	Nanofluor [®] Y75N	V75B (FKM)
Oxygen	Excellent	Excellent	Good
Ozone	Excellent	Excellent	Excellent
Alcohol	Excellent	Good	Good
Benzene	Excellent	Good	Excellent
Acids	Excellent	Excellent	Excellent
Alkalis	Excellent	Fair	Poor
Water	Excellent	Excellent	Excellent

Materials Comparison

Test	Perlast [®] G74P (FFKM)	Nanofluor [®] Y75N	V75B (FKM)
Hardness	75 IRHD	67 IRHD	70 IRHD
Tensile Strength	10.2 MPa	17.0 MPa	12.1 MPa
Elongation	460%	360%	215%

Helium Leak / Permeation Testing

Material type	Time to 1E ⁻¹⁰ mbarl/s	Time to 1E ⁻⁹ mbarl/s	Leak rate at 120 seconds (E ⁻¹²)
Typical Silicone	20	23	200,000
Typical Perfluoroelastomer	127	157	63
Nanofluor [®]	213	262	5