

M SEALS PCTFE

Thermoplastic Chlorofluoropolymer

MATERIAL DATA SHEET (Version 6.0 – 05.2022)



Description

M Seals PCTFE material is a thermoplastic chlorofluoropolymer which is chemically related to PTFE and commonly referred to as PCTFE are Kel-F®*. It has a unique combination of physical and mechanical properties, while having excellent chemical and permeation resistance and the lowest water vapor transmission rate of any plastic.

PCTFE has the capability to operate and maintain its elasticity at extremely low temperatures and is commonly used for soft seat seals in the valve industry and cryogenic seals for swivel joint and breakaway couplings in the process control industry.

Physical Properties

Property	Test method	Unit	Typical value
Colour			Transparent
Density	ASTM D792	g/cm ³	2.13
Hardness	ASTM D785	Shore D	90
Tensile strength	ASTM D638	psi	5,300
Elongation at break	ASTM D638	%	150
Flexural strength	ASTM D790	psi	8,500
Compressive strength	ASTM D695	psi	5,500
Water absorption 24 hr	ASTM D570	%	
Coefficient of linear thermal expansion	ASTM D696	(x 10 ⁻⁵ in./in./°F)	7.0
Heat deflection temperature	ASTM D648	°F/°C	258/126
Melting temperature	ASTM D3418	°F/°C	415/212
Thermal conductivity	ASTM C177	(BTU-in/ft ² -hr-°F)	1.45
Flammability rating	UL94		V-0
Minimum service temperature		°F/°C	-400/-240
Maximum service temperature		°F/°C	+270/+132
Volume resistivity (50% RH)	ASTM D257	ohm-cm	10 ¹⁸
Dielectric strength (Short time, 1/8" thick)	ASTM D149	V/mil	500

*Kel-F is a registered trademark of 3M

Main Characteristics

- Excellent low temperature flexibility
- Good permeation resistance
- Good chemical resistance
- Good mechanical properties
- Very low water absorption

Typical Products

- Spring Energised Seals
- Bearing rings / guide rings
- Bushes
- Valve seat seals
- Anti-Extrusion / Back-Up Rings

Tel: 0044 (0) 114 243 2777 . Fax: 0044 (0) 114 242 2300 . Mail: sales.esd@m-seals.co.uk . Web: www.m-seals.com

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