

Parylene N

Polyparaxylylene
Specialty Coating Systems (SCS)

Message:

Parylene is the name for members of a unique polymer series. The basic member of the series, Parylene N, is poly(para-Xylylene), a completely linear, highly crystalline material. Parylene N is a primary dielectric, exhibiting a very low dissipation factor, high dielectric strength, and a low dielectric constant invariant with frequency. The crevice-penetrating ability of Parylene N is second only to that of Parylene HT®.

General Information			
Features	Biocompatible		
	Good Chemical Resistance		
	Highly Crystalline		
	Linear Polymer Structure		
	Radiation (Gamma) Resistant		
Uses	Aerospace Applications		
	Automotive Applications		
	Coating Applications		
	Electrical/Electronic Applications		
	Medical/Healthcare Applications		
	Military Applications		
	Printed Circuit Boards		
Agency Ratings	ISO 10993		
	MIL I-46058C		
	USP Class VI		
RoHS Compliance	RoHS Compliant		
Appearance	Clear/Transparent		
	Colorless		
Physical	Nominal Value	Unit	Test Method
Density	1.10 to 1.12	g/cm ³	ASTM D1505
Water Absorption (24 hr)	< 0.10	%	ASTM D570
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (R-Scale)	85		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Coefficient of Friction			ASTM D1894
Dynamic	0.25		
	0.25		
Films	Nominal Value	Unit	Test Method

Secant Modulus - MD	2410	MPa	ASTM D882
Tensile Strength - MD			ASTM D882
Yield	42.1	MPa	
Break	48.3	MPa	
Tensile Elongation - MD			ASTM D882
Yield	2.5	%	
Break	< 250	%	
Oxygen Permeability (25°C)	15	cm ³ ·mm/m ² /atm/24 hr	ASTM D1434
Water Vapor Transmission Rate (37°C, 90% RH)	0.59	g·mm/m ² /atm/24 hr	ASTM E96
Carbon Dioxide Permeability (25°C)	84	cm ³ ·mm/m ² /atm/24 hr	ASTM D1434
Nitrogen Permeability (25°C)	3.0	cm ³ ·mm/m ² /atm/24 hr	ASTM D1434
Service Temperature - Short-Term	80	°C	
Hydrogen (H2) Gas Permeation (25°C)	210	cm ³ ·mm/m ² /atm/24 hr	ASTM D1434
Thermal	Nominal Value	Unit	Test Method
Continuous Use Temperature	60.0	°C	
Melting Temperature	420	°C	DSC
CLTE - Flow (25°C)	6.9E-5	cm/cm/°C	TMA
Specific Heat (20°C)	837	J/kg/°C	
Thermal Conductivity (25°C)	0.13	W/m/K	ASTM C177
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity ¹	1.0E+13	ohms	ASTM D257
Volume Resistivity ² (23°C)	1.4E+17	ohms·cm	ASTM D257
Dielectric Strength	280	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	2.65		
1 kHz	2.65		
1 MHz	2.65		
Dissipation Factor			ASTM D150
60 Hz	2.0E-4		
1 kHz	2.0E-4		
1 MHz	6.0E-4		
Optical	Nominal Value		
Refractive Index ³	1.661		
NOTE			
1.	23°C, 50% RH		
2.	50% RH		
3.	Abbe Refractometer		

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