

Specialty Coating Systems Parylene N Poly (P-Xylylene) Coating

Category : Polymer , Film , Thermoplastic , Poly (P-Xylylene)

Material Notes:

Parylene N, poly(para-xylylene), is 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[®]. SCS Parylene conformal coatings are ultra-thin, pinhole-free polymer coatings that provide a number of high-value surface treatment properties such as excellent moisture, chemical and dielectric barrier properties, thermal and UV stability, and dry-film lubricity. Parylene coatings are used in a number of applications throughout the medical device, electronics, automotive, military and aerospace industries. Information provided by Specialty Coating Systems (SCS) .

Order this product through the following link:

http://www.lookpolymers.com/polymer_Specialty-Coating-Systems-Parylene-N-Poly-P-Xylylene-Coating.php

Physical Properties	Metric	English	Comments
Water Vapor Permeability	0.590 g mil/ (m ² day) @Temperature 37.0 Â°C	0.0381 g mil/ (100 in ² day) @Temperature 98.6 Â°F	90% RH; ASTM E96
Density	1.10 - 1.12 g/cc	0.0397 - 0.0405 lb/inÂ ³	ASTM D1505
Water Absorption	<= 0.10 % @Time 86400 sec	<= 0.10 % @Time 24.0 hour	ASTM D570
Oxygen Transmission	15.4 cc-mm/mÂ ² -24hr- atm @Temperature 25.0 Â°C	39.1 cc-mil/100 inÂ ² - 24hr-atm @Temperature 77.0 Â°F	ASTM D1434
Nitrogen Transmission	3.00 cc-mm/mÂ ² -24hr- atm @Temperature 25.0 Â°C	7.62 cc-mil/100 inÂ ² - 24hr-atm @Temperature 77.0 Â°F	ASTM D1434
Carbon Dioxide Transmission	84.3 cc-mm/mÂ ² -24hr- atm @Temperature 25.0 Â°C	214 cc-mil/100 inÂ ² - 24hr-atm @Temperature 77.0 Â°F	ASTM D1434

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	85	85	ASTM D785
Tensile Strength	48.3 MPa	7000 psi	
Tensile Strength, Yield	42.1 MPa	6100 psi	ASTM D882
Elongation at Break	<= 250 %	<= 250 %	ASTM D882

Mechanical Properties	Metric	English	Comments
Modulus of Elasticity	2.41 GPa	350 ksi	Secant; ASTM D882
Coefficient of Friction, Dynamic	0.25	0.25	ASTM D1894
Coefficient of Friction, Static	0.25	0.25	ASTM D1894

Thermal Properties	Metric	English	Comments
CTE, linear	69.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	38.3 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	via TMA
Specific Heat Capacity	0.837 J/g- $\text{Å}^\circ\text{C}$	0.200 BTU/lb- $\text{Å}^\circ\text{F}$	
Thermal Conductivity	0.126 W/m-K	0.874 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	ASTM C177
Melting Point	420 $\text{Å}^\circ\text{C}$	788 $\text{Å}^\circ\text{F}$	via DSC
Maximum Service Temperature, Air	60.0 $\text{Å}^\circ\text{C}$	140 $\text{Å}^\circ\text{F}$	Continuous
	80.0 $\text{Å}^\circ\text{C}$	176 $\text{Å}^\circ\text{F}$	Short Term
Softening Point	160 $\text{Å}^\circ\text{C}$	320 $\text{Å}^\circ\text{F}$	T5 Point - modulus = 690 MPa (100,000 psi)
	$\geq 300 \text{ Å}^\circ\text{C}$	$\geq 572 \text{ Å}^\circ\text{F}$	T4 point - modulus = 70 MPa (10,000 psi)

Optical Properties	Metric	English	Comments
Refractive Index	1.661	1.661	n_{D} ; Abbe Refractometer
Transmission, Visible	80 % @Wavelength 400 nm	80 % @Wavelength 400 nm	
UV Transmittance	$\leq 1.0 \%$ @Wavelength 277 nm	$\leq 1.0 \%$ @Wavelength 277 nm	cutoff
	60 % @Wavelength 300 nm	60 % @Wavelength 300 nm	
	75 % @Wavelength 350 nm	75 % @Wavelength 350 nm	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.40e+17 ohm-cm	1.40e+17 ohm-cm	50% RH; ASTM D257
Surface Resistance	1.00e+13 ohm	1.00e+13 ohm	50% RH; ASTM D257
	2.65	2.65	

Dielectric Constant Electrical Properties	Metric @Frequency 60.0 Hz	English @Frequency 60.0 Hz	ASTM D150 Comments
	2.65	2.65	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	2.65	2.65	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Dielectric Strength	276 kV/mm	7000 kV/in	ASTM D149
Dissipation Factor	0.00020	0.00020	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	0.00020	0.00020	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	0.00060	0.00060	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	

Compliance Properties	Metric	English	Comments
USP Class VI	Yes	Yes	

Descriptive Properties	Value	Comments
Biocompatibility	ISO 10993	
Hydrogen Transmission	212.6 cc-mm/m ^Å ² -24hr-atm	ASTM D1434
UV Stability	> 2000 hours	ASTM G154

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