

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

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

Material Notes:

Parylene C is a polymer of para-xylylene modified by the substitution of a chlorine atom for one of the aromatic hydrogen atoms. Parylene C has a useful combination of electrical and physical properties, plus a very low permeability to moisture and corrosive gases. 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-C-Poly-P-Xylylene-Coating.php

Physical Properties	Metric	English	Comments
Water Vapor Permeability	0.0800 g mil/ (m ² day) @Temperature 37.0 Â°C	0.00516 g mil/ (100 in ² day) @Temperature 98.6 Â°F	90% RH; ASTM F1249
Density	1.289 g/cc	0.04657 lb/inÂ³	ASTM D1505
Water Absorption	<= 0.10 % @Time 86400 sec	<= 0.10 % @Time 24.0 hour	ASTM D570
Oxygen Transmission	2.80 cc-mm/mÂ²-24hr- atm @Temperature 25.0 Â°C	7.11 cc-mil/100 inÂ²- 24hr-atm @Temperature 77.0 Â°F	ASTM D1434
Nitrogen Transmission	0.400 cc-mm/mÂ²- 24hr-atm @Temperature 25.0 Â°C	1.02 cc-mil/100 inÂ²- 24hr-atm @Temperature 77.0 Â°F	ASTM D1434
Carbon Dioxide Transmission	3.00 cc-mm/mÂ²-24hr- atm @Temperature 25.0 Â°C	7.62 cc-mil/100 inÂ²- 24hr-atm @Temperature 77.0 Â°F	ASTM D1434

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	80	80	ASTM D785
Tensile Strength	68.9 MPa	10000 psi	
Tensile Strength, Yield	55.2 MPa	8000 psi	ASTM D882
Elongation at Break	<= 200 %	<= 200 %	ASTM D882

Mechanical Properties	Metric	English	Comments
Modulus of Elasticity	2.76 GPa	400 ksi	Secant; ASTM D882
Coefficient of Friction, Dynamic	0.29	0.29	ASTM D1894
Coefficient of Friction, Static	0.29	0.29	ASTM D1894

Thermal Properties	Metric	English	Comments
CTE, linear	35.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	19.4 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	via TMA
Specific Heat Capacity	0.712 J/g- $\text{Å}^\circ\text{C}$	0.170 BTU/lb- $\text{Å}^\circ\text{F}$	
Thermal Conductivity	0.0840 W/m-K	0.583 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	ASTM C177
Melting Point	290 $\text{Å}^\circ\text{C}$	554 $\text{Å}^\circ\text{F}$	via DSC
Maximum Service Temperature, Air	80.0 $\text{Å}^\circ\text{C}$	176 $\text{Å}^\circ\text{F}$	Continuous
	100 $\text{Å}^\circ\text{C}$	212 $\text{Å}^\circ\text{F}$	Short Term
Softening Point	125 $\text{Å}^\circ\text{C}$	257 $\text{Å}^\circ\text{F}$	T5 Point; modulus = 690 MPa (100,000 psi)
	240 $\text{Å}^\circ\text{C}$	464 $\text{Å}^\circ\text{F}$	T4 point; modulus = 70 MPa (10,000 psi)

Optical Properties	Metric	English	Comments
Refractive Index	1.639	1.639	n_{D} ; Abbe Refractometer
Transmission, Visible	86 % @Wavelength 400 nm	86 % @Wavelength 400 nm	
UV Transmittance	≤ 1.0 % @Wavelength 281 nm	≤ 1.0 % @Wavelength 281 nm	cutoff
	75 % @Wavelength 300 nm	75 % @Wavelength 300 nm	
	82 % @Wavelength 350 nm	82 % @Wavelength 350 nm	

Electrical Properties	Metric	English	Comments
Volume Resistivity	8.80e+16 ohm-cm	8.80e+16 ohm-cm	50% RH; ASTM D257
Surface Resistance	1.00e+14 ohm	1.00e+14 ohm	50% RH; ASTM D257
	2.95	2.95	

Electrical Properties	Metric	English	Comments
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	3.1	3.1	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	3.15	3.15	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
Dielectric Strength	220 kV/mm	5600 kV/in	ASTM D149
Dissipation Factor	0.013	0.013	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.019	0.019	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	0.020	0.020	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	

Compliance Properties	Metric	English	Comments
USP Class VI	Yes	Yes	

Descriptive Properties	Value	Comments
Biocompatibility	ISO 10993	
Hydrogen Transmission	43.3 cc-mm/m ^Å ² -24hr-atm	ASTM D1434
UV Stability	> 2000 hours	ASTM G154

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