

TECHNICAL DATA SHEET PRS XY-C™

DESCRIPTION

PRS XY-C™ is a member of the Parylene C Dimer family. This material is a high performance, high purity dimer designed to produce a Parylene polymer film yielding excellent electrical, chemical, and physical properties. The material has been tested and/or certified to meet or exceed the performance requirements of MIL-I-46058C, IPC-CC-830B, UL 94V-0, UL746, and NASA Low Outgassing (ASTM E595) as a finished CVD Parylene Film.

DIMER PROPERTIES

CHEMICAL FAMILY	p-xylylene		
CHEMICAL NAME	Di-chloro-di-p-Xylylene/(Dichloro[2,2]paracyclophane)		
CAS NUMBER	28804-46-8 / (10366-05-9)		
FORMULA	C ₁₆ H ₁₄ Cl ₂		
MOLECULAR WEIGHT	g/mol	277.19	
MELTING POINT	°C	166	
APPEARANCE		Off-White	Visual
PURITY	%	≥ 99.65	(HPLC)
SHELF LIFE	Months (years)	60 (5)	

TYPICAL PARYLENE FILM PROPERTIES

COMPLIANCE, RATINGS, SPECIAL FEATURES & BENEFITS

- RoHS Compliant
- REACH Compliant
- USP Compliant/Conforming
- ISO 10993 Compliant/Conforming
- Tested (PASSES), meets the requirements of, and is Compliant to MIL-I-46058C.
- Tested (PASSES), meets the requirements of, and is Compliant to IPC-CC-830B.
- IPC-CC-830B Certification Pending
- Tested (PASSES), meets the requirements of, and is Compliant to Flammability Standards for Self-Extinguishing MIL-I-46058C (ASTM D635), and UL 94V-0
- UL 746 and UL 94V-0 Recognized. File Number E488458
- Tested (PASSES), meets the requirements of, and is Compliant to NASA Low Outgassing criteria (ASTM E595)
- Cryogenic Compatible
- Vacuum Stable

TYPICAL PHYSICAL AND MECHANICAL PROPERTIES

PROPERTY	UNIT	VALUE	TEST METHOD	
TENSILE STRENGTH	psi	9,900-10,000	ASTM D 882	
YIELD STRENGTH	psi	7,900-8,000	ASTM D 882	
ELONGATION AT BREAK	%	≤ 200	ASTM D 882	
YIELD ELONGATION	%	3.0 – 5.0	ASTM D 882	
DENSITY	g/cm ³	1.289	ASTM D 1505	
INDEX OF REFRACTION	nd ²³	1.63	REFRACTOMETER	
WATER ABSORPTION (24 hr.)	%	0.06	ASTM D 570	
COEFFICIENT OF FRICTION:	STATIC	--	0.29	ASTM D 1894
	DYNAMIC	--	0.29	ASTM D 1894

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TYPICAL ELECTRICAL PROPERTIES

DIELECTRIC STRENGTH	V/mil	6700	ASTM D 149
VOLUME RESISTIVITY	Ohm-cm	≥ 1•10 ¹⁵	ASTM D 257
SURFACE RESISTIVITY	Ohm	≥ 1•10 ¹⁵	ASTM D 257
INSULATION RESISTANCE	Ohms	6.41•10 ¹⁴	MIL-STD-202
DIELECTRIC CONSTANT:	60 Hz	3.14	ASTM D 150
	1 KHz	3.08	ASTM D 150
	1 MHz	2.95	ASTM D 150
DISSIPATION FACTOR:	60Hz	0.019	ASTM D 150
	1 KHz	0.019	ASTM D 150
	1 MHz	0.014	ASTM D 150

TYPICAL THERMAL PROPERTIES

MELTING POINT	°C	293	DSC
LINEAR COEFFICIENT OF EXPANSION	ppm/°C/in	35	TMA
THERMAL CONDUCTIVITY	W/(m•k)	0.09	ASTM C 177
CONTINUOUS SERVICE	°C	105	--
SHORT TERM/INTERMITTENT SERVICE	°C	130	--

TYPICAL BARRIER AND OUTGASSING PROPERTIES

OUTGASSING:	TOTAL MASS LOSS (TML)	%	0.04	ASTM E595
	COLLECTED VOLATILE CONDENSABLE MASS (CVCM)	%	0.00	ASTM E595
WATER VAPOR TRANSMISSION		(g•mm)/(m ² •day)	0.10	ASTM F1249
GAS PERMEABILITY:	NITROGEN (N ₂)	(cc•mm)/(m ² •day•atm)	1	ASTM D1434
	OXYGEN (O ₂)	(cc•mm)/(m ² •day•atm)	7.0	ASTM D1434
	CARBON DIOXIDE (CO ₂)	(cc•mm)/(m ² •day•atm)	7.5	ASTM D1434
	HYDROGEN (H ₂)	(cc•mm)/(m ² •day•atm)	43	ASTM D1434
	HYDROGEN SULFIDE (H ₂ S)	(cc•mm)/(m ² •day•atm)	12	ASTM D1434
	SULFUR DIOXIDE (SO ₂)	(cc•mm)/(m ² •day•atm)	11	ASTM D1434
	CHLORINE (Cl)	(cc•mm)/(m ² •day•atm)	0.4	ASTM D1434

TYPICAL APPLICATIONS

- MILITARY HARDWARE / ELECTRONICS (Portable, Vehicular, Aerial, etc.)
- AEROSPACE HARDWARE / ELECTRONICS (Flight, Space, etc.)
- MEDICAL HARDWARE / ELECTRONICS
- NETWORK / COMMUNICATIONS HARDWARE /ELECTRONICS
- CONSUMER HARDWARE / ELECTRONICS

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