

PARYLENE PROPERTIES

Data recorded following appropriate ASTM methods

Typical Physical and Mechanical Properties

	Parylene N	Parylene C	Parylene D
Tensile Strength, psi	6,500	10,000	11,000
Tensile Strength, MPa	45	69	76
Yield Strength, psi	6,300	8,000	9,000
Yield Strength, MPa	2,400	3,200	2,800
Elongation at Break, %	40	200	10
Density, g/cm ³	1.110	1.289	1.418
Coefficient of Friction:			
static	0.25	0.29	0.33
dynamic	0.25	0.29	0.31
Water Absorption, % (24 hr)	0.01 (0.019")	0.06 (0.029")	<0.1
Index of Refraction, n _D ²³	1.661	1.639	1.669

Typical Electrical Properties

	Parylene N	Parylene C	Parylene D
Dielectric Strength, short time (Volts/mil at 1 mil)	7,000	6,800	5,500
Volume Resistivity, 23°C, 50% RH (Ohm-cm)	1x10 ¹⁷	6x10 ¹⁶	2x10 ¹⁶
Surface Resistivity, 23°C, 50% RH (Ohm-cm)	1x10 ¹⁵	1x10 ¹⁵	5x10 ¹⁶
Dielectric Constant:			
60 Hz	2.65	3.15	2.84
1,000 Hz	2.65	3.10	2.82
1,000,000 Hz	2.65	2.95	2.80
Dissipation Factor:			
60 Hz	0.0002	0.020	0.004
1,000 Hz	0.0002	0.019	0.003
1,000,000 Hz	0.0006	0.013	0.002

Typical Barrier Properties

	Parylene N	Parylene C	Parylene D
Gas Permeability*			
Nitrogen	7.7	0.95	4.5
Oxygen	30	7.1	32
Carbon Dioxide	214	7.7	13
Hydrogen Sulfide	795	13	1.45
Sulphur Dioxide	1,890	11	4.75
Chlorine	74	0.35	0.55
Moisture Vapor Transmission**	1.50	0.14	0.25
Typical Thermal Properties	7.7	0.95	4.5
Melting Temperature (°C)	410	290	380
Linear Coefficient of Expansion (10 ⁻⁵ / °C)	6.9	3.5	3.8
Thermal Conductivity, 10 ⁻⁴ (cal/sec)/(cm ² , °C/cm)	3	2	-

NOTES:

* cm³-mil/100 in²-24hr-atm (23°C)

** g-mil/100 in²-24hr, 37°C, 90% RH

1 mil = 1/1000 in. = 25.4 microns



For Additional Information, call (800) 999-4942 or visit parylene.com