

## UBE UPILEX 25S (25 micron) Polyimide Film

Category : Polymer , Film , Thermoset , Polyimide, TS , Polyimide, Thermoset Film

### Material Notes:

Description: UPILEX, the ultra-high heat-resistant polyimide film, is the product of the polycondensation reaction between biphenyltetracarboxylic dianhydride (BPDA), of which process Ube Industries originally developed, and diamine. Most notable of these characteristics is UPILEX's physical, mechanical, electrical, and chemical properties under high-temperature conditions. UPILEX-S demonstrates outstanding mechanical characteristics through a wide temperature range. UPILEX-S displays high tensile strength and modulus, and also features outstanding long-term heat resistance. Another advantage inherent in UPILEX-S is its high resistance to hydrolysis, as its properties are practically unaffected, even by immersion in boiling water for long periods of time. Information provided by UBE.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_UBE-UPILEX-25S-25-micron-Polyimide-Film.php](http://www.lookpolymers.com/polymer_UBE-UPILEX-25S-25-micron-Polyimide-Film.php)

Physical Properties	Metric	English	Comments
Density	1.47 g/cc	0.0531 lb/in <sup>3</sup>	ASTM D1505
Water Absorption	1.4 %	1.4 %	23°C, 24 hrs; ASTM D570
Moisture Absorption at Equilibrium	0.80 %	0.80 %	60%RH, 50°C; ASTM D570
Water Vapor Transmission	1.70 g/m <sup>2</sup> /day	0.109 g/100 in <sup>2</sup> /day	38°C, 90%RH for 24 Hours; ASTM E96
Oxygen Transmission Rate	0.800 cc/m <sup>2</sup> /day	0.0515 cc/100 in <sup>2</sup> /day	30°C, 1 atm for 24 Hours; ASTM D1434
Carbon Dioxide Transmission	1.20 cc-mm/m <sup>2</sup> -24hr-atm	3.05 cc-mil/100 in <sup>2</sup> -24hr-atm	30°C, 1 atm for 24 Hours; ASTM D1434

Mechanical Properties	Metric	English	Comments
Film Tensile Strength at Yield, MD	88.26 MPa	12800 psi	300°C (Stress at 5% Elongation (MD)); ASTM D882
	255 MPa	37000 psi	25°C (Stress at 5% Elongation (MD)); ASTM D882
Film Elongation at Break, MD	10 %	10 %	-269°C; ASTM D882
	15 %	15 %	-196°C; ASTM D882
	42 %	42 %	25°C; ASTM D882
	67 %	67 %	300°C; ASTM D882
Secant Modulus, MD	3.73 GPa	541 ksi	300°C; ASTM D882
	9.12 GPa	1320 ksi	25°C; ASTM D882
Coefficient of Friction, Dynamic	0.40	0.40	25°C, film to film; ASTM D1894

Mechanical Properties	Metric	English	Comments
Tear Strength Test			300°C Tear Strength-Initiation [Graves] (MD); ASTM D1004
	330	330	g/mm, 25°C, Tear Strength-Propagation [Elmendorf] (MD); ASTM D1922
Film Tensile Strength at Break, MD	294.2 MPa	42670 psi	300°C; ASTM D882
	519.8 MPa	75390 psi	25°C; ASTM D882
	647.2 MPa	93870 psi	-196°C; ASTM D882
	735.5 MPa	106700 psi	-269°C; ASTM D882

Thermal Properties	Metric	English	Comments
CTE, linear	12.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 20.0 - 200 °C	6.67 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 68.0 - 392 °F	Values determined by minute linear expansion tester at 5°C/min. temperature increments
Specific Heat Capacity	1.13 J/g-°C	0.270 BTU/lb-°F	Differential Scanning Calorimeter
Thermal Conductivity	0.289 W/m-K	2.00 BTU-in/hr-ft <sup>2</sup> -°F	Laser Flash Method
Maximum Service Temperature, Air	290 °C	554 °F	Heat Treatment: 20,000 Hours
Glass Transition Temp, Tg	>= 500 °C	>= 932 °F	
Flammability, UL94	V-0	V-0	VTM
Oxygen Index	66 %	66 %	JIS K7201
Shrinkage	0.200 % @Temperature 200 °C, Time 7200 sec	0.200 % @Temperature 392 °F, Time 2.00 hour	JIS C2318

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+15 ohm-cm @Temperature 200 °C	1.00e+15 ohm-cm @Temperature 392 °F	DC100V; ASTM D257
	1.00e+17 ohm-cm @Temperature 25.0 °C	1.00e+17 ohm-cm @Temperature 77.0 °F	DC100V; ASTM D257
Surface Resistance	1.00e+15 ohm @Temperature 200 °C	1.00e+15 ohm @Temperature 392 °F	DC100V; ASTM D257
	>= 1.00e+17 ohm @Temperature 25.0 °C	>= 1.00e+17 ohm @Temperature 77.0 °F	DC100V; ASTM D257

Electrical Properties	<sup>3.5</sup> Metric	<sup>3.5</sup> English	Comments
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	3.3	3.3	ASTM D150
	@Frequency 1000 Hz, Temperature 200 °C	@Frequency 1000 Hz, Temperature 392 °F	
Dielectric Strength	272 kV/mm	6910 kV/in	50Hz, 25 µm; ASTM D149
	@Temperature 25.0 °C	@Temperature 77.0 °F	
	272 kV/mm	6910 kV/in	50Hz, 25 µm; ASTM D149
	@Temperature 200 °C	@Temperature 392 °F	
Dissipation Factor	0.0013	0.0013	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	0.0078	0.0078	ASTM D150
	@Frequency 1000 Hz, Temperature 200 °C	@Frequency 1000 Hz, Temperature 392 °F	

Descriptive Properties	Value	Comments
Folding endurance [MIT]	Min 100,000 Cycles	ASTM D2176, 25°C
Resistance to Organic Solvents	Excellent	
Resistance to Strong Acids	Good	
Resistance to Strong Alkalis	Good	

## Contact Songhan Plastic Technology Co.,Ltd.

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