

Polyimide Film

ChemFilm® TH Polyimide films provide excellent electrical, thermal, physical and chemical properties over a wide temperature range in a lightweight package, making them superior for electrical insulation applications. Saint-Gobain TH Polyimide films meet exacting tolerances and are produced employing a world-class process that makes them dimensionally stable, inherently isotropic, physically strong and electrically sound.

Features/Benefits

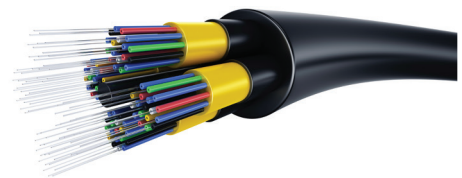
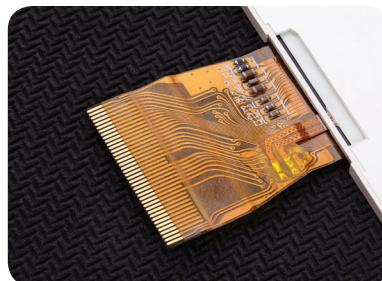
- High dielectric strength
- Temperature resistant from -445°F to over 752 °F (-265°C to over 400°C)
- Isotropic
- Dimensionally stable
- Exceeds UL 94 V-0 flammability
- Meets ASTM D5213
- 455°F (235°C) Relative Thermal Index (RTI) for both electrical and mechanical properties
- Retains 100% Tensile strength (MD) when exposed to MEK, Benzene and Toluene (ASTM D882)
- Scratch and abrasion resistant
- RoHS and REACH compliant

Availability

ChemFilm® TH Polyimide is available in 0.5 mil, 1 mil, 2 mil, and 3 mil (0.013 mm, 0.025 mm, 0.051 mm, 0.076 mm) gauges. Rolls are available at a maximum width of 61.8" (1,570 mm) with continuous lengths from 1,000 to 10,000 feet (3,000 m).

Applications

- Wire and cable requiring light weight and high dielectric strength
- Electrical insulation with fire resistance and chemical barrier properties
- Flexible electronics



CHEMFILM® TH Polyimide Properties

Performance tests are run using standard test procedures.
The values presented are typical values and should not be used for specification purposes.

Typical Properties	TH - 012	TH - 025	TH - 050	TH - 075	Test Method	Test Condition
Thickness	0.5 mil	1.0 mil	2.0 mil	3.0 mil	-	-
	0.013 mm	0.025 mm	0.051 mm	0.076 mm		
Tensile Strength	35,000 lbs/inch ²				ASTM D882	68 °F (20 °C)
	25 Kg/mm ²					
Elongation	85 %	85 %	85 %	90 %	ASTM D882	68 °F (20 °C)
Young's Modulus	455 K/psi	455 K/psi	455 K/psi	455 K/psi	ASTM D882	68 °F (20 °C)
	320 Kg/mm ²	320 Kg/mm ²	320 Kg/mm ²	320 Kg/mm ²		
Dielectric Breakdown	7,600 volts/mil	7,100 volts/mil	6,600 volts/mil	5,800 volts/mil	ASTM D149	60 Hz, 68 °F (20 °C)
	300 volts/μm	280 volts/μm	260 volts/μm	230 volts/μm		
Dielectric Constant	3.3				-	-
Dissipation Factor	0.005				ASTM D150	1 MHz, 68 °F (20 °C)
Volume Resistivity (Ω-cm)	>10 ¹⁶				ASTM D150	1 MHz, 68 °F (20 °C)
Surface Resistance (Ω)	>10 ¹⁶				ASTM D257	500 V, 68 °F (20 °C)
Coefficient of Thermal Expansion	22 ppm/°F				ASTM D696	392 °F (200 °C)
	40 ppm/°C					
Heat Shrinkage (%)	0.03	0.05	0.05	0.05	ASTM D5213-04	-
Tg (Glass Transition)	>715 °F				DSC, TMA	-
	>380 °C					
Electrical RTI	455 °F				UL 746B	-
	235 °C					
Mechanical RTI	455 °F				UL 746B	-
	235 °C					
Flammability	V-0				UL 94	-
Moisture Absorption (%)	2.5				ASTM D570	68 °F (20 °C), 24 Hr. Immersion
Density (g/cm ³)	1.46				ASTM D1505	68 °F (20 °C)
Yield	272 ft ² /lb	136 ft ² /lb	68 ft ² /lb	45 ft ² /lb	-	68 °F (20 °C)
	56 m ² /kg	28 m ² /kg	14 m ² /kg	9 m ² /kg		
Continuous Use Temperature	455 °F				-	-
	235 °C					

CHEMFILM® is a registered trademark.



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