NYTEF PLASTICS

Philadelphia • West Palm Beach • Chicago • Los Angeles • Fachbach, Germany

UNITEM® Polyetherimide (ULTEM®)

UNITEM Polyetherimide (PEI) is an amorphous thermoplastic that is manufactured from SABIC Innovative Plastics' ULTEM resin. UNITEM PEI is extremely rigid, dimensionally stable, and able to withstand continuous operating temperatures of 340˚F. Because it offers superior resistance to autoclave sanitizing and is FDA/USDA compliant, UNITEM PEI is routinely specified for reusable machined components used in the medical and pharmaceutical industries. This material also offers electronic and semiconductor designers unmatched dielectric properties that are maintained over a wide frequency range. Unfilled UNITEM PEI is dark amber in color and semi-transparent. For applications that require improved stiffness, glass fiber filled grades with filler levels of 10%-40% are available. Nytef Plastics' UNITEM PEI stock shapes are UL V-0 rated and available in a full range of heavy gauge rod, plate and tubular bar sizes.

PRODUCT ATTRIBUTES

- 340°F continuous use temperature
- Semi-transparent with light amber color
- Excellent strength and rigidity, even at elevated temperatures
- Low moisture absorption
- Superior electrical properties
- Rated UL V-0
- Easily machined and fabricated
- FDA, USDA compliant
- Glass fiber filled grades for improved strength and stiffness

INDUSTRIES

- Medical and pharmaceutical
- Aircraft and aerospace
- Fluid handling
- Electrical and electronics manufacturing
- Microwave communications

APPLICATIONS

- Sight glasses
- Manifolds
- Electrical insulators
- Electrical component housings
- Aircraft instrumentation

Nytef Plastics, Ltd. is dedicated to supplying our customers with the highest quality thermoplastic stock shapes for machining. We manufacture and stock a full line of thermoplastic materials in a wide variety of rod, plate and tubular bar sizes. In addition, we offer over 35 years of experience in the custom extrusion of application-specific and proprietary resins to meet even the most demanding performance requirements. Nytef Plastics offers full technical support for all products and is certified to ISO 9002 standards for the manufacture of extruded plastics stock shapes.

UNITEM® POLYETHERIMIDE (ULTEM®)

Property	Test Method	Units	UNITEM PEI	UNITEM Rg-30
			Unfilled Polyetherimide	30% Glass Fiber Reinforced PEI
Mechanical				
Specific Gravity	ASTM-D792	---	1.27	1.51
Tensile Strength	ASTM-D638	psi	15,200	17,000
Tensile Elongation	ASTM-D638	%	60-80	13
Tensile Modulus of Elasticity	ASTM-D638	psi	500,000	800,000
Flexural Strength	ASTM-D790	psi	22,000	27,000
Flexural Modulus of Elasticity	ASTM-D790	psi	480,000	850,000
Compressive Strength	ASTM-D695	psi	22,000	30,700
Izod Notched Impact	ASTM-D256	ft.-lb./in.	1.0	1.6
Rockwell Hardness	ASTM-D785	M or R scale	M109(R123)	M114(R127)
Thermal				
Coef. of Linear Thermal Expansion	ASTM-D696	in./in./°F	3.1×10^{-5}	1.1×10^{-5}
Max. Continuous Use Temp.	Nytef std.	°F	340	340
Heat Deflection Temp. @ 264 psi	ASTM-D648	°F	392	410
Vicat Softening Temperature	ASTM-D3418	°F	426	442
Electrical				
Dielectric Strength-Short Term	ASTM-D149	volts/mil	830	770
Dielectric Constant @ 60 Hz	ASTM-D150		3.2	3.7
Dielectric Constant @ 10^6 Hz	ASTM-D150		3.15	3.7
Dissipation Factor @ 60 Hz	ASTM-D150		0.001	0.0015
Volume Resistivity	ASTM-D257	ohm-cm	$>10^{17}$	$>10^{16}$
Miscellaneous				
Water Absorption/24 hrs.	ASTM-D570	% weight	.25	.16
Water Absorption @ Saturation	ASTM-D570	% weight	1.25	.90
Flammability	UL 94		V-0 (0.125")	V-0 (0.125")
Agency Compliance				
FDA			Yes	No
USDA			Yes	No

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