UNITEM® PEI

Polyether Imide

Nytef Plastics, Ltd.

Message:

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

General Information	
Features	Amorphous
	Autoclave Sterilizable
	Food Contact Acceptable
	Good Dimensional Stability
	Good Electrical Properties
	High Rigidity
	High Strength
	Low Moisture Absorption
	Machinable
Uses	Aerospace Applications
	Aircraft Applications
	Aircraft Interiors
	Electrical Parts

	Electrical/Electronic Applications
	Eyeglasses
	Fluid Handling
	Medical/Healthcare Applications
	Pipe Seals
Agency Ratings	FDA Unspecified Rating
	NSF Unspecified Rating
Appearance	Clear Amber
Forms	Preformed Parts
	Rod

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.27	g/cm³	ASTM D792
Water Absorption			ASTM D570
24 hr	0.25	%	
Saturation	1.3	%	
Hardness	**Nominal Value**	**Unit**	**Test Method**
Rockwell Hardness			ASTM D785
M-Scale	109		
R-Scale	123		
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus	3450	MPa	ASTM D638
Tensile Strength (Yield)	105	MPa	ASTM D638
Tensile Elongation (Break)	60 to 80	%	ASTM D638
Flexural Modulus	3310	MPa	ASTM D790
Flexural Strength	152	MPa	ASTM D790
Compressive Strength	152	MPa	ASTM D695
Impact	**Nominal Value**	**Unit**	**Test Method**
Notched Izod Impact	53	J/m	ASTM D256
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load (1.8 MPa, Unannealed)	200	°C	ASTM D648
Continuous Use Temperature	171	°C	UL 746
Vicat Softening Temperature	219	°C	ASTM D3418
CLTE - Flow	5.6E-5	cm/cm/°C	ASTM D696
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity	> 1.0E+17	ohms·cm	ASTM D257
Dielectric Strength [1]	33	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
60 Hz	3.20		

1 MHz	3.15		
Dissipation Factor (60 Hz)	1.0E-3		ASTM D150
Flammability	Nominal Value	Unit	Test Method
Flame Rating (3.18 mm)	V-0		UL 94
NOTE			
1.	Method A (Short-Time)		

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Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China