Celanese
The chemistry inside innovation™

Zytel® HTNFR52G45NHF NC010 (PRELIMINARY)

HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTNFR52G45NHF NC010 is a 45% Glass Reinforced, Flame Retardant, High Performance Polyamide with improved flow. It is also a PPA resin and it uses a non-halogenated flame retardant.

Product information

Resin Identification	PA6T/66-GF45FR(40)	ISO 1043
Part Marking Code	>PA6T/66-GF45FR(40)<	ISO 11469
Part Marking Code	>PPA-GF45FR<	SAE J1344
ISO designation	ISO 16396-PA6T/66,GF45 FR(40),M1F1GN,S10-160	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.2 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	15500 / -	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	167 / -	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	1.7 / -	%	ISO 527-1/-2
Flexural modulus	15100 / -	MPa	ISO 178
Flexural strength	250 / -	MPa	ISO 178
Charpy impact strength, 23°C	48 / -	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	45 / -	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	8 / -	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	8 / -	kJ/m²	ISO 179/1eA
Poisson's ratio	0.33 / -		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	310 / *	°C	ISO 11357-1/-3
Melting temperature, first heat	310 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	90 / 45	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	284 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	13 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	15 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	14 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	43 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	50 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	80 / *	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.4mm	140	°C	UL 746B
RTI, electrical, 0.75mm	140	°C	UL 746B
RTI, electrical, 1.5mm	140	°C	UL 746B
RTI, electrical, 3.0mm	140	°C	UL 746B
RTI, strength, 0.75mm	125	°C	UL 746B
RTI, strength, 1.5mm	125 / *	°C	UL 746B
RTI, strength, 3.0mm	130	°C	UL 746B

Celanese
The chemistry inside innovation™

Zytel® HTNFR52G45NHF NC010 (PRELIMINARY)

HIGH PERFORMANCE POLYAMIDE RESIN

Flammability

	dry/cond.		
Burning Behav. at thickness h	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.4 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Glow Wire Flammability Index, 0.4mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 0.75mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	960 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	960 / -	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	750 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 0.4mm	700 / -	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 1.5mm	750 / -	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	800 / -	°C	IEC 60695-2-13

Electrical properties

	dry/cond.		
Relative permittivity, 100Hz	4.7 / -		IEC 62631-2-1
Relative permittivity, 1MHz	4.4 / -		IEC 62631-2-1
Dissipation factor, 100Hz	60 / -	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	115 / -	E-4	IEC 62631-2-1
Volume resistivity	>1E13 / -	Ohm.m	IEC 62631-3-1
Electric strength	40 / -	kV/mm	IEC 60243-1
Comparative tracking index	600 / -		IEC 60112

Physical/Other properties

	dry/cond.		
Density	1600 / -	kg/m³	ISO 1183

Injection

Drying Recommended	yes	
Drying Temperature	100	°C
Drying Time, Dehumidified Dryer	6 - 8	h
Processing Moisture Content	≤0.1	%
Min. melt temperature	320	°C
Max. melt temperature	325	°C
Min. mould temperature	90	°C
Max. mould temperature	130	°C

Characteristics

Processing	Injection Moulding
Additives	Flame retardant, Non-halogenated/Red phosphorous free flame retardant
Special characteristics	Flame retardant, Lead-free soldering resistant

Additional information

Injection molding	For molding machine components, use corrosion resistant and wear resistant steel. For details please contact our representative. Limit the residence time of the resin in the machine. Use proper protective equipment and adequate ventilation.

Celanese
The chemistry inside innovation™

Zytel® HTNFR52G45NHF NC010 (PRELIMINARY)

HIGH PERFORMANCE POLYAMIDE RESIN

Revised: 2025-01-28 Source: Celanese Materials Database

The above data are preliminary and are subject to change as additional data are developed on subsequent lots.

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any equipment, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users seek and adhere to the manufacturer's current instructions for handling each material they use, and entrust the handling of such material to adequately trained personnel only. Please call the telephone numbers listed for additional technical information. Call Customer Services for the appropriate Materials Safety Data Sheets (MSDS) before attempting to process our products.