Celanese
The chemistry inside innovation™

Zytel® HTN53G50HSLR BK083

HIGH PERFORMANCE POLYAMIDE RESIN

Zytel® HTN high performance polyamide resins feature high retention of properties upon exposure to elevated temperature, to high moisture, and to harsh chemical environments. Polymer families and grades of Zytel® HTN are tailored to optimize performance as well as processability.

Typical applications with Zytel® HTN include demanding applications in the automotive, electrical and electronics, domestic appliances, and construction industries.

Zytel® HTN53G50HSLR BK083 is a 50% glass reinforced, heat stabilised, lubricated high performance polyamide resin developed for moderate temperature structural applications requiring retention of high impact and stiffness.

Product information

Resin Identification	PA-GF50	ISO 1043
Part Marking Code	>PA-GF50<	ISO 11469
Part Marking Code	>PA-GF50<	SAE J1344
ISO designation	ISO 16396-PA,GF50,M1CGHRW,S10-160	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.2 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.5 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile Modulus	16000 / 15000	MPa	ISO 527-1/-2
Stress at break, 5mm/min	250 / 220	MPa	ISO 527-1/-2
Strain at break, 5mm/min	2.8 / 3.2	%	ISO 527-1/-2
Flexural Modulus	15000 / -	MPa	ISO 178
Flexural Strength	390 / -	MPa	ISO 178
Tensile creep modulus, 1h	* / 10000	MPa	ISO 899-1
Tensile creep modulus, 1000h	* / 7500	MPa	ISO 899-1
Charpy impact strength, 23°C	95 / 90	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	65 / 65	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	14 / 13	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	13 / 13	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	13 / -	kJ/m²	ISO 180/1A
Poisson's ratio	0.33 / 0.33		

Thermal properties

	dry/cond.		
Melting temperature, first heat	260 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	85 / 45	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	230 / *	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	250 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	19 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel	17 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	59 / *	E-6/K	ISO 11359-1/-2

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Coeff. of linear therm. expansion, normal	59 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	95 / *	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.75mm	65	°C	UL 746B
RTI, electrical, 1.5mm	65	°C	UL 746B
RTI, electrical, 3mm	65	°C	UL 746B
RTI, impact, 0.75mm	65	°C	UL 746B
RTI, impact, 1.5mm	65	°C	UL 746B
RTI, impact, 3mm	65	°C	UL 746B
RTI, strength, 0.75mm	65	°C	UL 746B
RTI, strength, 1.5mm	65 / *	°C	UL 746B
RTI, strength, 3mm	65	°C	UL 746B

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB / *	class	UL 94
Thickness tested	1.5 / *	mm	UL 94
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	HB / *	class	UL 94
Thickness tested	0.75 / *	mm	UL 94
UL recognition	yes / *		UL 94
Oxygen index	27 / *	%	ISO 4589-1/-2
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Volume resistivity	1E13 / -	Ohm.m	IEC 62631-3-1
Comparative tracking index	550 / -		IEC 60112

Other properties

	dry/cond.		
Humidity absorption, 2mm	1.6 / *	%	Sim. to ISO 62
Density	1590 / -	kg/m³	ISO 1183

Injection

Drying Recommended	yes		
Drying Temperature	100	°C	
Drying Time, Dehumidified Dryer	6 - 8	h	
Processing Moisture Content	≤0.1	%	
Melt Temperature Optimum	290	°C	Internal
Min. melt temperature	280	°C	
Max. melt temperature	300	°C	
Min. mould temperature	90	°C	
Max. mould temperature	110	°C	

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Characteristics

Additives	Release agent

Additional information

Injection molding	During molding, use proper protective equipment and adequate ventilation. Avoid exposure to fumes and limit the hold up time and temperature of the resin in the machine. Purge degraded resin carefully with HDPE.