DuPont™ Zytel® HTN54G15HSLR NC010 HIGH PERFORMANCE POLYAMIDE RESIN

Product Information

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® HTN54G15HSLR NC010 is a 15% glass reinforced, toughened, heat stabilized high performance polyamide resin. It is also a PPA resin.

Resin Identification	General information	Value	Unit	Test Standard
Part Marking Code	Resin Identification	PA-IGF15	-	ISO 1043
Rheological properties	Part Marking Code	PA-IGF15	-	ISO 11469
Molding shrinkage, parallel 0.4 / - % ISO 294-4, 2577 Molding shrinkage, normal 0.7 / - % ISO 294-4, 2577 Mechanical properties dry / cond Unit Test Standard Tensile Modulus 5600 / 5500 MPa ISO 527-1/-2 Strain at break 3.7 / 2.7 % ISO 527-1/-2 Strain at break 3.7 / 2.7 % ISO 527-1/-2 Flexural Modulus 4900 / - MPa ISO 178 Tensile creep modulus ISO 899-1 1h * / 5500 MPa 1000h * / 5500 MPa Charpy inpact strength, 73°F 6 / - kJ/m² ISO 179/1eU Charpy notched impact strength, 73°F 6 / - kJ/m² ISO 179/1eU Charpy inpact strength, 73°F 6 / - C ISO 17357-1/-3 Thermal properties dry / cond Unit Test Standard Melting temperature, first heat <td< td=""><td>Part Marking Code</td><td>>PPA-IGF15<</td><td>=</td><td>SAE J1344</td></td<>	Part Marking Code	>PPA-IGF15<	=	SAE J1344
Molding shrinkage, normal 0.7 / - % ISO 294-4, 2577 Mechanical properties dry / cond Unit Test Standard Tensile Modulus 5600 / 5500 MPa ISO 527-1/-2 Stress at break 130 / 100 MPa ISO 527-1/-2 Strain at break 3.7 / 2.7 % ISO 527-1/-2 Strain at break 4900 / - MPa ISO 527-1/-2 Flexural Modulus 4900 / - MPa ISO 178 Tensile creep modulus ISO 899-1 1h	Rheological properties	dry / cond	Unit	Test Standard
Mechanical properties	Molding shrinkage, parallel	0.4 / -	%	ISO 294-4, 2577
Tensile Modulus 5600 / 5500 MPa ISO 527-1/-2 Stress at break 130 / 100 MPa ISO 527-1/-2 Strain at break 3.7 / 2.7 % ISO 527-1/-2 Flexural Modulus 4900 / - MPa ISO 178 Tensile creep modulus ISO 899-1 ISO 899-1 1h * / 5500 MPa 1000h * / 5500 MPa 1000h * / 5500 MPa Charpy impact strength, 73°F 70 / 60 kJ/m² ISO 179/1eU Charpy motched impact strength, 73°F 6 / - kJ/m² ISO 179/1eU Charpy motched impact strength, 73°F 6 / - kJ/m² ISO 179/1eU Charpy motched impact strength, 73°F 6 / - kJ/m² ISO 179/1eU Charpy motched impact strength, 73°F 6 / - kJ/m² ISO 179/1eU Charpy notched impact strength, 73°F 6 / - kJ/m² ISO 179/1eU Charpy notched impact strength, 73°F 6 / - kJ/m² ISO 179/1eU Charpy notched impact strength, 73°F 6 / - kJ/m² C	Molding shrinkage, normal			ISO 294-4, 2577
Stress at break 130 / 100 MPa ISO 527-1/-2	Mechanical properties	dry / cond	Unit	Test Standard
Strain at break 3.7 / 2.7 % ISO 527-1/-2 Flexural Modulus 4900 / - MPa ISO 178 Tensile creep modulus ISO 899-1 1h * / 5500 MPa 1000h * / 5000 MPa Charpy impact strength, 73°F 70 / 60 kJ/m² ISO 179/1eU Charpy notched impact strength, 73°F 6 / - kJ/m² ISO 179/1eA Thermal properties dry / cond Unit Test Standard Melting temperature, first heat 300 / * ° C ISO 11357-17-3 Temp. of deflection under load ISO 75-1/-2 260 psi 235 / * ° C 65 psi 280 / * ° C Coeff. of linear therm. expansion, parallel 28 / * E-6/K Coeff. of linear therm. expansion ISO 11359-1/-2 normal 70 / * E-6/K Normal, -40-23° C 70 / * E-6/K Parallel, -40-23° C 32 / * E-6/K Flammability dry / cond Unit Test Standard Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 <	Tensile Modulus	5600 / 5500	MPa	ISO 527-1/-2
Flexural Modulus	Stress at break	130 / 100	MPa	ISO 527-1/-2
Tensile creep modulus 1h	Strain at break	3.7 / 2.7	%	ISO 527-1/-2
1h * / 5500 MPa 1000h * / 5000 MPa Charpy impact strength, 73°F 70 / 60 kJ/m² ISO 179/1eU Charpy notched impact strength, 73°F 6 / - kJ/m² ISO 179/1eA Thermal properties dry / cond Unit Test Standard Melting temperature, first heat 300 / * ° C ISO 11357-1/-3 Temp. of deflection under load ISO 75-1/-2 260 psi 235 / * °C 65 psi 280 / * °C Coeff. of linear therm. expansion, parallel 28 / * E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion ISO 11359-1/-2 normal 70 / * E-6/K E-6/K Normal, -40-23°C 70 / * E-6/K E-6/K Parallel, -40-23°C 32 / * E-6/K E-6/K Flammability dry / cond Unit Test Standard Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 Thickness tested 1.5 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness t	Flexural Modulus	4900 / -	MPa	ISO 178
1000h	Tensile creep modulus			ISO 899-1
Charpy impact strength, 73°F 70 / 60 kJ/m² ISO 179/1eU Charpy notched impact strength, 73°F 6 / - kJ/m² ISO 179/1eA Thermal properties dry / cond Unit Test Standard Melting temperature, first heat 300 / * °C ISO 11357-1/-3 Temp. of deflection under load ISO 75-1/-2 260 psi 235 / * °C Coeff. of linear therm. expansion, parallel 28 / * E-6/K Coeff. of linear therm. expansion normal 70 / * E-6/K Normal, -40-23°C 70 / * E-6/K Parallel, -40-23°C 32 / * E-6/K Flammability dry / cond Unit Test Standard Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 Thickness tested 1.5 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2		* / 5500	MPa	
Charpy notched impact strength, 73°F 6 / - kJ/m² ISO 179/1eA Thermal properties dry / cond Unit Test Standard Melting temperature, first heat 300 / * °C ISO 11357-1/-3 Temp. of deflection under load ISO 75-1/-2 260 psi 235 / * °C 65 psi 280 / * °C Coeff. of linear therm. expansion, parallel 28 / * E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion ISO 11359-1/-2 normal 70 / * E-6/K Normal, -40-23°C 70 / * E-6/K Parallel, -40-23°C 32 / * E-6/K Flammability dry / cond Unit Test Standard Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 UL recognition yes / * - UL 94 Oxygen index 23 / * SO 4589-1/-2		* / 5000	MPa	
Thermal properties dry / cond Unit Test Standard Melting temperature, first heat 300 / * °C ISO 11357-1/-3 Temp. of deflection under load ISO 75-1/-2 260 psi 235 / * °C 65 psi 280 / * °C Coeff. of linear therm. expansion, parallel 28 / * E-6/K Coeff. of linear therm. expansion normal 70 / * E-6/K Normal, -40-23 °C 70 / * E-6/K Parallel, -40-23 °C 32 / * E-6/K Flammability dry / cond Unit Test Standard Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2	Charpy impact strength, 73°F			ISO 179/1eU
Melting temperature, first heat 300 / * °C ISO 11357-1/-3 Temp. of deflection under load ISO 75-1/-2 260 psi 235 / * °C 65 psi 280 / * °C Coeff. of linear therm. expansion, parallel 28 / * E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion ISO 11359-1/-2 normal 70 / * E-6/K F-6/K Normal, -40-23°C 70 / * E-6/K F-6/K Parallel, -40-23°C 32 / * E-6/K F-6/K Flammability dry / cond Unit Test Standard Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2	Charpy notched impact strength, 73°F	6 / -	kJ/m²	ISO 179/1eA
Temp. of deflection under load 260 psi 235 / * °C 65 psi 280 / * °C Coeff. of linear therm. expansion, parallel 28 / * E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion normal 70 / * E-6/K Normal, -40-23 °C 70 / * E-6/K Parallel, -40-23 °C 32 / * E-6/K Flammability dry / cond Burning Behav. at 60mil nom. thickn. HB / * class HEC 60695-11-10 UL recognition UL recognition Wes / * - UL 94 Burning Behav. at thickness h HB / * class HEC 60695-11-10 Thickness tested 0.8 / * mm HEC 60695-11-10 UL recognition Ves / * - UL 94 Oxygen index Oxygen index	Thermal properties	dry / cond	Unit	Test Standard
260 psi 235 / * ° C 65 psi 280 / * ° C Coeff. of linear therm. expansion, parallel 28 / * E-6/K ISO 11359-1/-2 Coeff. of linear therm. expansion ISO 11359-1/-2 normal 70 / * E-6/K Normal, -40-23°C 70 / * E-6/K Parallel, -40-23°C 32 / * E-6/K Flammability dry / cond Unit Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 Thickness tested 1.5 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2	Melting temperature, first heat	300 / *	°C	ISO 11357-1/-3
280 / * ° C	Temp. of deflection under load			ISO 75-1/-2
Coeff. of linear therm. expansion, parallel 28 / * E-6/K ISO 11359-1/-2	260 psi	235 / *	°C	
SO 11359-1/-2	65 psi		°C	
normal 70 / * E-6/K Normal, -40-23°C 70 / * E-6/K Parallel, -40-23°C 32 / * E-6/K Flammability dry / cond Unit Test Standard Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 Thickness tested 1.5 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2	Coeff. of linear therm. expansion, parallel	28 / *	E-6/K	
Normal, -40-23°C 70 / * E-6/K Parallel, -40-23°C 32 / * E-6/K Flammability dry / cond Unit Test Standard Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 Thickness tested 1.5 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2	Coeff. of linear therm. expansion			ISO 11359-1/-2
Parallel, -40-23°C 32 / * E-6/K Flammability dry / cond Unit Test Standard Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 Thickness tested 1.5 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2		70 / *	E-6/K	
Flammability dry / cond Unit Test Standard Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 Thickness tested 1.5 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2			E-6/K	
Burning Behav. at 60mil nom. thickn. HB / * class IEC 60695-11-10 Thickness tested 1.5 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2	Parallel, -40-23°C			
Thickness tested 1.5 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2		dry / cond	Unit	Test Standard
UL recognition yes / * - UL 94 Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2	Burning Behav. at 60mil nom. thickn.	HB / *	class	IEC 60695-11-10
Burning Behav. at thickness h HB / * class IEC 60695-11-10 Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2	Thickness tested	1.5 / *	mm	
Thickness tested 0.8 / * mm IEC 60695-11-10 UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2	UL recognition		-	
UL recognition yes / * - UL 94 Oxygen index 23 / * % ISO 4589-1/-2	Burning Behav. at thickness h		class	IEC 60695-11-10
Oxygen index 23 / * % ISO 4589-1/-2			mm	
			-	
		23 / *	%	
	FMVSS Class	В		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm <100 mm/min ISO 3795 (FMVSS 302)			mm/min	
Electrical properties dry / cond Unit Test Standard	Electrical properties	dry / cond	Unit	Test Standard
Dissipation factor IEC 62631-2-1				IEC 62631-2-1
100Hz 150 / - E-4				
1MHz 150 / - E-4	1MHz			
Volume resistivity >1E13 / >1E13 Ohm*m IEC 62631-3-1				
	Surface resistivity	* / >1E15	Ohm	IEC 62631-3-2
Fundage registricity * / 1715 Ohm IFC (2/24.2.2.	Surface resistivity	" / >IE15	Unm	IEC 02031-3-2

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DuPont™ Zytel® HTN54G15HSLR NC010 HIGH PERFORMANCE POLYAMIDE RESIN

Electric strength	16.5 / -	kV/mm	IEC 60243-1
Comparative tracking index	575 / 575	-	IEC 60112
Other properties	dry / cond	Unit	Test Standard
Density	1250 / -	kg/m³	ISO 1183
Injection	Value	Unit	Test Standard
Drying Recommended	yes	-	-
Drying Temperature	≥100	°C	-
Drying Time, Dehumidified Dryer	6 - 8	h	-
Processing Moisture Content	≤0.1	%	-
Melt Temperature Optimum	325	°C	-
Min. melt temperature	320	°C	-
Max. melt temperature	330	°C	-
Min. mold temperature	90	°C	-
Max. mold temperature	110	°C	-

haracteristics					
Processing	 Injection Molding 				
Delivery form	 Pellets 				
Additives	 Release agent 				
Special characteristics	Heat stabilized or stable				
	to heat				
Regional Availability	 North America 	 Asia Pacific 	 Near East/Africa 		
	Europe	 South and Central America 	 Global 		

Processing Texts

Injection molding

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

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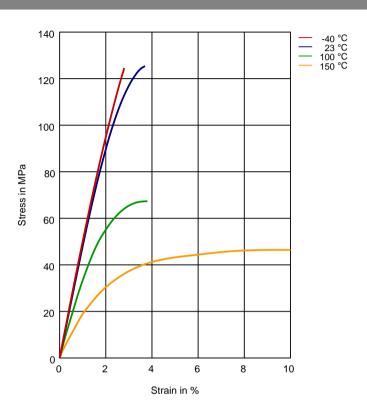
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DuPont™ Zytel® HTN54G15HSLR NC010 HIGH PERFORMANCE POLYAMIDE RESIN

Diagrams

Stress-strain (dry



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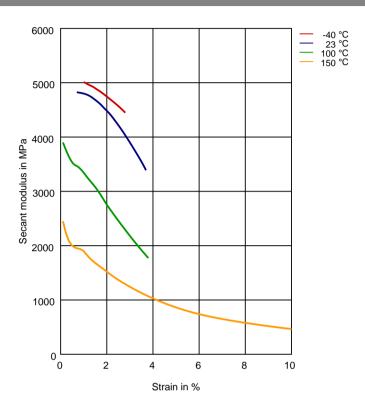
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DuPont™ Zytel® HTN54G15HSLR NC010 HIGH PERFORMANCE POLYAMIDE RESIN

Secant modulus-strain (dry)



Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73°F unless otherwise stated.

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