

Product Comparison

Technical Data

Product Description		
Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN51G45HSL NC010 is a 45% glass reinforced, heat stabilized, lubricated high performance polyamide resin. It is also a PPA resin.	
Zytel® HTN 51G45HSL BK083 (Dry)	Zytel® HTN51G45HSL BK083 is a 45% glass reinforced, heat stabilized, lubricated high performance polyamide resin. It is also a PPA resin.	
General	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL BK083 (Dry)
Manufacturer / Supplier	DuPont Performance Polymers	DuPont Performance Polymers
Generic Symbol	PPA	PPA
Filler / Reinforcement	Glass Fiber, 45% Filler by Weight	Glass Fiber, 45% Filler by Weight
Additive	- Heat Stabilizer - Lubricant - Mold Release	- Heat Stabilizer - Lubricant
Features	- Good Dimensional Stability - Good Electrical Properties - Good Heat Aging Resistance - Good Stiffness - Heat Stabilized - Heat Stabilized - Low to No Water Absorption - Lubricated - Ultrasonic Weldable	- Heat Stabilized - Lubricated

Product Comparison

General	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL BK083 (Dry)
Uses	- Automotive Applications - Electric Motor Housings - Electrical Housing - Electrical/Electronic Applications	--
RoHS Compliance	Contact Manufacturer	Contact Manufacturer
Appearance	Natural Color	Black
Forms	Pellets	Pellets
Processing Method	Injection Molding	Injection Molding
Multi-Point Data	Isothermal Stress vs. Strain (ISO 11403-1)	Tensile Fatigue (ISO 13003)
Part Marking Code (ISO 11469)	>PA6T/XT-GF45<	>PA6T/XT-GF45<
Part Marking Code (SAE J1344)	>PPA-GF45<	>PPA-GF45<

Physical	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL NC010 (Conditioned)	Zytel® HTN 51G45HSL BK083 (Dry)	Zytel® HTN 51G45HSL BK083 (Conditioned)	Unit	Test Method
Density	1.57	--	1.57	--	g/cm³	ISO 1183
Molding Shrinkage						ISO 294-4
Across Flow : 2.00 mm	0.60	--	0.60	--	%	
Flow : 2.00 mm	0.20	--	0.20	--	%	
Water Absorption						ISO 62
23°C, 24 hr, 2.00 mm	0.38	--	0.38	--	%	
Saturation, 23°C, 2.00 mm	3.6	--	3.6	--	%	
Equilibrium, 23°C, 2.00 mm, 50% RH	1.2	--	1.0	--	%	

Mechanical	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL NC010 (Conditioned)	Zytel® HTN 51G45HSL BK083 (Dry)	Zytel® HTN 51G45HSL BK083 (Conditioned)	Unit	Test Method
Tensile Modulus (23°C)	15000	15000	15000	15500	MPa	ISO 527-2
Tensile Stress (Break, 23°C)	240	230	240	230	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	2.4	2.1	2.3	2.0	%	ISO 527-2
Tensile Creep Modulus						ISO 899-1
1 hr	--	14000	--	--	MPa	
1000 hr	--	12000	--	--	MPa	
Flexural Modulus (23°C)	13200	13200	13200	--	MPa	ISO 178
Compressive Stress (23°C)	305	--	--	--	MPa	ISO 604

Product Comparison

Impact	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL NC010 (Conditioned)	Zytel® HTN 51G45HSL BK083 (Dry)	Zytel® HTN 51G45HSL BK083 (Conditioned)	Unit	Test Method
Charpy Notched Impact Strength						ISO 179/1eA
-40°C	13	--	--	--	kJ/m²	
-30°C	12	--	12	--	kJ/m²	
23°C	12	11	12	--	kJ/m²	
Charpy Unnotched Impact Strength						ISO 179/1eU
-30°C	85	--	80	--	kJ/m²	
23°C	90	75	85	--	kJ/m²	
Notched Izod Impact Strength						ISO 180/1A
-40°C	13	--	13	--	kJ/m²	
23°C	12	12	12	--	kJ/m²	
Unnotched Izod Impact Strength (23°C)	87	--	--	--	kJ/m²	ISO 180/1U
Hardness	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL NC010 (Conditioned)	Zytel® HTN 51G45HSL BK083 (Dry)	Zytel® HTN 51G45HSL BK083 (Conditioned)	Unit	Test Method
Rockwell Hardness						ISO 2039-2
M-Scale	108	--	--	--		
R-Scale	124	--	--	--		
Thermal	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL NC010 (Conditioned)	Zytel® HTN 51G45HSL BK083 (Dry)	Zytel® HTN 51G45HSL BK083 (Conditioned)	Unit	Test Method
Heat Deflection Temperature						
0.45 MPa, Unannealed	286	--	285	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	265	--	265	--	°C	ISO 75-2/A
Melting Temperature ⁴	300	--	300	--	°C	ISO 11357-3
CLTE						ISO 11359-2
Flow : -40 to 23°C	0.000015	--	0.000015	--	cm/cm/°C	
Flow : 23 to 55°C	0.000015	--	0.000013	--	cm/cm/°C	
Flow : 55 to 160°C	0.000013	--	0.000013	--	cm/cm/°C	
Transverse : -40 to 23°C	0.000050	--	0.000050	--	cm/cm/°C	
Transverse : 23 to 55°C	0.000054	--	0.000055	--	cm/cm/°C	
Transverse : 55 to 125°C	0.000064	--	--	--	cm/cm/°C	
Transverse : 55 to 160°C	--	--	0.000065	--	cm/cm/°C	
RTI Elec						UL 746
0.850 mm	150	--	150	--	°C	
1.50 mm	150	--	150	--	°C	
3.00 mm	150	--	150	--	°C	

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Thermal	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL NC010 (Conditioned)	Zytel® HTN 51G45HSL BK083 (Dry)	Zytel® HTN 51G45HSL BK083 (Conditioned)	Unit	Test Method
RTI Imp						UL 746
0.850 mm	120	--	120	--	°C	
1.50 mm	125	--	125	--	°C	
3.00 mm	150	--	150	--	°C	
RTI Str						UL 746
0.850 mm	130	--	130	--	°C	
1.50 mm	140	--	140	--	°C	
3.00 mm	150	--	150	--	°C	
Electrical	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL NC010 (Conditioned)	Zytel® HTN 51G45HSL BK083 (Dry)	Zytel® HTN 51G45HSL BK083 (Conditioned)	Unit	Test Method
Surface Resistivity	1.0E+12	1.0E+14	> 1.0E+15	--	ohm	IEC 60093
Volume Resistivity	> 1.0E+15	1.0E+15	> 1.0E+15	--	ohm-cm	IEC 60093
Electric Strength						IEC 60243-1
23°C, 1.00 mm	35	34	--	--	kV/mm	
23°C, 2.00 mm	27	--	--	--	kV/mm	
Relative Permittivity						IEC 60250
23°C, 100 Hz	4.20	--	--	--		
23°C, 1 MHz	3.90	--	--	--		
Dissipation Factor						IEC 60250
23°C, 100 Hz	0.0090	--	--	--		
23°C, 1 MHz	0.015	--	--	--		
Comparative Tracking Index	600	600	--	--	V	IEC 60112
Flammability	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL NC010 (Conditioned)	Zytel® HTN 51G45HSL BK083 (Dry)	Zytel® HTN 51G45HSL BK083 (Conditioned)	Unit	Test Method
Flame Rating (0.850 mm)	HB	--	HB	--		UL 94
Oxygen Index	24	--	--	--	%	ISO 4589-2
Injection	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL BK083 (Dry)			Unit	
Drying Temperature	100	100			°C	
Drying Time	6.0 to 8.0	6.0 to 8.0			hr	
Suggested Max Moisture	< 0.10	< 0.10			%	
Processing (Melt) Temp	320 to 330	320 to 330			°C	
Melt Temperature, Optimum	325	325			°C	
Mold Temperature	140 to 160	140 to 160			°C	

Product Comparison

Injection	Zytel® HTN 51G45HSL NC010 (Dry)	Zytel® HTN 51G45HSL BK083 (Dry)	Unit
Mold Temperature, Optimum	150	150	°C
Drying Recommended	Yes, if moisture content of resin exceeds recommended level	--	