

## DuPont Performance Polymers Zytel® HTN 51G35EF BK083 Polyphthalamide (PPA) (Unverified Data\*\*)

Category : Polymer , Thermoplastic , Polyphthalamide (PPA) , Polyphthalamide (PPA), 40% Glass Fiber Reinforced

### Material Notes:

35% Glass Reinforced PPA High Performance Polyamide Developed for Electrical and Electronics Applications Zytel HTN51G35EF BK083 is a 35% glass reinforced heat stabilized lubricated high performance polyamide resin developed for electrical and electronInformation provided by DuPont Performance Polymers

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_DuPont-Performance-Polymers-Zytel-HTN-51G35EF-BK083-Polyphthalamide-PPA-nbspUnverified-Data.php](http://www.lookpolymers.com/polymer_DuPont-Performance-Polymers-Zytel-HTN-51G35EF-BK083-Polyphthalamide-PPA-nbspUnverified-Data.php)

Physical Properties	Metric	English	Comments
Density	1.47 g/cc	0.0531 lb/in <sup>3</sup>	DAM; ISO 1183
Linear Mold Shrinkage, Flow	0.0020 cm/cm	0.0020 in/in	DAM; ISO 294-4 2577
Linear Mold Shrinkage, Transverse	0.0060 cm/cm	0.0060 in/in	DAM; ISO 294-4 2577

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	220 MPa	31900 psi	DAM; ISO 527-1/-2
Tensile Stress	8.88 MPa	1290 psi	50%RH; ISO 11403-1 -2
	@Strain 0.190 %, Temperature 150 °C	@Strain 0.190 %, Temperature 302 °F	
	12.91 MPa	1872 psi	DAM; ISO 11403-1 -2
	@Strain 0.280 %, Temperature 180 °C	@Strain 0.280 %, Temperature 356 °F	
	20.41 MPa	2960 psi	DAM; ISO 11403-1 -2
	@Strain 0.360 %, Temperature 150 °C	@Strain 0.360 %, Temperature 302 °F	
	24.59 MPa	3566 psi	50%RH; ISO 11403-1 -2
	@Strain 0.650 %, Temperature 150 °C	@Strain 0.650 %, Temperature 302 °F	
	38.11 MPa	5527 psi	DAM; ISO 11403-1 -2
	@Strain 1.15 %, Temperature 180 °C	@Strain 1.15 %, Temperature 356 °F	
	38.35 MPa	5562 psi	50%RH; ISO 11403-1 -2
	@Strain 1.40 %, Temperature 150 °C	@Strain 1.40 %, Temperature 302 °F	
	40.83 MPa	5922 psi	

Mechanical Properties	Metric	English	Comments
	@Strain 0.550 %, Temperature 90.0 °C	@Strain 0.550 %, Temperature 194 °F	50%RH; ISO 11403-1 -2
	46.25 MPa	6708 psi	50%RH; ISO 11403-1 -2
	@Strain 2.23 %, Temperature 150 °C	@Strain 2.23 %, Temperature 302 °F	
	48.71 MPa	7065 psi	DAM; ISO 11403-1 -2
	@Strain 1.24 %, Temperature 150 °C	@Strain 1.24 %, Temperature 302 °F	
	48.84 MPa	7084 psi	DAM; ISO 11403-1 -2
	@Strain 2.11 %, Temperature 180 °C	@Strain 2.11 %, Temperature 356 °F	
	55.6 MPa	8060 psi	DAM; ISO 11403-1 -2
	@Strain 3.25 %, Temperature 180 °C	@Strain 3.25 %, Temperature 356 °F	
	60.42 MPa	8763 psi	DAM; ISO 11403-1 -2
	@Strain 2.38 %, Temperature 150 °C	@Strain 2.38 %, Temperature 302 °F	
	65.19 MPa	9455 psi	DAM; ISO 11403-1 -2
	@Strain 0.600 %, Temperature 90.0 °C	@Strain 0.600 %, Temperature 194 °F	
	66.06 MPa	9581 psi	50%RH; ISO 11403-1 -2
	@Strain 1.14 %, Temperature 90.0 °C	@Strain 1.14 %, Temperature 194 °F	
	66.18 MPa	9599 psi	DAM; ISO 11403-1 -2
	@Strain 3.75 %, Temperature 150 °C	@Strain 3.75 %, Temperature 302 °F	
	73.19 MPa	10620 psi	DAM; ISO 11403-1 -2
	@Strain 0.620 %, Temperature 40.0 °C	@Strain 0.620 %, Temperature 104 °F	
	80.45 MPa	11670 psi	50%RH; ISO 11403-1 -2
	@Strain 1.80 %, Temperature 90.0 °C	@Strain 1.80 %, Temperature 194 °F	
	83.19 MPa	12070 psi	50%RH; ISO 11403-1 -2
	@Strain 0.720 %, Temperature 23.0 °C	@Strain 0.720 %, Temperature 73.4 °F	
	88.89 MPa	12890 psi	50%RH; ISO 11403-1 -2
	@Strain 2.62 %, Temperature 90.0 °C	@Strain 2.62 %, Temperature 194 °F	

Mechanical Properties	Metric MPa	English psi	Comments
	@Strain 0.760 %, Temperature 23.0 °C	@Strain 0.760 %, Temperature 73.4 °F	DAM; ISO 11403-1 -2
	97.16 MPa	14090 psi	
	@Strain 0.780 %, Temperature -20.0 °C	@Strain 0.780 %, Temperature -4.00 °F	50%RH; ISO 11403-1 -2
	98.0 MPa	14200 psi	
	@Strain 0.897 %, Temperature 40.0 °C	@Strain 0.897 %, Temperature 104 °F	50%RH; ISO 11403-1 -2
	98.97 MPa	14350 psi	
	@Strain 0.800 %, Temperature 0.000 °C	@Strain 0.800 %, Temperature 32.0 °F	DAM; ISO 11403-1 -2
	102.66 MPa	14890 psi	
	@Strain 1.02 %, Temperature 90.0 °C	@Strain 1.02 %, Temperature 194 °F	DAM; ISO 11403-1 -2
	104.24 MPa	15119 psi	
	@Strain 0.910 %, Temperature 40.0 °C	@Strain 0.910 %, Temperature 104 °F	DAM; ISO 11403-1 -2
	107 MPa	15500 psi	
	@Strain 0.882 %, Temperature 0.000 °C	@Strain 0.882 %, Temperature 32.0 °F	50%RH; ISO 11403-1 -2
	112.48 MPa	16314 psi	
	@Strain 1.02 %, Temperature 23.0 °C	@Strain 1.02 %, Temperature 73.4 °F	50%RH; ISO 11403-1 -2
	116.13 MPa	16843 psi	
	@Strain 0.930 %, Temperature -20.0 °C	@Strain 0.930 %, Temperature -4.00 °F	DAM; ISO 11403-1 -2
	125.83 MPa	18250 psi	
	@Strain 1.36 %, Temperature 90.0 °C	@Strain 1.36 %, Temperature 194 °F	DAM; ISO 11403-1 -2
	131.27 MPa	19039 psi	
	@Strain 1.30 %, Temperature 40.0 °C	@Strain 1.30 %, Temperature 104 °F	50%RH; ISO 11403-1 -2
	134.89 MPa	19564 psi	
	@Strain 1.14 %, Temperature 0.000 °C	@Strain 1.14 %, Temperature 32.0 °F	DAM; ISO 11403-1 -2
	137.92 MPa	20004 psi	
			50%RH; ISO 11403-1 -2

Mechanical Properties	@Strain 1.31 %, Metric Temperature 23.0 °C	@Strain 1.31 %, English Temperature 73.4 °F	Comments
	146.77 MPa	21287 psi	DAM; ISO 11403-1 -2
	@Strain 1.80 %, Temperature 90.0 °C	@Strain 1.80 %, Temperature 194 °F	
	153.67 MPa	22288 psi	DAM; ISO 11403-1 -2
	@Strain 1.28 %, Temperature -20.0 °C	@Strain 1.28 %, Temperature -4.00 °F	
	156.27 MPa	22665 psi	DAM; ISO 11403-1 -2
	@Strain 1.48 %, Temperature 40.0 °C	@Strain 1.48 %, Temperature 104 °F	
	156.32 MPa	22672 psi	50%RH; ISO 11403-1 -2
	@Strain 1.66 %, Temperature 40.0 °C	@Strain 1.66 %, Temperature 104 °F	
	159.92 MPa	23194 psi	DAM; ISO 11403-1 -2
	@Strain 1.46 %, Temperature 23.0 °C	@Strain 1.46 %, Temperature 73.4 °F	
	162.15 MPa	23518 psi	50%RH; ISO 11403-1 -2
	@Strain 1.62 %, Temperature 23.0 °C	@Strain 1.62 %, Temperature 73.4 °F	
	177.86 MPa	25796 psi	50%RH; ISO 11403-1 -2
	@Strain 2.09 %, Temperature 40.0 °C	@Strain 2.09 %, Temperature 104 °F	
	181.2 MPa	26280 psi	DAM; ISO 11403-1 -2
	@Strain 1.65 %, Temperature 0.000 °C	@Strain 1.65 %, Temperature 32.0 °F	
	187.3 MPa	27170 psi	50%RH; ISO 11403-1 -2
	@Strain 1.72 %, Temperature 0.000 °C	@Strain 1.72 %, Temperature 32.0 °F	
	189.71 MPa	27515 psi	DAM; ISO 11403-1 -2
	@Strain 1.97 %, Temperature 40.0 °C	@Strain 1.97 %, Temperature 104 °F	
	191.21 MPa	27733 psi	50%RH; ISO 11403-1 -2
	@Strain 1.74 %, Temperature -20.0 °C	@Strain 1.74 %, Temperature -4.00 °F	
	204.28 MPa	29628 psi	DAM; ISO 11403-1 -2
	@Strain 1.96 %, Temperature 0.000 °C	@Strain 1.96 %, Temperature 32.0 °F	

Mechanical Properties	205.31 MPa Metric	29778 psi English	Comments DAM; ISO 11403-1 -2
	@Strain 2.10 %, Temperature 23.0 °C	@Strain 2.10 %, Temperature 73.4 °F	
	210.24 MPa	30493 psi	50%RH; ISO 11403-1 -2
	@Strain 2.06 %, Temperature 0.000 °C	@Strain 2.06 %, Temperature 32.0 °F	
	216.76 MPa	31438 psi	DAM; ISO 11403-1 -2
	@Strain 2.02 %, Temperature -20.0 °C	@Strain 2.02 %, Temperature -4.00 °F	
Elongation at Break	2.4 %	2.4 %	DAM; ISO 527-1/-2
Tensile Modulus	12.1 GPa	1750 ksi	DAM; ISO 527-1/-2
Flexural Strength	300 MPa	43500 psi	DAM; ISO 178
Flexural Modulus	11.0 GPa	1600 ksi	DAM; ISO 178
Secant Modulus	1.01 GPa	147 ksi	DAM; ISO 11403-1 -2
	@Strain 5.47 %, Temperature 200 °C	@Strain 5.47 %, Temperature 392 °F	
	1.29 GPa	187 ksi	DAM; ISO 11403-1 -2
	@Strain 4.02 %, Temperature 200 °C	@Strain 4.02 %, Temperature 392 °F	
	1.75 GPa	254 ksi	DAM; ISO 11403-1 -2
	@Strain 2.63 %, Temperature 200 °C	@Strain 2.63 %, Temperature 392 °F	
	2.71 GPa	393 ksi	DAM; ISO 11403-1 -2
	@Strain 1.30 %, Temperature 200 °C	@Strain 1.30 %, Temperature 392 °F	
	4.2425 GPa	615.33 ksi	DAM; ISO 11403-1 -2
	@Strain 0.400 %, Temperature 200 °C	@Strain 0.400 %, Temperature 392 °F	
	7.40 GPa	1070 ksi	50%RH; ISO 11403-1 -2
	@Strain 2.54 %, Temperature 40.0 °C	@Strain 2.54 %, Temperature 104 °F	
	8.70 GPa	1260 ksi	50%RH; ISO 11403-1 -2
	@Strain 2.33 %, Temperature 23.0 °C	@Strain 2.33 %, Temperature 73.4 °F	
	8.86 GPa	1280 ksi	DAM; ISO 11403-1 -2
	@Strain 2.30 %, Temperature 40.0 °C	@Strain 2.30 %, Temperature 104 °F	

Mechanical Properties	Metric <sup>a</sup>	English <sup>b</sup>	Comments
	@Strain 1.81 %, Temperature 40.0 °C	@Strain 1.81 %, Temperature 104 °F	50%RH; ISO 11403-1 -2

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