

## DuPont Performance Polymers Zytel® HTN 52G35HSL NC010 Polyphthalamide (PPA)

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

### Material Notes:

Zytel® HTN52G35HSL NC010 is a 35% glass reinforced, heat stabilized, lubricated high performance polyamide resin that can be molded in water heated molds. Information provided by DuPont Performance Polymers

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_DuPont-Performance-Polymers-Zytel-HTN-52G35HSL-NC010-Polyphthalamide-PPA.php](http://www.lookpolymers.com/polymer_DuPont-Performance-Polymers-Zytel-HTN-52G35HSL-NC010-Polyphthalamide-PPA.php)

Physical Properties	Metric	English	Comments
Specific Gravity	1.47 g/cc	1.47 g/cc	DAM; ASTM D792
Density	1.45 g/cc	0.0524 lb/in <sup>3</sup>	DAM; ISO 1183
Filler Content	35 %	35 %	DAM
Linear Mold Shrinkage	0.0025 cm/cm	0.0025 in/in	Flow; DAM
	@Thickness 1.60 mm	@Thickness 0.0630 in	
	0.0030 cm/cm	0.0030 in/in	Flow; DAM
	@Thickness 3.20 mm	@Thickness 0.126 in	
	0.010 cm/cm	0.010 in/in	Transverse; DAM
	@Thickness 1.60 mm	@Thickness 0.0630 in	
	0.010 cm/cm	0.010 in/in	Transverse; DAM
	@Thickness 3.20 mm	@Thickness 0.126 in	
Linear Mold Shrinkage, Flow	0.0020 cm/cm	0.0020 in/in	DAM; ISO 294-4
	@Thickness 2.00 mm	@Thickness 0.0787 in	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	105	105	DAM; ASTM D785
Hardness, Rockwell R	124	124	DAM; ASTM D785
Tensile Strength at Break	180 MPa	26100 psi	50%RH; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	200 MPa	29000 psi	DAM; ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength	72.4 MPa	10500 psi	DAM; ASTM D638

Mechanical Properties	@Temperature 200 °C Metric	@Temperature 392 °F English	Comments
	80.0 MPa	11600 psi	DAM; ASTM D638
	@Temperature 175 °C	@Temperature 347 °F	
	89.0 MPa	12900 psi	DAM; ASTM D638
	@Temperature 150 °C	@Temperature 302 °F	
	124 MPa	18000 psi	DAM; ASTM D638
	@Temperature 100 °C	@Temperature 212 °F	
	168 MPa	24400 psi	50%RH; ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	188 MPa	27300 psi	DAM; ASTM D638
	@Temperature 60.0 °C	@Temperature 140 °F	
	204 MPa	29600 psi	DAM; ASTM D638
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	230 MPa	33400 psi	DAM; ASTM D638
	@Temperature -40.0 °C	@Temperature -40.0 °F	
Tensile Stress	21.57 MPa	3128 psi	DAM; ISO 11403-1/-2
	@Strain 0.210 %, Temperature 23.0 °C	@Strain 0.210 %, Temperature 73.4 °F	
	23.46 MPa	3403 psi	50%RH; ISO 11403-1/-2
	@Strain 0.510 %, Temperature 150 °C	@Strain 0.510 %, Temperature 302 °F	
	24.31 MPa	3526 psi	DAM; ISO 11403-1/-2
	@Strain 0.210 %, Temperature 0.000 °C	@Strain 0.210 %, Temperature 32.0 °F	
	24.56 MPa	3562 psi	DAM; ISO 11403-1/-2
	@Strain 0.220 %, Temperature 40.0 °C	@Strain 0.220 %, Temperature 104 °F	
	24.63 MPa	3572 psi	DAM; ISO 11403-1/-2
	@Strain 0.200 %, Temperature -20.0 °C	@Strain 0.200 %, Temperature -4.00 °F	
	25.85 MPa	3749 psi	50%RH; ISO 11403-1/-2
	@Strain 0.210 %, Temperature -20.0 °C	@Strain 0.210 %, Temperature -4.00 °F	
	26.02 MPa	3774 psi	50%RH; ISO 11403-1/-2

Mechanical Properties	Metric @Strain 0.510 %, Temperature 120 °C	English @Strain 0.510 %, Temperature 248 °F	Comments
	26.87 MPa	3897 psi	50%RH; ISO 11403-1/-2
	@Strain 0.230 %, Temperature 0.000 °C	@Strain 0.230 %, Temperature 32.0 °F	
	27.0 MPa	3920 psi	DAM; ISO 11403-1/-2
	@Strain 0.520 %, Temperature 150 °C	@Strain 0.520 %, Temperature 302 °F	
	29.31 MPa	4251 psi	DAM; ISO 11403-1/-2
	@Strain 0.270 %, Temperature 60.0 °C	@Strain 0.270 %, Temperature 140 °F	
	29.53 MPa	4283 psi	50%RH; ISO 11403-1/-2
	@Strain 0.260 %, Temperature 23.0 °C	@Strain 0.260 %, Temperature 73.4 °F	
	30.36 MPa	4403 psi	50%RH; ISO 11403-1/-2
	@Strain 0.520 %, Temperature 90.0 °C	@Strain 0.520 %, Temperature 194 °F	
	31.33 MPa	4544 psi	DAM; ISO 11403-1/-2
	@Strain 0.480 %, Temperature 120 °C	@Strain 0.480 %, Temperature 248 °F	
	33.66 MPa	4882 psi	DAM; ISO 11403-1/-2
	@Strain 0.430 %, Temperature 90.0 °C	@Strain 0.430 %, Temperature 194 °F	
	33.8 MPa	4900 psi	50%RH; ISO 11403-1/-2
	@Strain 0.480 %, Temperature 60.0 °C	@Strain 0.480 %, Temperature 140 °F	
	33.82 MPa	4905 psi	50%RH; ISO 11403-1/-2
	@Strain 0.370 %, Temperature 40.0 °C	@Strain 0.370 %, Temperature 104 °F	
	40.0 MPa	5800 psi	50%RH; ISO 11403-1/-2
	@Strain 1.01 %, Temperature 150 °C	@Strain 1.01 %, Temperature 302 °F	
	44.91 MPa	6514 psi	50%RH; ISO 11403-1/-2
	@Strain 1.02 %, Temperature 120 °C	@Strain 1.02 %, Temperature 248 °F	
	45.14 MPa	6547 psi	DAM; ISO 11403-1/-2
	@Strain 0.400 %, Temperature 23.0 °C	@Strain 0.400 %, Temperature 73.4 °F	

Mechanical Properties	46.55 MPa Metric	6752 psi English	Comments DAM; ISO 11403-1/-2
	@Strain 1.03 %, Temperature 150 °C	@Strain 1.03 %, Temperature 302 °F	
	<b>47.58 MPa</b>	<b>6901 psi</b>	<b>DAM; ISO 11403-1/-2</b>
	@Strain 0.400 %, Temperature 0.000 °C	@Strain 0.400 %, Temperature 32.0 °F	
	<b>48.33 MPa</b>	<b>7010 psi</b>	<b>DAM; ISO 11403-1/-2</b>
	@Strain 0.420 %, Temperature 40.0 °C	@Strain 0.420 %, Temperature 104 °F	
	<b>48.71 MPa</b>	<b>7065 psi</b>	<b>DAM; ISO 11403-1/-2</b>
	@Strain 0.400 %, Temperature -20.0 °C	@Strain 0.400 %, Temperature -4.00 °F	
	<b>51.27 MPa</b>	<b>7436 psi</b>	<b>50%RH; ISO 11403-1/-2</b>
	@Strain 1.52 %, Temperature 150 °C	@Strain 1.52 %, Temperature 302 °F	
	<b>52.09 MPa</b>	<b>7555 psi</b>	<b>50%RH; ISO 11403-1/-2</b>
	@Strain 1.02 %, Temperature 90.0 °C	@Strain 1.02 %, Temperature 194 °F	
	<b>52.74 MPa</b>	<b>7649 psi</b>	<b>50%RH; ISO 11403-1/-2</b>
	@Strain 0.430 %, Temperature -20.0 °C	@Strain 0.430 %, Temperature -4.00 °F	
	<b>52.86 MPa</b>	<b>7667 psi</b>	<b>50%RH; ISO 11403-1/-2</b>
	@Strain 0.440 %, Temperature 0.000 °C	@Strain 0.440 %, Temperature 32.0 °F	
	<b>56.27 MPa</b>	<b>8161 psi</b>	<b>DAM; ISO 11403-1/-2</b>
	@Strain 0.970 %, Temperature 120 °C	@Strain 0.970 %, Temperature 248 °F	
	<b>57.13 MPa</b>	<b>8286 psi</b>	<b>DAM; ISO 11403-1/-2</b>
	@Strain 0.520 %, Temperature 60.0 °C	@Strain 0.520 %, Temperature 140 °F	
	<b>57.71 MPa</b>	<b>8370 psi</b>	<b>50%RH; ISO 11403-1/-2</b>
	@Strain 1.50 %, Temperature 120 °C	@Strain 1.50 %, Temperature 248 °F	
	<b>58.76 MPa</b>	<b>8522 psi</b>	<b>50%RH; ISO 11403-1/-2</b>
	@Strain 0.510 %, Temperature 23.0 °C	@Strain 0.510 %, Temperature 73.4 °F	
	<b>59.16 MPa</b>	<b>8580 psi</b>	<b>50%RH; ISO 11403-1/-2</b>
	@Strain 2.00 %,	@Strain 2.00 %,	

Mechanical Properties	Temperature 150 °C	Temperature 302 °F	Comments
	Metric	English	
	59.45 MPa	8573 psi	
	@Strain 0.940 %, Temperature 60.0 °C	@Strain 0.940 %, Temperature 140 °F	50%RH; ISO 11403-1/-2
	60.05 MPa	8710 psi	
	@Strain 1.54 %, Temperature 150 °C	@Strain 1.54 %, Temperature 302 °F	DAM; ISO 11403-1/-2
	60.37 MPa	8756 psi	
	@Strain 0.840 %, Temperature 90.0 °C	@Strain 0.840 %, Temperature 194 °F	DAM; ISO 11403-1/-2
	63.4 MPa	9200 psi	
	@Strain 0.730 %, Temperature 40.0 °C	@Strain 0.730 %, Temperature 104 °F	50%RH; ISO 11403-1/-2
	65.23 MPa	9461 psi	
	@Strain 2.50 %, Temperature 150 °C	@Strain 2.50 %, Temperature 302 °F	50%RH; ISO 11403-1/-2
	67.45 MPa	9783 psi	
	@Strain 2.01 %, Temperature 120 °C	@Strain 2.01 %, Temperature 248 °F	50%RH; ISO 11403-1/-2
	67.85 MPa	9841 psi	
	@Strain 1.54 %, Temperature 90.0 °C	@Strain 1.54 %, Temperature 194 °F	50%RH; ISO 11403-1/-2
	69.31 MPa	10050 psi	
	@Strain 0.600 %, Temperature 23.0 °C	@Strain 0.600 %, Temperature 73.4 °F	DAM; ISO 11403-1/-2
	69.59 MPa	10090 psi	
	@Strain 3.01 %, Temperature 150 °C	@Strain 3.01 %, Temperature 302 °F	50%RH; ISO 11403-1/-2
	69.78 MPa	10120 psi	
	@Strain 2.05 %, Temperature 150 °C	@Strain 2.05 %, Temperature 302 °F	DAM; ISO 11403-1/-2
	71.76 MPa	10410 psi	
	@Strain 0.600 %, Temperature 0.000 °C	@Strain 0.600 %, Temperature 32.0 °F	DAM; ISO 11403-1/-2
	72.71 MPa	10550 psi	
	@Strain 3.51 %, Temperature 150 °C	@Strain 3.51 %, Temperature 302 °F	50%RH; ISO 11403-1/-2
	72.74 MPa	10550 psi	

Mechanical Properties	Metric	English	DAM: ISO 11403-1/-2 Comments
	@ Strain 0.640 %, Temperature 40.0 °C	@ Strain 0.640 %, Temperature 104 °F	

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