

## DuPont Performance Polymers Zytel® E42A NC010 PA66

Categories: [Polymer](#); [Thermoplastic](#); [Nylon](#); [Nylon 66](#)

**Material Notes:** Unreinforced High Viscosity Polyamide 66 Developed for Extrusion

Information provided by DuPont Performance Polymers

**Vendors:**







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Physical Properties	Metric	English	Comments
Density	1.14 g/cc	0.0412 lb/in <sup>3</sup>	DAM; ISO 1183
Melt Density	1.01 g/cc @Temperature 285 °C	0.0365 lb/in <sup>3</sup> @Temperature 545 °F	
Water Absorption	8.5 % @Thickness 2.00 mm	8.5 % @Thickness 0.0787 in	DAM; Sim. to ISO 62
Moisture Absorption	2.70 % @Thickness 2.00 mm	2.70 % @Thickness 0.0787 in	DAM; Sim. to ISO 62
Viscosity Test	280 cm <sup>2</sup> /g	280 cm <sup>2</sup> /g	Viscosity number; DAM; ISO 307, 1157, 1628
Linear Mold Shrinkage, Flow	0.014 cm/cm 0.014 cm/cm	0.014 in/in 0.014 in/in	DAM; ISO 294-4, 2577 DAM; ISO 294-4, 2577
Mechanical Properties	Metric	English	Comments
Tensile Strength, Yield	52.0 MPa	7540 psi	50%RH; ISO 527-1/-2
	86.0 MPa	12500 psi	DAM; ISO 527-1/-2
Elongation at Break	>= 50 %	>= 50 %	Nominal; 50%RH; ISO 527-1/-2
	>= 50 %	>= 50 %	Nominal; DAM; ISO 527-1/-2
Elongation at Yield	5.0 %	5.0 %	DAM; ISO 527-1/-2
	27 %	27 %	50%RH; ISO 527-1/-2
Tensile Modulus	1.20 GPa	174 ksi	50%RH; ISO 527-1/-2
	3.10 GPa	450 ksi	DAM; ISO 527-1/-2
Shear Modulus	>= 0.0395 GPa @Temperature 250 °C	>= 5.73 ksi @Temperature 482 °F	Dynamic; DAM; ISO 11403-1,-2
	>= 0.114 GPa @Temperature 200 °C	>= 16.5 ksi @Temperature 392 °F	Dynamic; DAM; ISO 11403-1,-2
	>= 0.139 GPa @Temperature 150 °C	>= 20.2 ksi @Temperature 302 °F	Dynamic; DAM; ISO 11403-1,-2
	>= 0.171 GPa @Temperature 100 °C	>= 24.8 ksi @Temperature 212 °F	Dynamic; DAM; ISO 11403-1,-2
	>= 0.431 GPa @Temperature 60.0 °C	>= 62.5 ksi @Temperature 140 °F	Dynamic; DAM; ISO 11403-1,-2
	>= 0.880 GPa @Temperature 20.0 °C	>= 128 ksi @Temperature 68.0 °F	Dynamic; DAM; ISO 11403-1,-2
	>= 0.951 GPa @Temperature -10.0 °C	>= 138 ksi @Temperature 14.0 °F	Dynamic; DAM; ISO 11403-1,-2
	>= 1.037 GPa @Temperature -50.0 °C	>= 150.4 ksi @Temperature -58.0 °F	Dynamic; DAM; ISO 11403-1,-2
Izod Impact, Notched (ISO)	4.00 kJ/m <sup>2</sup> @Temperature -30.0 °C	1.90 ft-lb/in <sup>2</sup> @Temperature -22.0 °F	50%RH; ISO 180/1A
	4.30 kJ/m <sup>2</sup> @Temperature -30.0 °C	2.05 ft-lb/in <sup>2</sup> @Temperature -22.0 °F	DAM; ISO 180/1A
	5.50 kJ/m <sup>2</sup> @Temperature 23.0 °C	2.62 ft-lb/in <sup>2</sup> @Temperature 73.4 °F	DAM; ISO 180/1A
	12.0 kJ/m <sup>2</sup> @Temperature 23.0 °C	5.71 ft-lb/in <sup>2</sup> @Temperature 73.4 °F	50%RH; ISO 180/1A
Charpy Impact Unnotched	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	50%RH; ISO 179/1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	50%RH; ISO 179/1eU
	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	DAM; ISO 179/1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	DAM; ISO 179/1eU
Charpy Impact, Notched	0.400 J/cm <sup>2</sup> @Temperature -30.0 °C	1.90 ft-lb/in <sup>2</sup> @Temperature -22.0 °F	50%RH; ISO 179/1eA
	0.500 J/cm <sup>2</sup>	2.38 ft-lb/in <sup>2</sup>	DAM; ISO 179/1eA

	@Temperature -30.0 °C	@Temperature -22.0 °F	
	0.600 J/cm <sup>2</sup>	2.86 ft-lb/in <sup>2</sup>	DAM; ISO 179/1eA
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	2.00 J/cm <sup>2</sup>	9.52 ft-lb/in <sup>2</sup>	50%RH; ISO 179/1eA
	@Temperature 23.0 °C	@Temperature 73.4 °F	
<b>Electrical Properties</b>			
	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Volume Resistivity	1.00e+11 ohm-cm	1.00e+11 ohm-cm	50%RH; IEC 60093
	1.00e+13 ohm-cm	1.00e+13 ohm-cm	DAM; IEC 60093
Dielectric Constant 	3.6	3.6	DAM; IEC 60250
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	4.2	4.2	50%RH; IEC 60250
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	4.3	4.3	DAM; IEC 60250
	@Frequency 100 Hz	@Frequency 100 Hz	
	10.3	10.3	50%RH; IEC 60250
	@Frequency 100 Hz	@Frequency 100 Hz	
Dielectric Strength	30.5 kV/mm	775 kV/in	DAM; IEC 60243-1
Dissipation Factor 	0.015	0.015	DAM; IEC 60250
	@Frequency 100 Hz	@Frequency 100 Hz	
	0.024	0.024	DAM; IEC 60250
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.075	0.075	50%RH; IEC 60250
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.20	0.20	50%RH; IEC 60250
	@Frequency 100 Hz	@Frequency 100 Hz	
<b>Thermal Properties</b>			
	<b>Metric</b>	<b>English</b>	<b>Comments</b>
CTE, linear, Parallel to Flow	100 µm/m-°C	55.6 µin/in-°F	DAM; ISO 11359-1/-2
CTE, linear, Transverse to Flow	100 µm/m-°C	55.6 µin/in-°F	DAM; ISO 11359-1/-2
Specific Heat Capacity	2.79 J/g-°C	0.667 BTU/lb-°F	melt
Thermal Conductivity	0.160 W/m-K	1.11 BTU-in/hr-ft <sup>2</sup> -°F	Melt
Melting Point	263 °C	505 °F	10°C/min; DAM; ISO 11357-1/-3
Deflection Temperature at 0.46 MPa (66 psi)	205 °C	401 °F	DAM; ISO 75-1/-2
Deflection Temperature at 1.8 MPa (264 psi)	72.0 °C	162 °F	DAM; ISO 75-1/-2
Vicat Softening Point	244 °C	471 °F	50°C/h, 50N; DAM; ISO 306
Glass Transition Temp, Tg	70.0 °C	158 °F	10°C/min; DAM; ISO 11357-1/-2
Flammability, UL94 	HB	HB	DAM; IEC 60695-11-10
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	HB	HB	DAM; IEC 60695-11-10
	@Thickness 0.810 mm	@Thickness 0.0319 in	
Oxygen Index	28 %	28 %	DAM; ISO 4589-1/-2
<b>Processing Properties</b>			
	<b>Metric</b>	<b>English</b>	<b>Comments</b>
Melt Temperature	>= 280 °C	>= 536 °F	
	285 °C	545 °F	Optimum
	290 °C	554 °F	Optimum
	<= 300 °C	<= 572 °F	
Mold Temperature	>= 50.0 °C	>= 122 °F	
	70.0 °C	158 °F	Optimum
	<= 90.0 °C	<= 194 °F	
Ejection Temperature	190 °C	374 °F	
Drying Temperature 	80.0 °C	176 °F	
	@Time 7200 - 14400 sec	@Time 2.00 - 4.00 hour	
	80.0 °C	176 °F	
	@Time 14400 - 21600 sec	@Time 4.00 - 6.00 hour	
Moisture Content	0.20 %	0.20 %	
Hold Pressure	50.0 - 100 MPa	7250 - 14500 psi	
<b>Descriptive Properties</b>			
Additive		Release agent	
Delivery form		Pellets	
Drying Recommended		yes	
Hold pressure time		4 s/mm	
Max. screw tangential speed (m/s)		0.4	DAM
Part Marking Code		>PA66<	ISO 11469
Processing		Casting	
		Coatable	
		Film Extrusion	
		Injection Molding	

Other Extrusion  
Profile Extrusion  
Sheet Extrusion

Regional Availability

Europe  
Near East/Africa

Resin Identification

PA66

ISO 1043

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