Zytel® 105F BK010

NYLON RESIN

Common features of Zytel® nylon resin include mechanical and physical properties such as high mechanical strength, excellent balance of stiffness and toughness, good high temperature performance, good electrical and flammability properties, good abrasion and chemical resistance. In addition, Zytel® nylon resins are available in different modified and reinforced grades to create a wide range of products with tailored properties for specific processes and end-uses. Zytel® nylon resin, including most flame retardant grades, offer the ability to be coloured.

The good melt stability of Zytel® nylon resin normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-31kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Zytel® nylon resin typically is used in demanding applications in the automotive, furniture, domestic appliances, sporting goods and construction industry.

Zytel® 105F BK010 is a lubricated, fast cycling, weather resistant polyamide 66 resin. Zytel® 105F BK010 contains finely dispersed carbon black.

Product information

Resin Identification	PA66	ISO 1043
Part Marking Code	>PA66<	ISO 11469
ISO designation	ISO 16396-PA66,,M1CG1L1R,S14-030	
Infrared spectrum	available	

Rheological properties

	dry/cond.		
Viscosity number	4150[1]/*	in³/lb	ISO 307, 1628
Molding shrinkage, parallel	1.3 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	1.3 / -	%	ISO 294-4, 2577

[1]: Sulfuric acid 96%

Typical mechanical properties

	dry/cond.		
Tensile modulus	464000 / 218000	psi	ISO 527-1/-2
Tensile stress at yield, 50mm/min	12000 / 8700	psi	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4.3 / 25	%	ISO 527-1/-2
Nominal strain at break	24 / >50	%	ISO 527-1/-2
Tensile creep modulus, 1h	* / 194000	psi	ISO 899-1
Tensile creep modulus, 1000h	* / 87000	psi	ISO 899-1
Charpy impact strength, 23 °C	21.4 / N	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30 °C	26.2 / 26.2	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23 °C	2.85 / 7.14	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -30 °C	1.9 / 1.43	ftlb/in²	ISO 179/1eA
Izod notched impact strength, 23 °C	2.38 / 5.71	ftlb/in²	ISO 180/1A
Izod notched impact strength, -30 °C	1.9 / 1.43	ftlb/in²	ISO 180/1A

Thermal properties

	dry/cond.		
Melting temperature, 10 °C/min	505 / *	°F	ISO 11357-1/-3
Glass transition temperature, 10 °C/min	140 / 104	°F	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	158 / *	°F	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	401 / *	°F	ISO 75-1/-2

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Vicat softening temperature, 50 °C/h 50N	464 / *	°F	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	0.56 / *	E-4/°F	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	0.611 / *	E-4/°F	ISO 11359-1/-2
RTI, electrical, 0.75mm	257	°F	UL 746B
RTI, electrical, 1.5mm	257	°F	UL 746B
RTI, electrical, 3.0mm	257	°F	UL 746B
RTI, electrical, 6mm	257	°F	UL 746B
RTI, impact, 0.75mm	149	°F	UL 746B
RTI, impact, 1.5mm	167	°F	UL 746B
RTI, impact, 3.0mm	167	°F	UL 746B
RTI, impact, 6mm	167	°F	UL 746B
RTI, strength, 0.75mm	149	°F	UL 746B
RTI, strength, 1.5mm	185 / *	°F	UL 746B
RTI, strength, 3.0mm	185	°F	UL 746B
RTI, strength, 6mm	185	°F	UL 746B

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	V-2 / *	class	IEC 60695-11-10
Thickness tested	0.0591 / *	in	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	V-2 / *	class	IEC 60695-11-10
Thickness tested	0.0280 / *	in	IEC 60695-11-10
UL recognition	yes / *		UL 94
Oxygen index	27 / *	%	ISO 4589-1/-2
Glow Wire Flammability Index, 1.0mm	1470 / -	°F	IEC 60695-2-12
Glow Wire Flammability Index, 2.0mm	1650 / -	°F	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	1760 / -	°F	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	1340 / -	°F	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.0mm	1340 / -	°F	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	1340 / -	°F	IEC 60695-2-13
Glow Wire Ignition Temperature, 2.0mm	1340 / -	°F	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	1340 / -	°F	IEC 60695-2-13
Glow Wire Temperature, No Flame, 0.75mm	1290 / -	°F	IEC 60335-1
Glow Wire Temperature, No Flame, 1mm	1290 / -	°F	IEC 60335-1
Glow Wire Temperature, No Flame, 1.5mm	1290 / -	°F	IEC 60335-1
Glow Wire Temperature, No Flame, 2mm	1290 / -	°F	IEC 60335-1
Glow Wire Temperature, No Flame, 3mm	1290 / -	°F	IEC 60335-1
FMVSS Class	SE		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm		in/min	ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Relative permittivity, 1MHz	3.6 / 4.6		IEC 62631-2-1
Dissipation factor, 1MHz	300 / 600	E-4	IEC 62631-2-1
Comparative tracking index	600 / -		IEC 60112

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Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	2.7 / *	%	Sim. to ISO 62
Water absorption, 2mm	8.5 / *	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.95 / *	%	Sim. to ISO 62
Density	0.0412 / -	lb/in³	ISO 1183

Emissions

	dry/cond.		
Emission of organic compounds	6.6	µgC/g	VDA 277
Odor test	2.5	class	VDA 270
Fogging, G-value (condensate)	0.1 / *	mg	ISO 6452

Injection

Drying Recommended	yes	
Drying Temperature	176	°F
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.2	%
Melt Temperature Optimum	554	°F
Min. melt temperature	536	°F
Max. melt temperature	572	°F
Max. screw tangential speed	≤0.4	m/s
Mold Temperature Optimum	158	°F
Min. mold temperature	122	°F
Max. mold temperature	194	°F
Hold pressure range	7250 - 14500	psi
Hold pressure time	0.102	s/mil
Hold Pressure Time (h is the max. wall thickness of the part in mm)	h^2+2	s
Ejection temperature	374	°F

Automotive

OEM	STANDARD
Mercedes-Benz	DBL5410.00 PA66

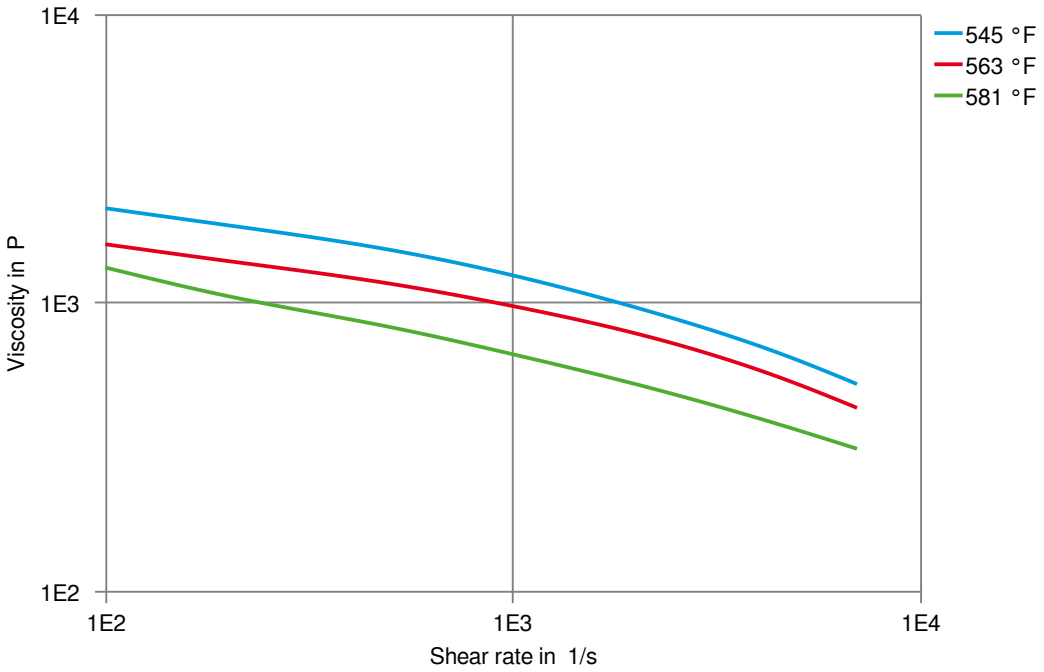
Characteristics

Processing	Injection Molding
Additives	Release agent
Special characteristics	Light stabilized or stable to light, U.V. stabilized or stable to weather

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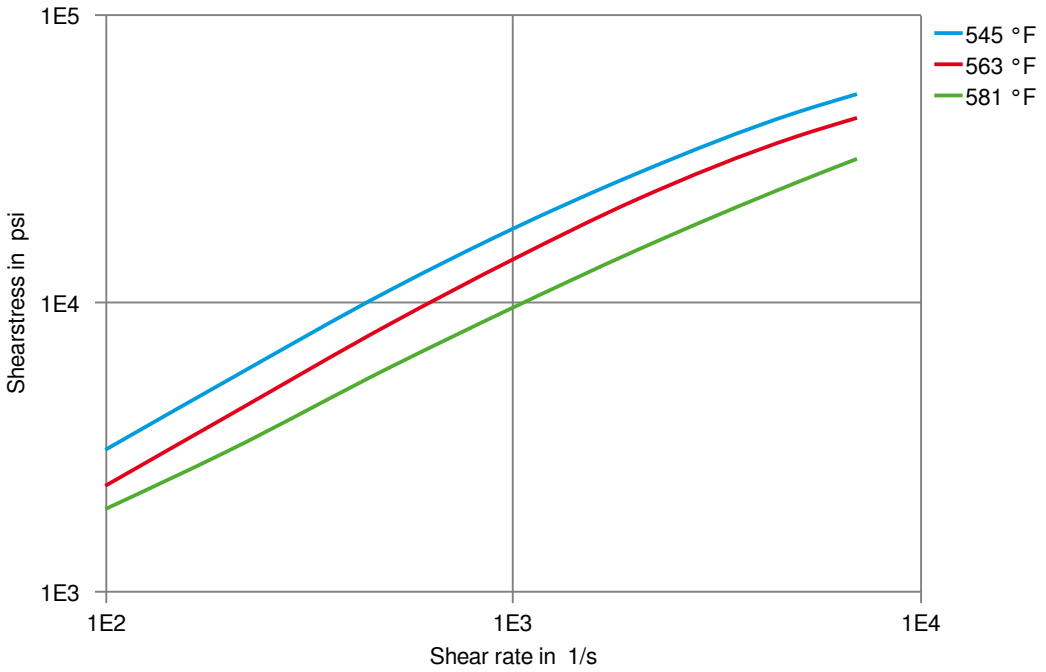
Viscosity-shear rate



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Shearstress-shear rate



Revised: 2026-08-12 Source: Celanese Materials Database

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