Zytel® 101L BKB009

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® 101L BKB009 is a lubricated polyamide 66 resin for injection molding.

Product information

Resin Identification	PA66	ISO 1043
Part Marking Code	>PA66<	ISO 11469
ISO designation	ISO 16396-PA66,,M1CG1R,S14-030	

Typical mechanical properties

	dry/cond.		
Tensile modulus	442000 /	psi	ISO 527-1/-2
	[DS]		
Tensile stress at yield, 50mm/min	13000 / 7300[DS]	psi	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4.6 / 25[DS]	%	ISO 527-1/-2
Nominal strain at break	16 / >50	%	ISO 527-1/-2
Flexural modulus	406000 /	psi	ISO 178
	[DS]		
Charpy impact strength, 23°C	96.6 / -	ftlb/in²	ISO 179/1eU
Charpy impact strength, -30°C	63.7 / -	ftlb/in²	ISO 179/1eU
Charpy notched impact strength, 23°C	1.9 / -	ftlb/in²	ISO 179/1eA
Charpy notched impact strength, -30°C	1.76 / -	ftlb/in²	ISO 179/1eA

[DS]: Derived from similar grade

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	504 / *	°F	ISO 11357-1/-3
Glass transition temperature, 10°C/min	158 / 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	374 / *	°F	ISO 75-1/-2
RTI, electrical, 0.75mm	266	°F	UL 746B
RTI, electrical, 1.5mm	266	°F	UL 746B
RTI, electrical, 3.0mm	266	°F	UL 746B
RTI, electrical, 6mm	266	°F	UL 746B

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RTI, impact, 0.75mm	167	°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	185	°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
Glow Wire Flammability Index, 0.75mm	1760 / -	°F	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	1760 / -	°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, 1.5mm	1380 / -	°F	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	1470 / -	°F	IEC 60695-2-13
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	in/min	ISO 3795 (FMVSS 302)

Physical/Other properties

	dry/cond.		
Density	0.0412 / -	lb/in³	ISO 1183

Emissions

	dry/cond.		
Emission of organic compounds	5	µgC/g	VDA 277
Odor test	3	class	VDA 270
Fogging, F-value (refraction)	99 / *	%	ISO 6452
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

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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	ADDITIONAL INFORMATION
Hyundai	MS211-37 Type D	
Hyundai	MS211-46 Type E	
Stellantis	B62 0300 / 61/212E/210M	Technical Black;01378_22_03585;61/212E/210M
Stellantis	MS.50017 / PA66.2800F.5I	CPN1948
Stellantis - Chrysler	MS.50017 / CPN-1948	Black
VW Group	VW 50127 PA66-1	

Characteristics

Processing	Injection Molding

Chemical Media Resistance

Acids

- ✔ Acetic Acid (5% by mass), 23°C
- ✔ Citric Acid solution (10% by mass), 23°C
- ✔ Lactic Acid (10% by mass), 23°C
- ✘ Hydrochloric Acid (36% by mass), 23°C
- ✘ Nitric Acid (40% by mass), 23°C
- ✘ Sulfuric Acid (38% by mass), 23°C
- ✘ Sulfuric Acid (5% by mass), 23°C
- ✘ Chromic Acid solution (40% by mass), 23°C

Bases

- ✘ Sodium Hydroxide solution (35% by mass), 23°C
- ✔ Sodium Hydroxide solution (1% by mass), 23°C
- ✔ Ammonium Hydroxide solution (10% by mass), 23°C

Alcohols

- ✔ Isopropyl alcohol, 23°C
- ✔ Methanol, 23°C
- ✔ Ethanol, 23°C

Hydrocarbons

- ✔ n-Hexane, 23°C
- ✔ Toluene, 23°C
- ✔ iso-Octane, 23°C

Ketones

- ✔ Acetone, 23°C

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Ethers

- ✔ Diethyl ether, 23°C

Mineral oils

- ✔ SAE 10W40 multigrade motor oil, 23°C
- ✘ SAE 10W40 multigrade motor oil, 130°C
- ✘ SAE 80/90 hypoid-gear oil, 130°C
- ✔ Insulating Oil, 23°C

Standard Fuels

- ✔ ISO 1817 Liquid 1 - E5, 60°C
- ✔ ISO 1817 Liquid 2 - M15E4, 60°C
- ✔ ISO 1817 Liquid 3 - M3E7, 60°C
- ✔ ISO 1817 Liquid 4 - M15, 60°C
- ✔ Standard fuel without alcohol (pref. ISO 1817 Liquid C), 23°C
- ✔ Standard fuel with alcohol (pref. ISO 1817 Liquid 4), 23°C
- ✔ Diesel fuel (pref. ISO 1817 Liquid F), 23°C
- ✘ Diesel fuel (pref. ISO 1817 Liquid F), 90°C
- ✘ Diesel fuel (pref. ISO 1817 Liquid F), >90°C

Salt solutions

- ✔ Sodium Chloride solution (10% by mass), 23°C
- ✘ Sodium Hypochlorite solution (10% by mass), 23°C
- ✔ Sodium Carbonate solution (20% by mass), 23°C
- ✔ Sodium Carbonate solution (2% by mass), 23°C
- ✘ Zinc Chloride solution (50% by mass), 23°C

Other

- ✔ Ethyl Acetate, 23°C
- ✘ Hydrogen peroxide, 23°C
- ✘ DOT No. 4 Brake fluid, 130°C
- ✘ Ethylene Glycol (50% by mass) in water, 108°C
- ✔ 1% nonylphenoxy-polyethyleneoxy ethanol in water, 23°C
- ✔ 50% Oleic acid + 50% Olive Oil, 23°C
- ✔ Water, 23°C
- ✘ Water, 90°C
- ✘ Phenol solution (5% by mass), 23°C

Symbols used:

✔ possibly resistant
Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

✘ not recommended - see explanation
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

Celanese
The chemistry inside innovation™

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Revised: 2025-04-22 Source: Celanese Materials Database

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