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Zytel® 103FHS 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® 103FHS BKB009 is a heat stabilised, internally lubricated polyamide 66 resin for injection moulding. It was developed for fast cycles and high productivity.

Product information

Product information			
Resin Identification	PA66		ISO 1043
Part Marking Code	>PA66<		ISO 11469
ISO designation	ISO 16396-PA6		
Rheological properties	dry/cond.		
Viscosity number	150 ^[1] /*	cm ³ /g	ISO 307, 1628
Moulding shrinkage, parallel	1.3/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.3/-	%	ISO 294-4, 2577
[1]: Sulfuric acid 96%			
Typical mechanical properties	dry/cond.		
Tensile modulus	3100/-	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	85/-	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4.3/-	%	ISO 527-1/-2
Nominal strain at break	15/-	%	ISO 527-1/-2
Flexural modulus	2800/-	MPa	ISO 178
Charpy impact strength, 23°C	250/-	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	5/-	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	4/-	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	5/-	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	5.0/-	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	200/-	kJ/m²	ISO 180/1U
Poisson's ratio	0.37/-		
Thermal properties	dry/cond.		
Melting temperature, 10°C/min	262/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	65/40	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	64/*	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	195/*	°C	ISO 75-1/-2
RTI, electrical, 0.75mm	140	°C	UL 746B
RTI, electrical, 1.5mm	140	°C	UL 746B

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TTEOTTEOTT			
RTI, electrical, 3.0mm RTI, impact, 0.75mm RTI, impact, 1.5mm RTI, impact, 3.0mm RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3.0mm	140 95 110 110 115 125/* 125	°C °C °C °C °C °C	UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B
Flammability	dry/cond.		
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested UL recognition Oxygen index Glow Wire Flammability Index, 0.75mm Glow Wire Flammability Index, 1.5mm Glow Wire Flammability Index, 3.0mm Glow Wire Ignition Temperature, 0.75mm Glow Wire Ignition Temperature, 1.5mm Glow Wire Ignition Temperature, 3.0mm FMVSS Class [DS]: Derived from similar grade	V-2/* 1.5/* yes/* V-2/* 0.71/* yes/* 28/* ^[DS] 850/- 960/- 960/- 725/- 725/- DNI	class mm class mm % °C °C °C °C °C	IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94 ISO 4589-1/-2 IEC 60695-2-12 IEC 60695-2-12 IEC 60695-2-12 IEC 60695-2-13 IEC 60695-2-13 IEC 60695-2-13 IEC 60695-2-13 IEC 60695-2-13 IEC 60695-2-13
Physical/Other properties	dry/cond.		
Density	1140/-	kg/m³	ISO 1183
VDA Properties	dry/cond.		
Emission of organic compounds Odour Fogging, F-value (refraction) Fogging, G-value (condensate)	1.2 2.5 70/* 0.3/*	μgC/g class % mg	VDA 277 VDA 270 ISO 6452 ISO 6452
Injection			
Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer Processing Moisture Content Melt Temperature Optimum Min. melt temperature Max. melt temperature Screw tangential speed Mold Temperature Optimum Min. mould temperature Max. mould temperature Hold pressure range Hold pressure time	2 - ≤0. 29 28 30 ≤0. 7 5 9	es 30 °C 4 h .2 % 90 °C 30 °C .4 m/s 70 °C 50 °C 90 °C 90 °C 90 °C 90 °C	
Hold pressure range			

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Ejection temperature 190 °C

Characteristics

Processing Injection Moulding

Special characteristics Heat stabilised or stable to heat

Automotive

OEM STANDARD ADDITIONAL INFORMATION

Geely Q/JL J124010-2019

General Motors GMW16036P-PA66 Black
Stellantis - Chrysler MS.50017 / CPN-1899 Black

VW Group VW 50127 PA66-1 VW Group VW 50133 PA66-1-A

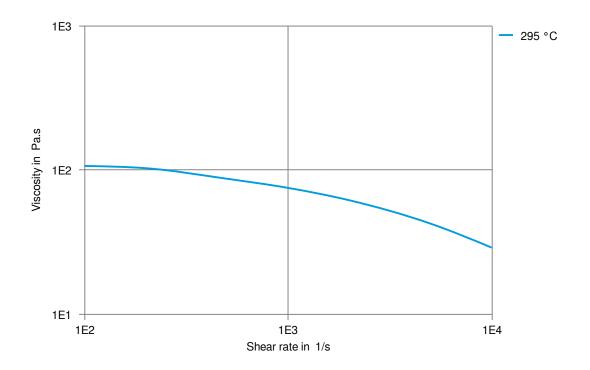
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Viscosity-shear rate (measured on Zytel® 103FHS NC010)

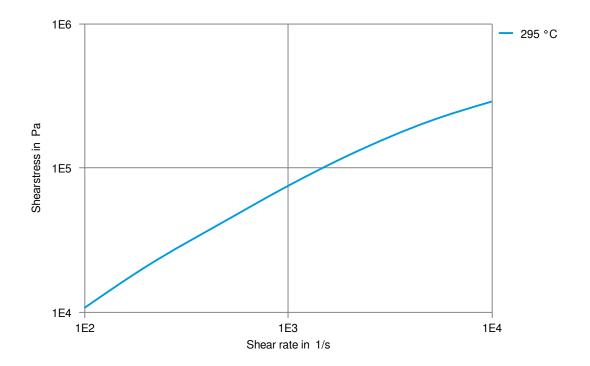


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Shearstress-shear rate (measured on Zytel® 103FHS NC010)



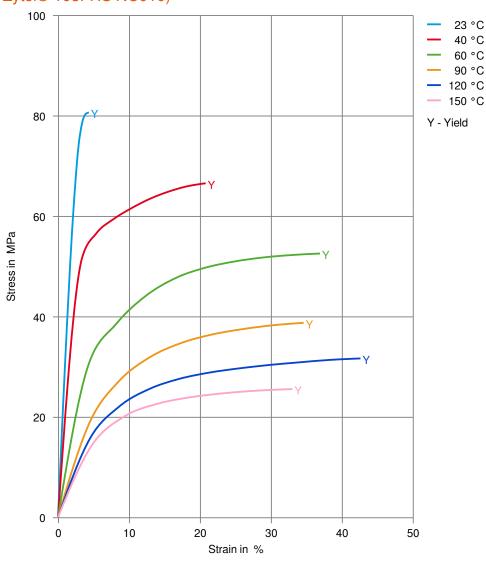
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NYLON RESIN

Stress-strain (dry) (measured on Zytel® 103FHS NC010)



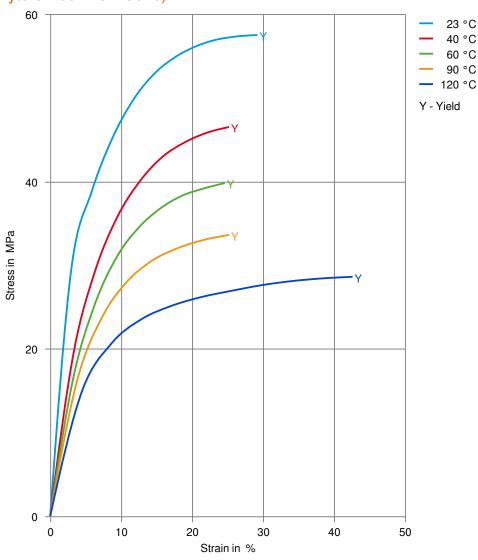
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NYLON RESIN

Stress-strain (cond.) (measured on Zytel® 103FHS NC010)



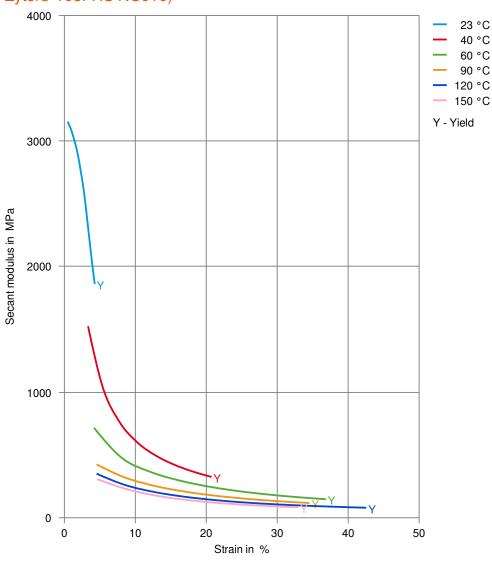
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Secant modulus-strain (dry) (measured on Zytel® 103FHS NC010)



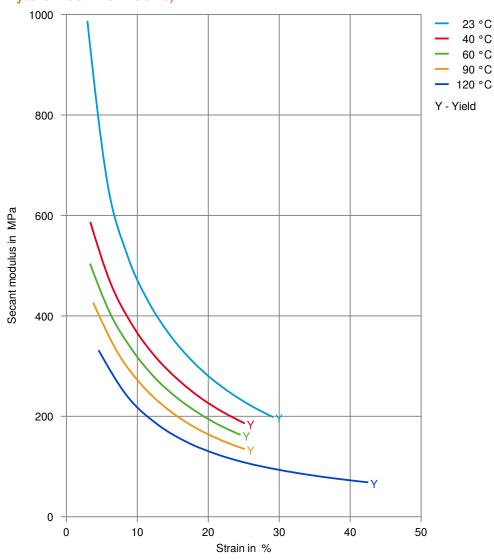
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NYLON RESIN

Secant modulus-strain (cond.) (measured on Zytel® 103FHS NC010)

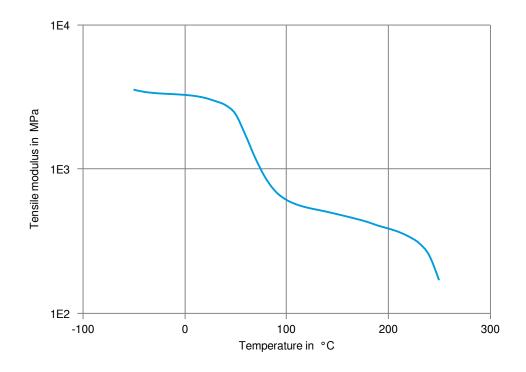


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Tensile modulus-temperature (dry) (measured on Zytel® 103FHS NC010)



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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
- X Hydrochloric Acid (36% by mass), 23°C
- X Nitric Acid (40% by mass), 23°C
- X Sulfuric Acid (38% by mass), 23°C
- X Sulfuric Acid (5% by mass), 23°C
- X Chromic Acid solution (40% by mass), 23°C

Bases

- X 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

Ethers

✓ Diethyl ether, 23°C

Mineral oils

- ✓ SAE 10W40 multigrade motor oil, 23°C
- X SAE 10W40 multigrade motor oil, 130°C
- X 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

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- ✓ Sodium Carbonate solution (20% by mass), 23°C
- ✓ Sodium Carbonate solution (2% by mass), 23°C
- X Zinc Chloride solution (50% by mass), 23°C

Other

- ✓ Ethyl Acetate, 23°C
- X Hydrogen peroxide, 23°C
- X 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
- X 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).

x 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).

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