



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 NC010 is a heat stabilised, internally lubricated polyamide 66 resin for injection moulding. It was developed for fast cycles and high productivity.

Product information

Resin Identification Part Marking Code ISO designation	PA66 >PA66< ISO 16396-PA66,,M1G1HNR,S14-030		ISO 1043 ISO 11469
Rheological properties	dry/cond.		
Viscosity number	150 ^[1] /*	cm ³ /g	ISO 307, 1628
Moulding shrinkage, parallel	1.4/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.3/-	%	ISO 294-4, 2577
[1]: Sulfuric acid 96%			, -
Typical mechanical properties	dry/cond.		
Tensile modulus	3100/1400	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	85/55	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4.5/25	%	ISO 527-1/-2
Nominal strain at break	20/>50	%	ISO 527-1/-2
Flexural modulus	2800/1300	MPa	ISO 178
Flexural stress at 3.5%	95/65	MPa	ISO 178
Charpy impact strength, 23°C	N/N	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	350/N	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	5.5/11	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	4.5/3	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	5.5/11	kJ/m²	ISO 180/1A
Izod notched impact strength, -30°C	6.0/5.0	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	5.5/-	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	300/N	kJ/m²	ISO 180/1U
Izod impact strength, -30°C	300/N	kJ/m²	ISO 180/1U
Hardness, Rockwell, R-scale	121/-		ISO 2039-2
Ball indentation hardness, H 358/30	-/85	MPa	ISO 2039-1
Ball indentation hardness, H 961/30	180/-	MPa	ISO 2039-1
Poisson's ratio	0.37/0.43		

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Thermal properties	dry/cond.		
Melting temperature, 10°C/min	262/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60/40	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	67/*	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	200/*	°C	ISO 75-1/-2
Coefficient of linear thermal expansion	100/*	E-6/K	ISO 11359-1/-2
(CLTE), parallel			
Coefficient of linear thermal expansion (CLTE),	110/*	E-6/K	ISO 11359-1/-2
normal			
Thermal conductivity of melt	0.16	W/(m K)	ISO 22007-2
Effective thermal diffusivity, flow	5E-8	m²/s	ISO 22007-4
Specific heat capacity of melt	2790	J/(kg K)	ISO 22007-4
RTI, electrical, 0.75mm	140	°C	UL 746B
RTI, electrical, 1.5mm	140	°C	UL 746B
RTI, electrical, 3.0mm	140	°C	UL 746B
RTI, impact, 0.75mm	95	°C	UL 746B
RTI, impact, 1.5mm	110	°C	UL 746B
RTI, impact, 3.0mm	110	°C	UL 746B
RTI, strength, 0.75mm	115	°C	UL 746B
RTI, strength, 1.5mm	125/*	°C	UL 746B
RTI, strength, 3.0mm	125	°C	UL 746B
Flammability	-1		
Tiarrinasiity	dry/cond.		
•		class	IEC 60695-11-10
Burning Behav. at 1.5mm nom. thickn. Thickness tested	dry/cond. V-2/* 1.5/*	class mm	IEC 60695-11-10 IEC 60695-11-10
Burning Behav. at 1.5mm nom. thickn.	V-2/*		
Burning Behav. at 1.5mm nom. thickn. Thickness tested	V-2/* 1.5/*		IEC 60695-11-10
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition	V-2/* 1.5/* yes/*	mm	IEC 60695-11-10 UL 94
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h	V-2/* 1.5/* yes/* V-2/*	mm class	IEC 60695-11-10 UL 94 IEC 60695-11-10
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested	V-2/* 1.5/* yes/* V-2/* 0.71/*	mm class	IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested UL recognition	V-2/* 1.5/* yes/* V-2/* 0.71/* yes/*	mm class mm % °C	IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested UL recognition Oxygen index	V-2/* 1.5/* yes/* V-2/* 0.71/* yes/* 28/*	mm class mm % °C °C	IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94 ISO 4589-1/-2
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	V-2/* 1.5/* yes/* V-2/* 0.71/* yes/* 28/* 850/-	mm class mm % °C °C °C	IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94 ISO 4589-1/-2 IEC 60695-2-12
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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	V-2/* 1.5/* yes/* V-2/* 0.71/* yes/* 28/* 850/- 960/- 960/- 725/- 725/-	mm class mm % °C °C °C °C °C	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
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Electrical properties	dry/cond.		
Volume resistivity Comparative tracking index	1E12/1E9 600/-	Ohm.m	IEC 62631-3-1 IEC 60112
Comparative tracking index, 3.0mm	0/-	PLC	UL 746A
Physical/Other properties	dry/cond.		
Humidity absorption, 2mm	2.6/*	%	Sim. to ISO 62
Water absorption, 2mm	8.5/*	%	Sim. to ISO 62
Water absorption, Immersion 24h	1.2 ^[2] /*	%	Sim. to ISO 62
Density	1140/-	kg/m³	ISO 1183
Density of melt	1010	kg/m³	
[2]: 3mm wall thickness			
Film Properties	dry/cond.		
Strain at yield, parallel	4.5/*	%	ISO 527-3
VDA Properties	dry/cond.		
Emission of organic compounds	1.2	μgC/g	VDA 277
Odour	2.5	class	VDA 270
Fogging, F-value (refraction)	70/*	%	ISO 6452
Fogging, G-value (condensate)	0.3/*	mg	ISO 6452
Injection			
Drying Recommended	yes	S	
Drying Temperature			
Drying Time, Dehumidified Dryer	2 - 4	4 h	
Processing Moisture Content	≤0.2	2 %	
14 U.T	00/		

290 °C 280 °C

300 °C

≤0.4 m/s

70 °C

50 °C 90 °C

4 s/mm

50 - 100 MPa

190 °C

Characteristics

Melt Temperature Optimum

Mold Temperature Optimum

Min. melt temperature

Max. melt temperature Screw tangential speed

Min. mould temperature

Max. mould temperature

Hold pressure range Hold pressure time

Ejection temperature

Processing Injection Moulding

Delivery form Pellets

Additives Release agent

Special characteristics Heat stabilised or stable to heat

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Automotive

OEM STANDARD ADDITIONAL INFORMATION

Geely Q/JL J124010-2019

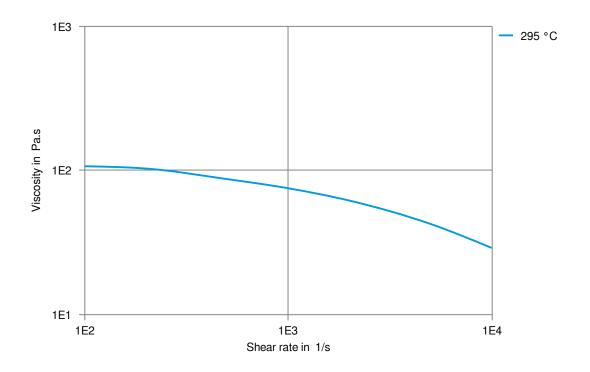
General Motors GMW16036P-PA66 Natural

Mercedes-Benz DBL5410.00 PA66

Stellantis - Chrysler MS.50017 / CPN-1076 Natural

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

Viscosity-shear rate

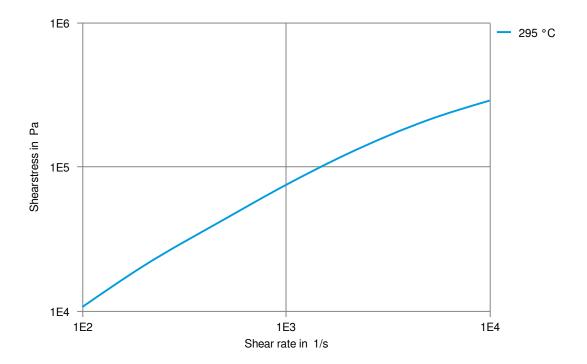


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Shearstress-shear rate

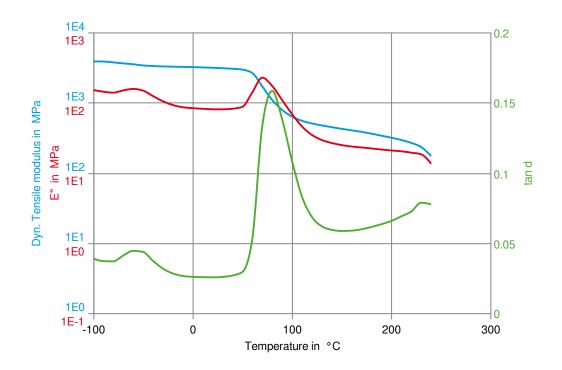


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Dynamic Tensile modulus-temperature (dry)



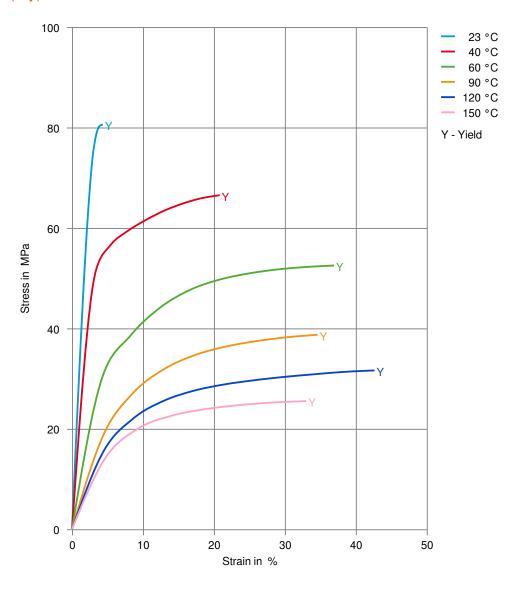
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Stress-strain (dry)



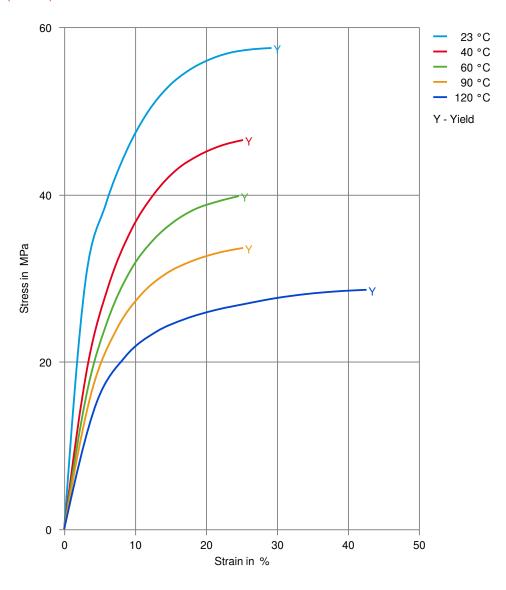
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Stress-strain (cond.)



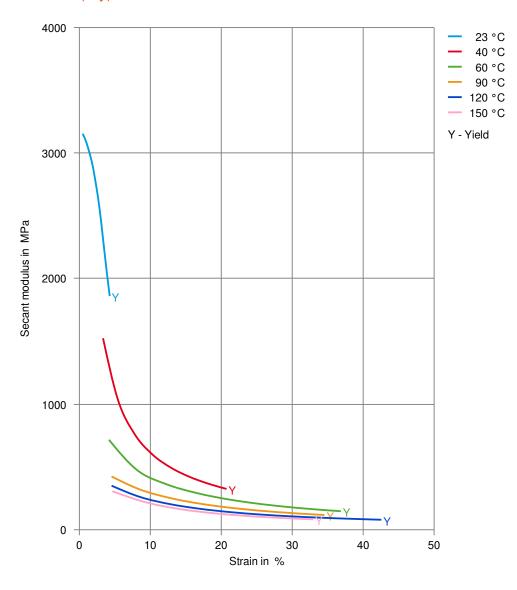
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Secant modulus-strain (dry)

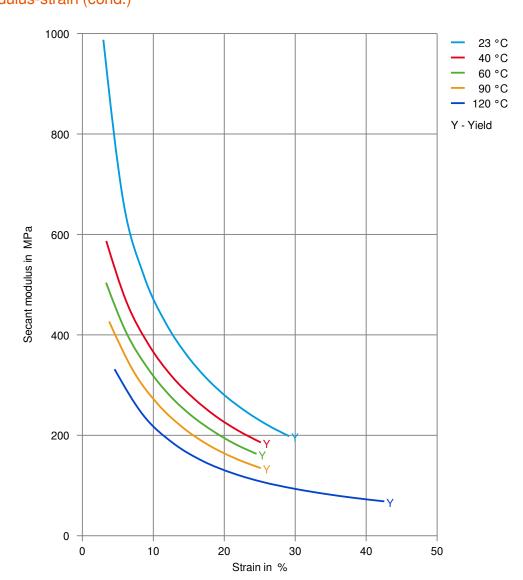


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Secant modulus-strain (cond.)

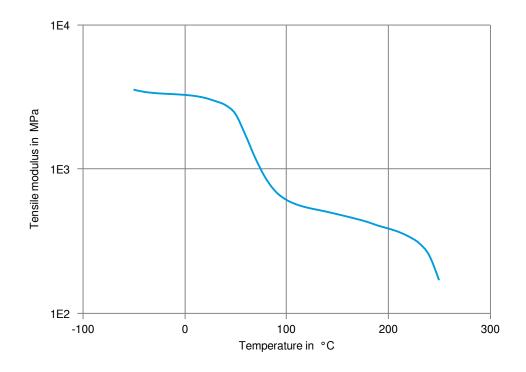


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Tensile modulus-temperature (dry)



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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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Revised: 2025-04-18 Source: Celanese Materials Database

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