



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® 80G33HS1L BK104 is a 33% glass fiber reinforced heat stabilised polyamide 66 resin with outstanding impact resistance developed using our Super Tough technology.

Product information

i roduct information			
Resin Identification	PA66-IGF33	ISO 1043	
Part Marking Code	>PA66-IGF33<	ISO 11469	
ISO designation	ISO 16396-PA66		
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Rheological properties	dry/cond.		
Moulding shrinkage, parallel	0.3/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.7/-	%	ISO 294-4, 2577
Typical mechanical properties	dry/cond.		
Tensile modulus	8800/6500	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	148/112	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.6/6.6	%	ISO 527-1/-2
Flexural modulus	7600/-	MPa	ISO 178
Flexural strength	210/-	MPa	ISO 178
Charpy impact strength, 23°C	97/96	kJ/m²	ISO 179/1eU
Charpy impact strength, -40°C	109/97	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	20/27	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	18/17	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	18/-	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	21/26	kJ/m²	ISO 180/1A
Izod notched impact strength, -30°C	17.0/16.0	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	15.0/-	kJ/m²	ISO 180/1A
Izod impact strength, -30°C	87/-	kJ/m²	ISO 180/1U
Ball indentation hardness, H 961/30	220/-	MPa	ISO 2039-1
Poisson's ratio	0.34/0.35		
Thermal properties	dry/cond.		
Melting temperature, 10°C/min	262/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	75/20	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	245/*	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	261/*	°C	ISO 75-1/-2
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Coeff. of linear therm. expansion, parallel, -40-23°C 25/* E-6/K ISO 11359-1/- Coefficient of linear thermal expansion 24/* E-6/K ISO 11359-1/- (CLTE), parallel	-2 -2
6 # 40 - 0 - 1 - 0 - 1 - 0 - 1 - 0 - 1 - 1 -	
Coeff. of linear therm. expansion, parallel, 55-160 °C 9/* E-6/K ISO 11359-1/-	-2
Coeff. of linear therm. expansion, normal, -40-23°C 96/* E-6/K ISO 11359-1/-	
Coefficient of linear thermal expansion (CLTE), 100/* E-6/K ISO 11359-1/-	2
normal	2
Coeff. of linear therm. expansion, normal, 55-160°C 120/* E-6/K ISO 11359-1/- RTI, electrical, 0.75mm 130 °C UL 746	
RTI, electrical, 0.75mm 130 °C UL 746 RTI, electrical, 1.5mm 130 °C UL 746	
RTI, electrical, 1.30mm 130 °C UL 746	
RTI, impact, 0.75mm 65 °C UL 746	
RTI, impact, 1.5mm 105 °C UL 746	
RTI, impact, 3.0mm 105 °C UL 746	
RTI, strength, 0.75mm 85 °C UL 746	В
RTI, strength, 1.5mm 95/* °C UL 746	
RTI, strength, 3.0mm 105 °C UL 746	В
Flammability dry/cond.	
Burning Behav. at 1.5mm nom. thickn. HB/* class IEC 60695-11-1	0
Thickness tested 1.5/* mm IEC 60695-11-1	0
UL recognition yes ^[1] /* UL 9	
Burning Behav. at thickness h HB/* class IEC 60695-11-1	
Thickness tested 0.75/* mm IEC 60695-11-1	
UL recognition yes/* UL 9	
Glow Wire Flammability Index, 1.0mm 650/- °C IEC 60695-2-1	
Glow Wire Flammability Index, 2.0mm 700/- °C IEC 60695-2-1 Glow Wire Flammability Index, 3.0mm 900/- °C IEC 60695-2-1	
Glow Wire Flammability Index, 3.0mm 900/- °C IEC 60695-2-1 Glow Wire Ignition Temperature, 1.0mm 700/- °C IEC 60695-2-1	
Glow Wire Ignition Temperature, 1.0mm 700/- °C IEC 60695-2-1	
Glow Wire Ignition Temperature, 2.0mm 750/- °C IEC 60695-2-1	
FMVSS Class SE ISO 3795 (FMVSS 302	
Burning rate, Thickness 1 mm mm/min ISO 3795 (FMVSS 302	
[1]: UL yellow card with (f1)	,
Electrical properties dry/cond.	
Comparative tracking index -/400 IEC 6011	2
7 Too I Lo do I I	_
Physical/Other properties dry/cond.	
Humidity absorption, 2mm 1.5/* % Sim. to ISO 6	
Water absorption, 2mm 4.5/* % Sim. to ISO 6	
Water absorption, Immersion 24h 0.91/* % Sim. to ISO 6	
Density 1330/- kg/m ³ ISO 118	3

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VDA Properties	
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Weather stability grey scale	1		ISO 105-A02
Emission of organic compounds	25.3	μgC/g	VDA 277
Odour	3	class	VDA 270
Fogging, G-value (condensate)	0.8/*	mg	ISO 6452

dry/cond.

Injection

Drying Recommended	yes	
Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.2	%
Melt Temperature Optimum	300	°C
Min. melt temperature	290	°C
Max. melt temperature	305	°C
Screw tangential speed	≤0.2	m/s
Mold Temperature Optimum	95	°C
Min. mould temperature	65	°C
Max. mould temperature	120	°C
Hold pressure range	50 - 100	MPa
Hold pressure time	3	s/mm
Ejection temperature	220	°C

Characteristics

Processing Injection Moulding

Special characteristics High impact or impact modified, Heat stabilised or stable to heat

Automotive

OEM STANDARD ADDITIONAL INFORMATION

Ford WSS-M4D703-B1

General Motors GMW17263P-PA66-GF35 Black
Stellantis - Chrysler MS.50017 / CPN-2735 Black

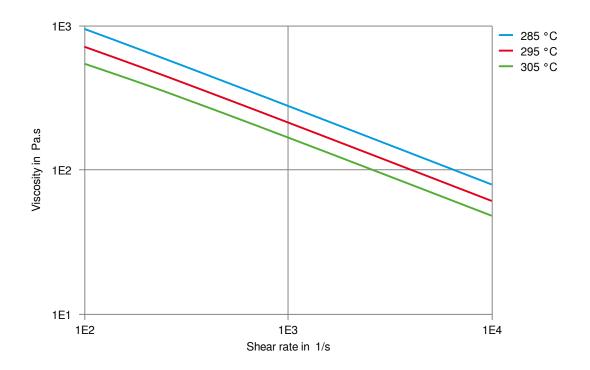
VW Group VW 50133 PA66-7-A

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Viscosity-shear rate (measured on Zytel® 80G33HS1L NC010)

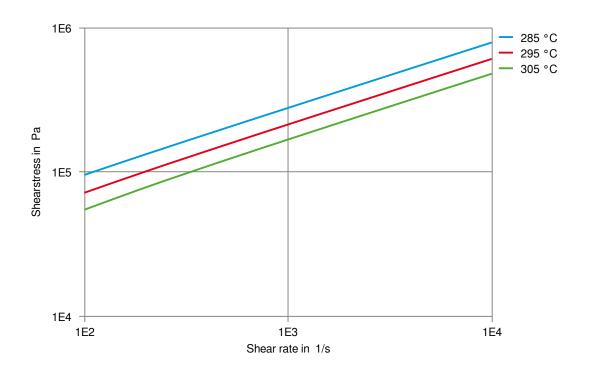


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Shearstress-shear rate (measured on Zytel® 80G33HS1L NC010)

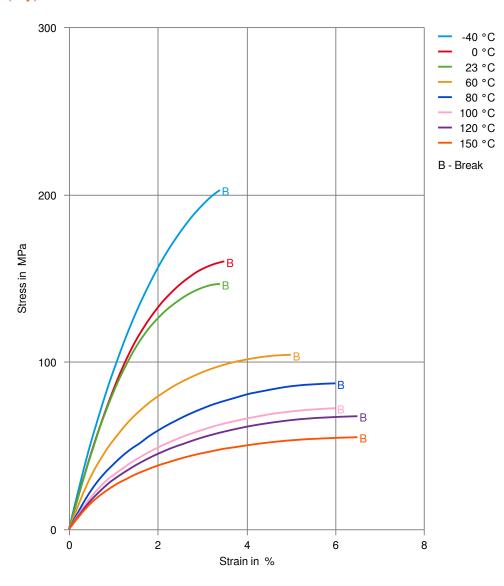


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Stress-strain (dry)

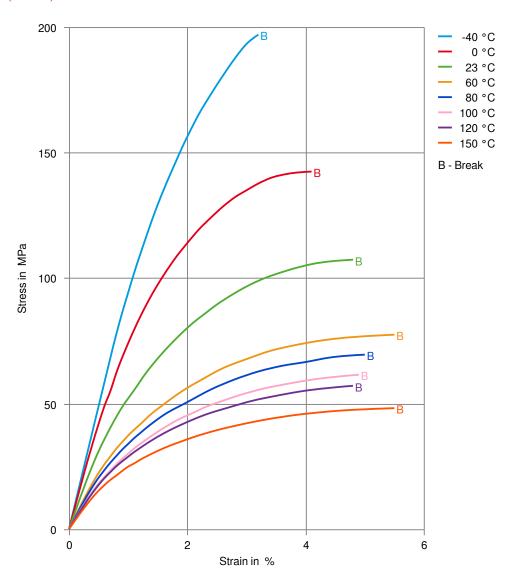


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Stress-strain (cond.)

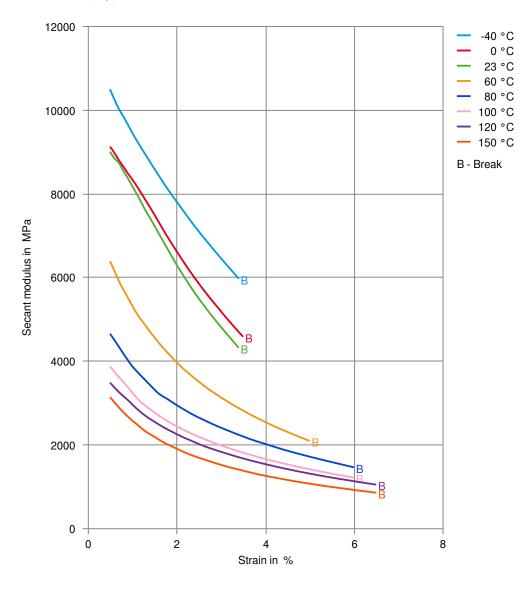


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Secant modulus-strain (dry)

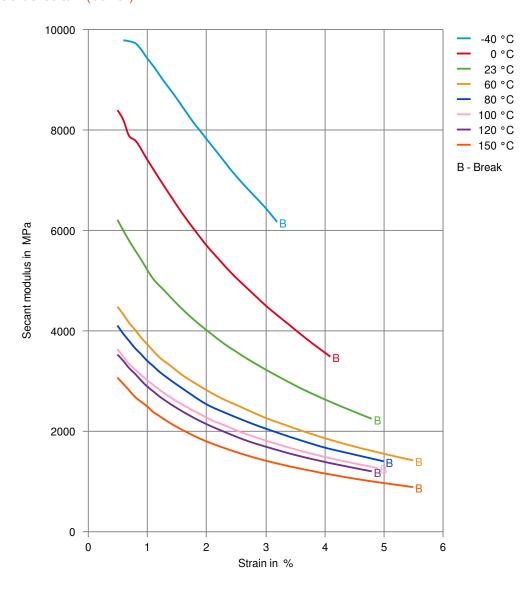


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Secant modulus-strain (cond.)

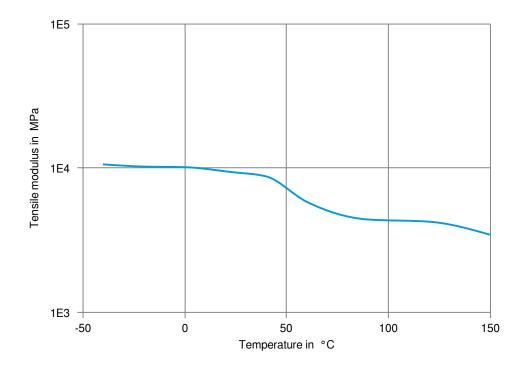


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Tensile modulus-temperature (dry) (measured on Zytel® 80G33HS1L NC010)

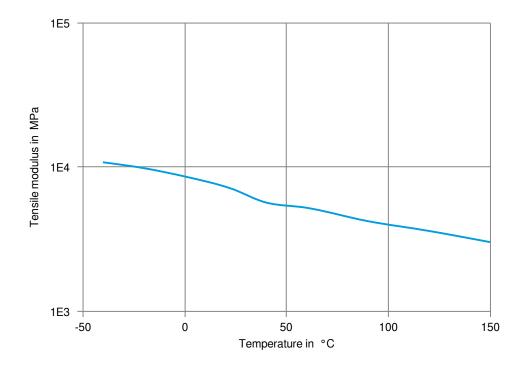


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Tensile modulus-temperature (cond.) (measured on Zytel® 80G33HS1L NC010)



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Zytel® 80G33HS1L BK104

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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

- ➤ 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
- ✓ 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

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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
- ✓ 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
- ✓ Urea solution (32.5% 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: 2025-05-01 Source: Celanese Materials Database

NOTICE TO USERS: Values shown are based on testing of laboratory test specimens and represent data that fall within the standard range of properties for natural material. These values alone do not represent a sufficient basis for any part design and are not intended for use in establishing maximum, minimum, or ranges of values for specification purposes. Colourants or other additives may cause significant variations in data values. Properties of moulded parts can be influenced by a wide variety of factors including, but not limited to, material selection, additives, part design, processing conditions and environmental exposure. Other than those products expressly identified as medical grade (including by MT® product designation or otherwise), Celanese's products are not intended for use in medical or dental implants. Regardless of any such product designation, any determination of the suitability of a particular material and part design for any use contemplated by the users and the manner of such use is the sole responsibility of the users, who must assure themselves that the material as subsequently processed meets the needs of their particular product or use. To the best of our knowledge, the information contained in this publication is accurate; however, we do not assume any liability whatsoever for the accuracy and completeness of such information. The information contained in this publication should not be construed as a promise or guarantee of specific properties of our products. It is the sole responsibility of the users to investigate whether any existing patents are infringed by the use of the materials mentioned in this publication. Moreover, there is a need to reduce human exposure to many materials to the lowest practical limits in view of possible adverse effects. To the extent that any hazards may have been mentioned in this publication, we neither suggest nor guarantee that such hazards are the only ones that exist. We recommend that persons intending to rely on any recommendation or to use any e

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