



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® 73G45 BK263 is a 45% glass fiber reinforced, black polyamide 6 resin for injection moulding.

Product information

Froductilionnation			
Resin Identification Part Marking Code	PA6-GF45 >PA6-GF45<		ISO 1043 ISO 11469
ISO designation	ISO 16396-PA6,	GF45,M1CGR,S14-140	
Rheological properties	dry/cond.		
Viscosity number	150/*	cm ³ /g	ISO 307, 1628
Moulding shrinkage, parallel	0.1/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6/-	%	ISO 294-4, 2577
Typical mechanical properties	dry/cond.		
Tensile modulus	14200/9000	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	215/145	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3/5	%	ISO 527-1/-2
Tensile creep modulus, 1h	*/9400	MPa	ISO 899-1
Tensile creep modulus, 1000h	*/7300	MPa	ISO 899-1
Charpy impact strength, 23°C	100/100	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	19/24	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	17/22	kJ/m²	ISO 180/1A
Poisson's ratio	0.33/0.34		
Thermal properties	dry/cond.		
Melting temperature, 10°C/min	221/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	55/15	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	218/*	°C	ISO 75-1/-2
Thermal conductivity of melt	0.26	W/(m K)	ISO 22007-2
Specific heat capacity of melt	2100	J/(kg K)	ISO 22007-4

Printed: 2025-05-29 Page: 1 of 12





NYLON RESIN

Flammability

FMVSS Class B ISO 3795 (FMVSS 302) Burning rate, Thickness 1 mm 44 $^{[DS]}$ mm/min ISO 3795 (FMVSS 302)

[DS]: Derived from similar grade

Electrical properties

Comparative tracking index 500/- IEC 60112

dry/cond.

dry/cond.

Physical/Other properties

Humidity absorption, 2mm 1.7/* % Sim. to ISO 62 Water absorption, 2mm 4.9/* % Sim. to ISO 62 Density 1510/- kg/m 3 ISO 1183 Density of melt 1330 kg/m 3

Injection

Drying Recommended yes 80 °C **Drying Temperature** Drying Time, Dehumidified Dryer 2-4 h **Processing Moisture Content** ≤0.2 % 270 °C Melt Temperature Optimum Min. melt temperature 260 °C Max. melt temperature 280 °C Screw tangential speed ≤0.2 m/s Mold Temperature Optimum 100 °C 70 °C Min. mould temperature 120 °C Max. mould temperature 50 - 100 MPa Hold pressure range Hold pressure time 3 s/mm 210 °C Ejection temperature

Characteristics

Processing Injection Moulding

Delivery form Pellets

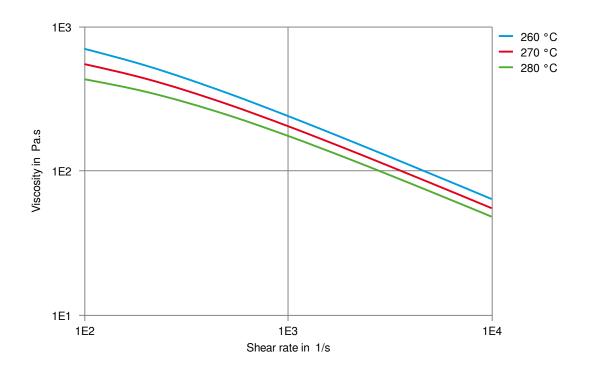
Additives Release agent

Printed: 2025-05-29 Page: 2 of 12





Viscosity-shear rate

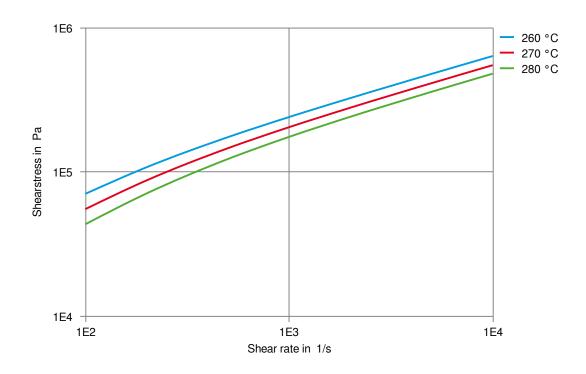


Printed: 2025-05-29 Page: 3 of 12





Shearstress-shear rate



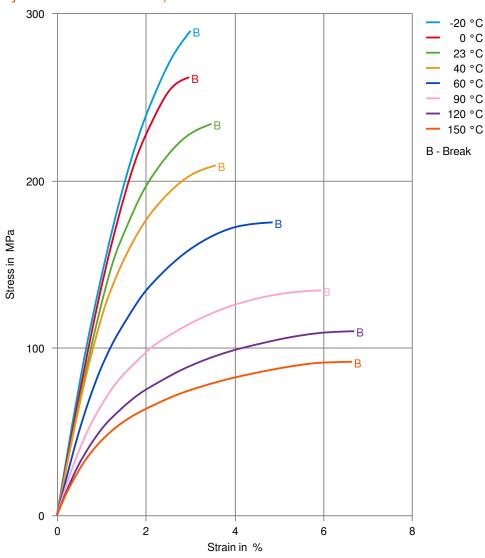
Printed: 2025-05-29 Page: 4 of 12





NYLON RESIN

Stress-strain (dry) (measured on Zytel® 73G45L NC010)



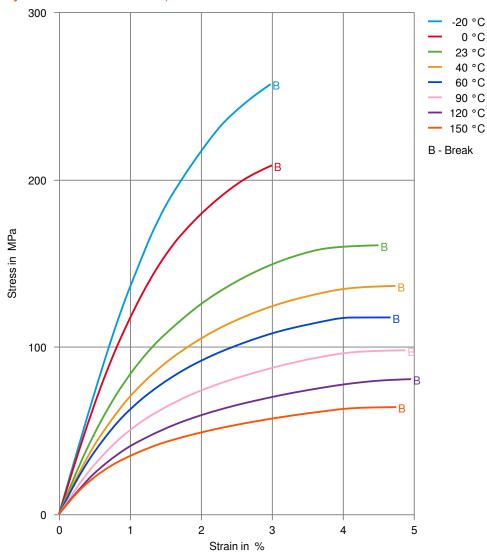
Printed: 2025-05-29 Page: 5 of 12





NYLON RESIN

Stress-strain (cond.) (measured on Zytel® 73G45L NC010)



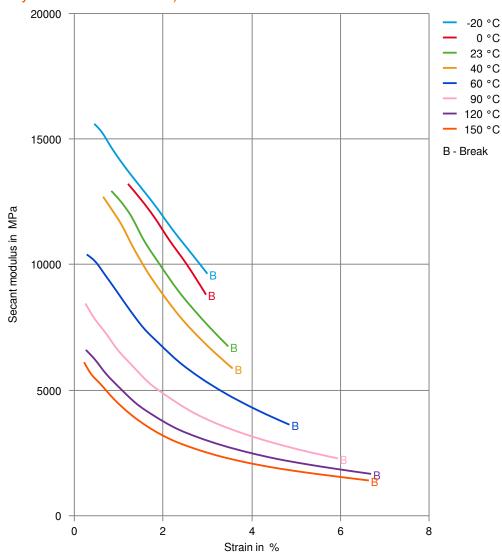
Printed: 2025-05-29 Page: 6 of 12





NYLON RESIN

Secant modulus-strain (dry) (measured on Zytel® 73G45L NC010)



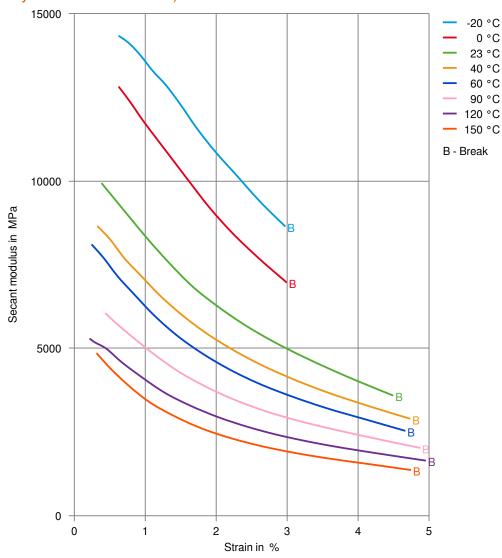
Printed: 2025-05-29 Page: 7 of 12





NYLON RESIN

Secant modulus-strain (cond.) (measured on Zytel® 73G45L NC010)

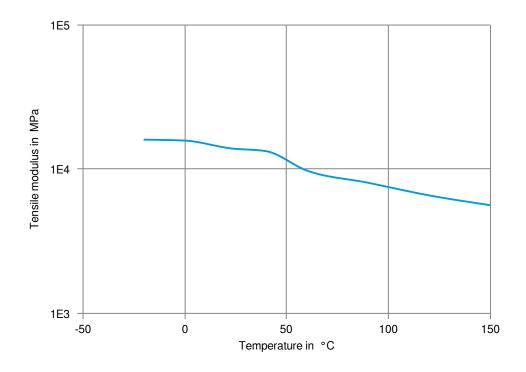


Printed: 2025-05-29 Page: 8 of 12





Tensile modulus-temperature (dry) (measured on Zytel® 73G45L NC010)

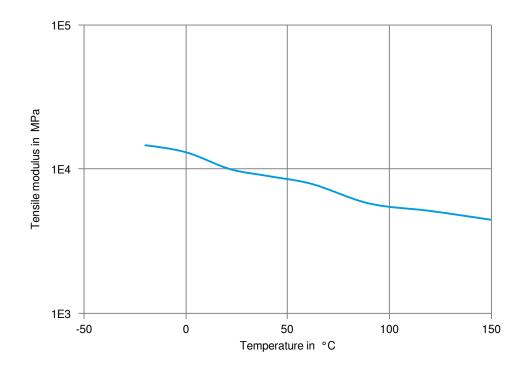


Printed: 2025-05-29 Page: 9 of 12





Tensile modulus-temperature (cond.) (measured on Zytel® 73G45L NC010)



Printed: 2025-05-29 Page: 10 of 12

(+) 18816996168 Ponciplastics.com



Zytel® 73G45 BK263

NYLON RESIN

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
- ✓ 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
- X ISO 1817 Liquid 3 M3E7, 60°C
- X 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

Printed: 2025-05-29 Page: 11 of 12





NYLON RESIN

- ✓ 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

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).

Printed: 2025-05-29 Page: 12 of 12

Revised: 2025-04-30 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

© 2025 Celanese or its affiliates. All rights reserved. Celanese®, registered C-ball design and all other trademarks identified herein with ®, TM, SM, unless otherwise noted, are trademarks of Celanese or its affiliates. Fortron is a registered trademark of Fortron Industries LLC.