



### **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® 70G35HSLR BK416LM is a 35% Glass Reinforced, Heat Stabilized, Hydrolysis Resistant, Laser Markable, Polyamide 66

### **Product information**

[1]: formic acid

Resin Identification	PA66-GF35	ISO 1043
Part Marking Code	>PA66-GF35<	ISO 11469
ISO designation	ISO 16396-PA66.GF35.M1CGHO2RW.S14-110	

Rheological properties	dry/cond.

138 <sup>[1]</sup> /*	cm³/g	ISO 307, 1628
0.3/-	%	ISO 294-4, 2577
1.0/-	%	ISO 294-4, 2577
220/*	Pa.s	ISO 11443
	0.3/- 1.0/-	0.3/- % 1.0/- %

### Typical mechanical properties

[DS]: Derived from similar grade

rypical mechanical properties	dry/cond.		
Tensile modulus	11500/7500	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	215/140	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.2/5	%	ISO 527-1/-2
Flexural modulus	10000/6500	MPa	ISO 178
Flexural strength	300/210	MPa	ISO 178
Tensile creep modulus, 1h	*/7500	MPa	ISO 899-1
Tensile creep modulus, 1000h	*/5000	MPa	ISO 899-1
Charpy impact strength, 23°C	85/90	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	70/80	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	13/16	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	10/10	kJ/m²	ISO 179/1eA
Puncture energy, 23°C	6/- <sup>[DS]</sup>	J	ISO 6603-2
Poisson's ratio	0.33/0.34		

Printed: 2025-05-29 Page: 1 of 13





### **NYLON RESIN**

Thermal properties	dry/cond.		
Melting temperature, 10°C/min Glass transition temperature, 10°C/min Temperature of deflection under load, 1.8 MPa	261/* 70/20 <sup>[DS]</sup> 250/*	°C °C	ISO 11357-1/-3 ISO 11357-1/-3 ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C Coefficient of linear thermal expansion (CLTE), parallel	24/* 22/* <sup>[DS]</sup>	E-6/K E-6/K	ISO 11359-1/-2 ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C Coeff. of linear therm. expansion, normal, -40-23°C Coefficient of linear thermal expansion (CLTE), normal	21/* 69/* 85/* <sup>[DS]</sup>	E-6/K E-6/K E-6/K	ISO 11359-1/-2 ISO 11359-1/-2 ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C Thermal conductivity of melt Specific heat capacity of melt [DS]: Derived from similar grade	141/* 0.22 <sup>[DS]</sup> 2300 <sup>[DS]</sup>	E-6/K W/(m K) J/(kg K)	ISO 11359-1/-2 ISO 22007-2 ISO 22007-4
Flammability	dry/cond.		
Oxygen index	21/* <sup>[DS]</sup>	%	ISO 4589-1/-2
FMVSS Class Burning rate, Thickness 1 mm	B <sup>[DS]</sup> <80 <sup>[DS]</sup>	mm/min	ISO 3795 (FMVSS 302) ISO 3795 (FMVSS 302)
[DS]: Derived from similar grade	100		100 0700 (1 111700 002)
Electrical properties	dry/cond.		
Comparative tracking index	400/-		IEC 60112
Physical/Other properties	dry/cond.		
Humidity absorption, 2mm	1.7/* <sup>[DS]</sup> 5.5/* <sup>[DS]</sup>	% %	Sim. to ISO 62 Sim. to ISO 62
Water absorption, 2mm Density	1420/-	kg/m³	ISO 1183
Density of melt	1270 <sup>[DS]</sup>	kg/m³	
[DS]: Derived from similar grade			
Injection			
Drying Recommended Drying Temperature	yes 80	°C	
Drying Time, Dehumidified Dryer	2 - 4	h	
Processing Moisture Content	≤0.2		
Melt Temperature Optimum Min. melt temperature		°C	
Max. melt temperature		°C	
Screw tangential speed Mold Temperature Optimum		m/s °C	
Min. mould temperature	70	°C	
Max. mould temperature	120 50 - 100	°C MPa	
Hold pressure range Hold pressure time		s/mm	
Ejection temperature		°C	

Printed: 2025-05-29 Page: 2 of 13





### Characteristics

Processing Injection Moulding

Delivery form Pellets

Additives Release agent

Special characteristics Heat stabilised or stable to heat, Hydrolysis resistant, Laser Weldable, Laser

Markable

### **Automotive**

OEM STANDARD

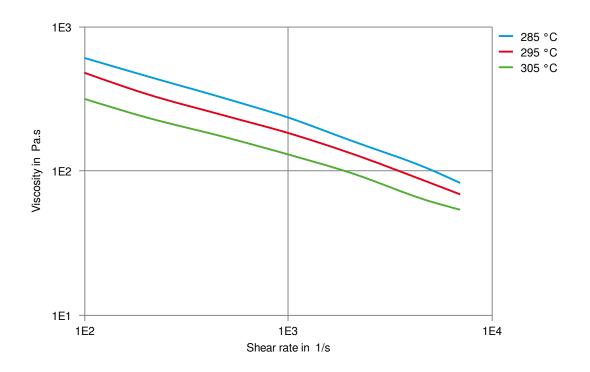
Mercedes-BenzDBL5405.05 PAGG GF35Mercedes-BenzDBL5409.25 PA66 GF35

Printed: 2025-05-29 Page: 3 of 13





Viscosity-shear rate

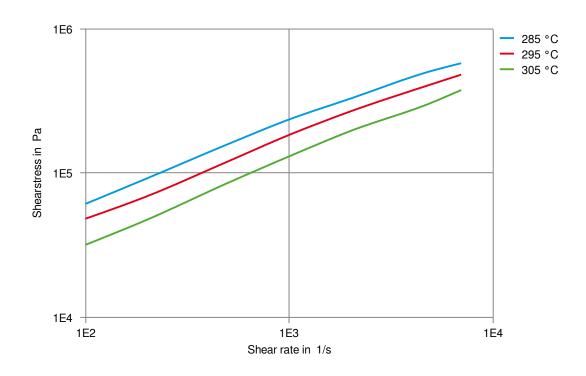


Printed: 2025-05-29 Page: 4 of 13





Shearstress-shear rate

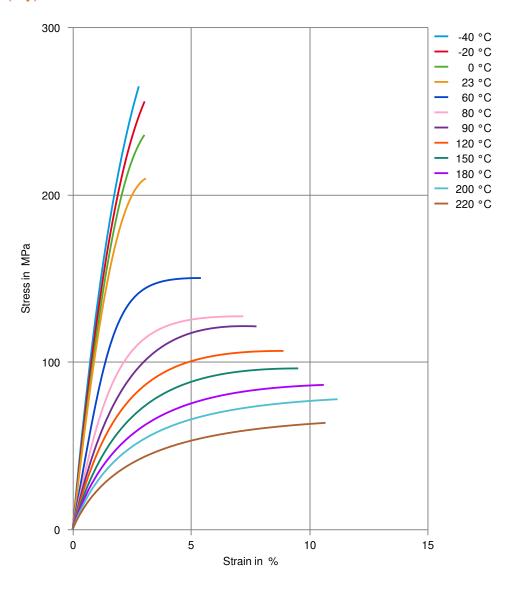


Printed: 2025-05-29 Page: 5 of 13





Stress-strain (dry)

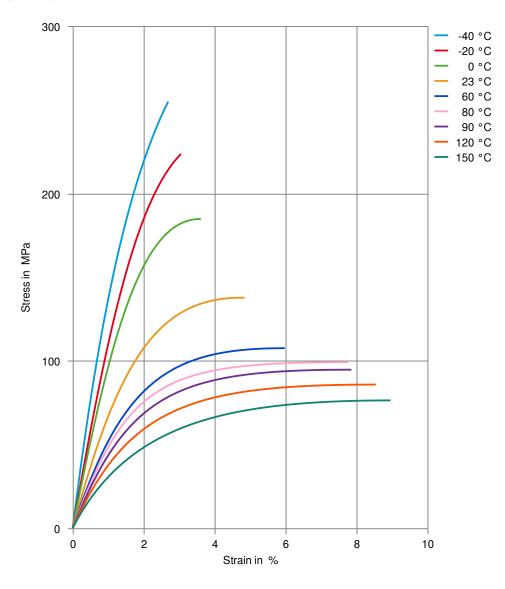


Printed: 2025-05-29 Page: 6 of 13





Stress-strain (cond.)

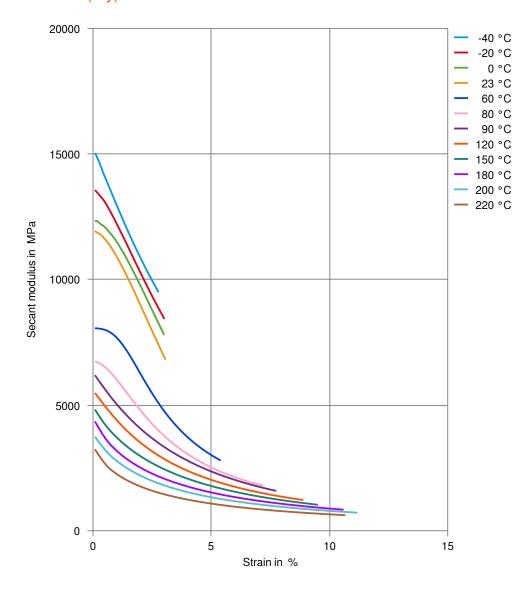


Printed: 2025-05-29 Page: 7 of 13





### Secant modulus-strain (dry)

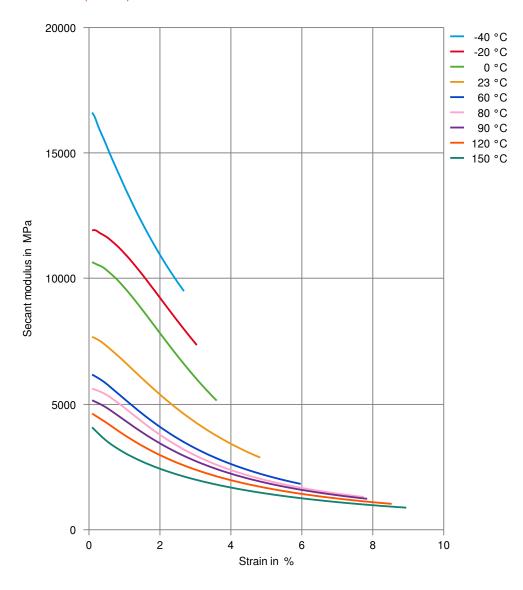


Printed: 2025-05-29 Page: 8 of 13





Secant modulus-strain (cond.)

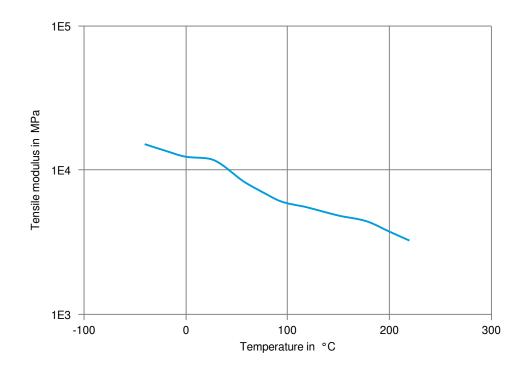


Printed: 2025-05-29 Page: 9 of 13





Tensile modulus-temperature (dry)

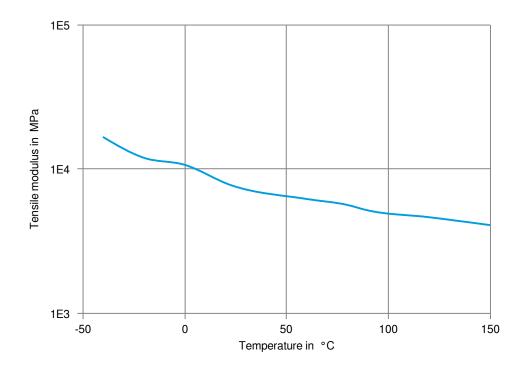


Printed: 2025-05-29 Page: 10 of 13





Tensile modulus-temperature (cond.)



Printed: 2025-05-29 Page: 11 of 13





### **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
- ✓ Motor oil OS206 304 Ref.Eng.Oil, ISP, 135°C
- ✓ Automatic hypoid-gear oil Shell Donax TX, 135°C
- ✓ Hydraulic oil Pentosin CHF 202, 125°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

Printed: 2025-05-29 Page: 12 of 13





### **NYLON RESIN**

#### 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
- 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
- ✓ DOT No. 4 Brake fluid, 120°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
- ✓ Coolant Glysantin G48, 1:1 in water, 125°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).

Printed: 2025-05-29 Page: 13 of 13

Revised: 2025-04-22 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 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 equipment, pr

© 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.