

### Zytel® 73G30L NC010

### **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® 73G30L NC010 is a 30% glass fiber reinforced polyamide 6 resin for injection moulding.

### Product information

Resin Identification Part Marking Code ISO designation	PA6-GF30 >PA6-GF30< ISO 16396-PA6,GF30,M1GNR,S14-		ISO 1043 ISO 11469 S14-100
Rheological properties	dry/cond.		
Viscosity number	140/*	cm³/g	ISO 307, 1157, 1628
Moulding shrinkage, parallel	0.2/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.6/-	%	ISO 294-4, 2577
Typical mechanical properties	dry/cond.		
Tensile Modulus	10000/6000	MPa	ISO 527-1/-2
Stress at break, 5mm/min	180/120	MPa	ISO 527-1/-2
Strain at break, 5mm/min	3.5/6	%	ISO 527-1/-2
Flexural Modulus	8500/5500	MPa	ISO 178
Flexural Strength	240/-	MPa	ISO 178
Compressive strength	160/-	MPa	ISO 604
Shear Strength	60/-	MPa	ASTM D 732
Tensile creep modulus, 1h	*/5500	MPa	ISO 899-1
Tensile creep modulus, 1000h	*/4500	MPa	ISO 899-1
Charpy impact strength, 23°C	90/100	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	80/80	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	14/23	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	11/21	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	11/-	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	15/20	kJ/m²	ISO 180/1A
Izod notched impact strength, -30°C	11/11	kJ/m²	ISO 180/1A

Printed: 2023-04-19 Page: 1 of 16

Revised: 2022-12-21 Source: Celanese Materials Database



### NYLON RESIN

Izod notched impact strength, -40°C Izod impact strength, 23°C Izod impact strength, -30°C Ball indentation hardness, H 961/30 Poisson's ratio	11/- 100/- 90/- 233/147 0.34/0.35	kJ/m² kJ/m² kJ/m² MPa	ISO 180/1A ISO 180/1U ISO 180/1U ISO 2039-1
Tribological properties	dry/cond.		
Coefficient of static friction, against steel Coefficient of sliding friction, 1h against steel	-/0.26 -/0.32		ASTM 1894 ASTM 1894
Thermal properties	dry/cond.		
Melting temperature, 10°C/min	221/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60/15	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	210/*	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	220/*	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	26/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel	14/* 14/*	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	75/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	102/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	130/*	E-6/K	ISO 11359-1/-2
RTI, electrical, 1.5mm	65	°C	UL 746B
RTI, electrical, 3mm	65	°C	UL 746B
RTI, impact, 1.5mm	65	°C	UL 746B
RTI, impact, 3mm	65	°C	UL 746B
RTI, strength, 1.5mm	65/*	°C	UL 746B
RTI, strength, 3mm	65	°C	UL 746B
TGA curve	available		ISO 11359-1/-2
Flammability	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB/*	class	UL 94
Thickness tested	1.5/*	mm	UL 94
UL recognition	yes/*		UL 94
Burning Behav. at thickness h	HB/*	class	UL 94
Thickness tested	3/*	mm	UL 94
UL recognition	yes/*	0/	UL 94
Oxygen index Glow Wire Flammability Index, 1mm	21/* 700/-	% °C	ISO 4589-1/-2 IEC 60695-2-12
Glow Wire Flammability Index, 2mm	700/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3mm	750/-	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 1mm	700/-	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 2mm	700/-	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3mm	700/-	°C	IEC 60695-2-13
FMVSS Class	В		ISO 3795 (FMVSS
			302)

Printed: 2023-04-19 Page: 2 of 16

Revised: 2022-12-21 Source: Celanese Materials Database



### NYLON RESIN

Burning rate, Thickness 1 mm	25	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	dry/cond.		
Relative permittivity, 100Hz Dissipation factor, 100Hz Volume resistivity Comparative tracking index Comparative tracking index	3.8/- 220/- 1E12/- 600/- 0/-	E-4 Ohm.m PLC	IEC 62631-2-1 IEC 62631-2-1 IEC 62631-3-1 IEC 60112 UL 746A
Other properties	dry/cond.		
Humidity absorption, 2mm Water absorption, 2mm Density Density of melt	2.1/* 6.3/* 1360/- 1200	% % kg/m³ kg/m³	Sim. to ISO 62 Sim. to ISO 62 ISO 1183 Internal
VDA Properties	dry/cond.		
Emission of organic compounds Odour Fogging, F-value (refraction) Fogging, G-value (condensate)	8.5 3.5 95/* 0.1/*	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	2 - ≤0. 27 26 28 ≤0. 10 7	es 80 °C 4 h .2 % 70 °C 80 °C .2 m/s 90 °C 70 °C 90 °C	Internal
Hold pressure time		3 s/mm	

### Characteristics

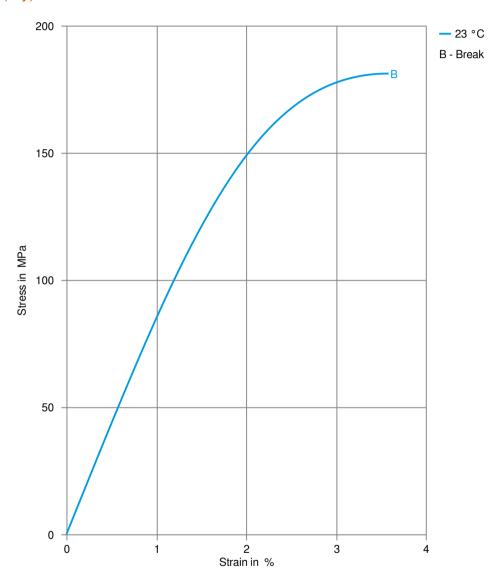
Additives Release agent

Printed: 2023-04-19 Page: 3 of 16



### NYLON RESIN

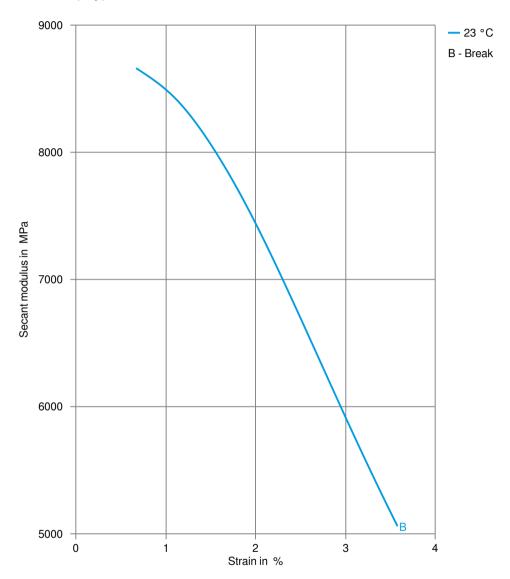
Stress-strain (dry)



Printed: 2023-04-19 Page: 4 of 16



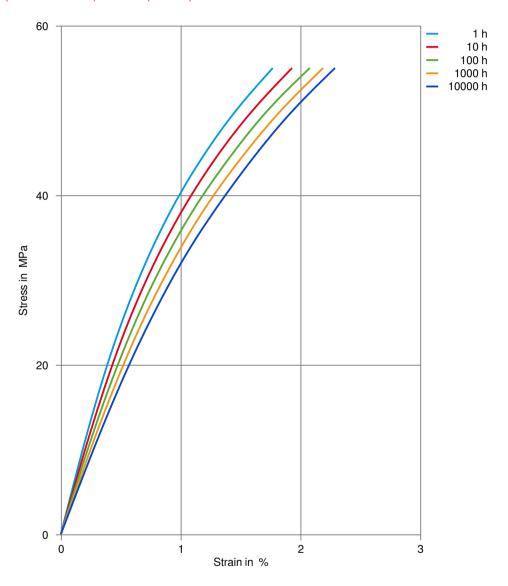
### Secant modulus-strain (dry)



Printed: 2023-04-19 Page: 5 of 16



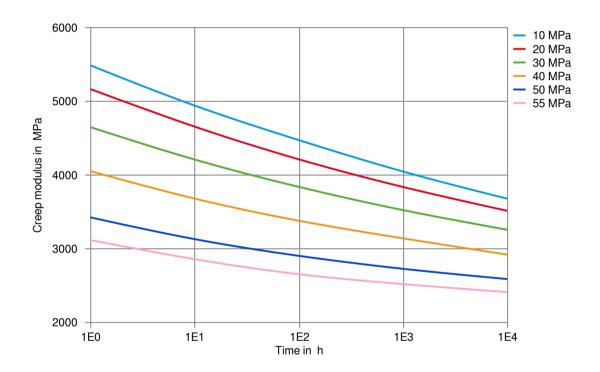
Stress-strain (isochronous) 23°C (cond.)



Printed: 2023-04-19 Page: 6 of 16



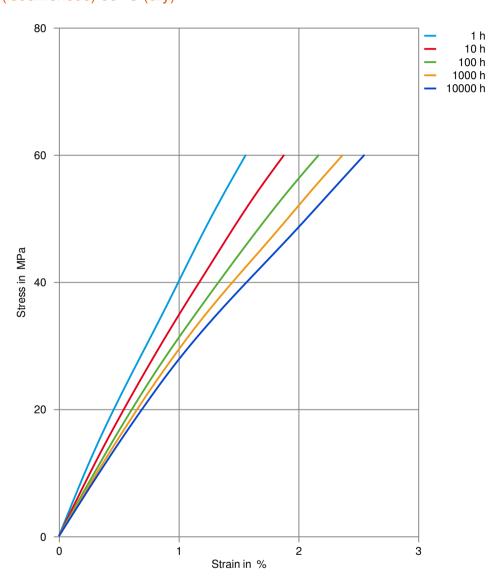
Creep modulus-time 23°C (cond.)



Printed: 2023-04-19 Page: 7 of 16



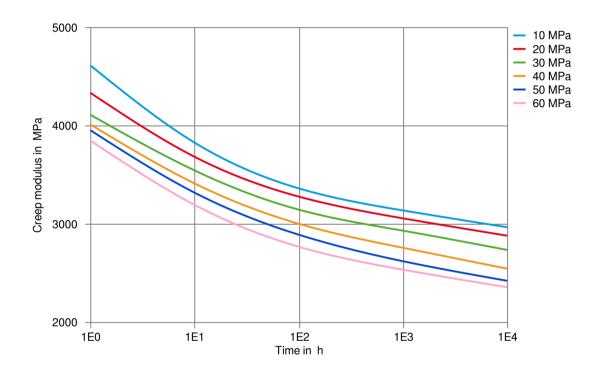
Stress-strain (isochronous) 60°C (dry)



Printed: 2023-04-19 Page: 8 of 16



Creep modulus-time 60°C (dry)

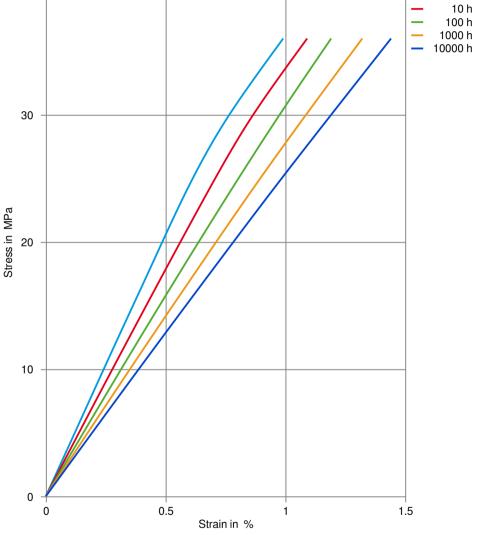


Printed: 2023-04-19 Page: 9 of 16



Stress-strain (isochronous) 90°C (dry)

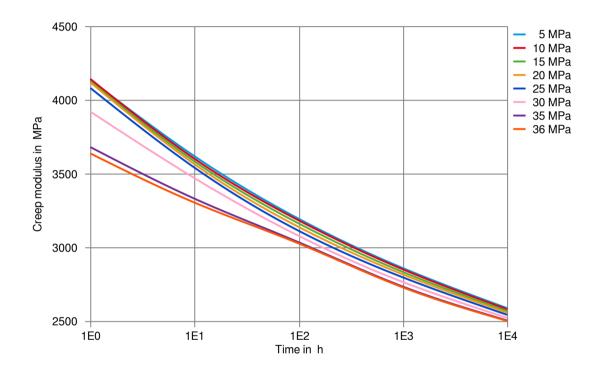




Printed: 2023-04-19 Page: 10 of 16



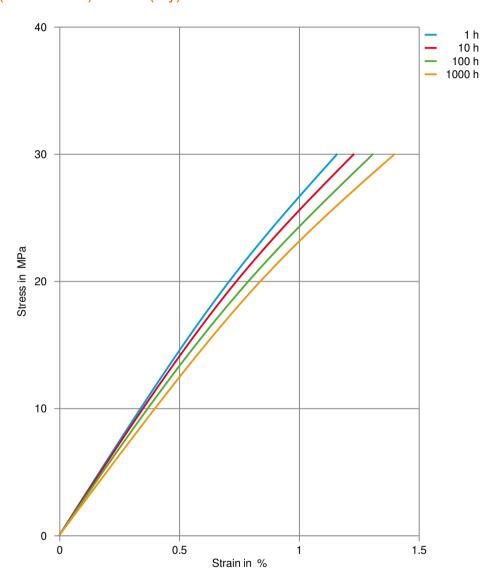
Creep modulus-time 90°C (dry)



Printed: 2023-04-19 Page: 11 of 16



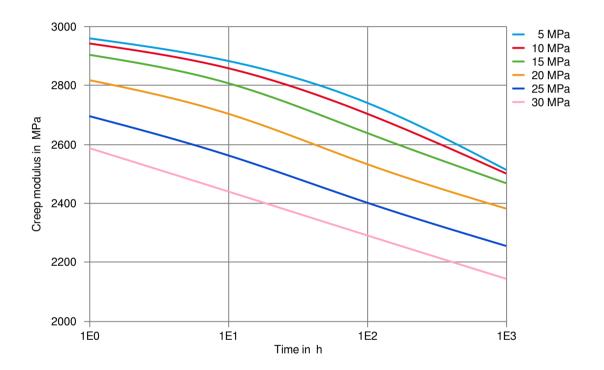
Stress-strain (isochronous) 100°C (dry)



Printed: 2023-04-19 Page: 12 of 16



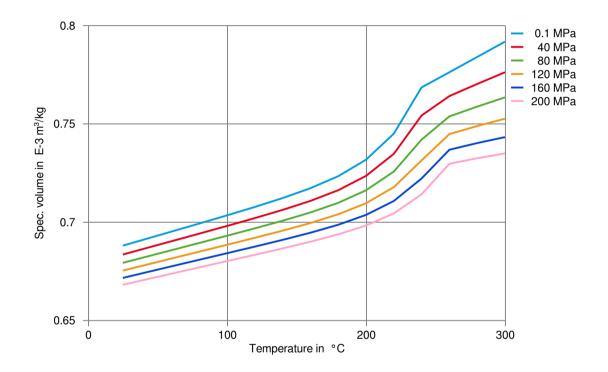
Creep modulus-time 100°C (dry)



Printed: 2023-04-19 Page: 13 of 16



Specific volume-temperature (pvT)



Printed: 2023-04-19 Page: 14 of 16



### **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

Printed: 2023-04-19 Page: 15 of 16



### **NYLON RESIN**

#### Salt solutions

- ✓ Sodium Chloride solution (10% by mass), 23°C
- X 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
- X Water, 90°C
- X Phenol solution (5% by mass), 23°C
- X 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).

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: 2023-04-19 Page: 16 of 16

Revised: 2022-12-21 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

© 2023 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. KEPITAL is a registered trademark of Korea Engineering Plastics Company, Ltd.