

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® FR7026V0F NC010 is an unreinforced, flame retardant, heat stabilized, polyamide 66 resin for injection molding. It does not contain elemental phosphorous or heavy metals and uses an halogen free flame retardant package. Non-Chlorine & Non-Bromine Material. Compliant with UL 746H/C-IC

#### Product information

Resin Identification Part Marking Code ISO designation	PA66-FR(30) >PA66-FR(30)< ISO 16396-PA66	,FR(30),M1F1G1NR,S14-040	ISO 1043 ISO 11469
Rheological properties	dry/cond.		
Viscosity number	160/*	cm <sup>3</sup> /g	ISO 307, 1628
Moulding shrinkage, parallel	0.9/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.0/-	%	ISO 294-4, 2577
Typical mechanical properties	dry/cond.		
Tensile modulus	3700/2000	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	*/55	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	*/20	%	ISO 527-1/-2
Tensile stress at break, 5mm/min	81.5/* <sup>[DS]</sup>	MPa	ISO 527-1/-2
Nominal strain at break	*/30	%	ISO 527-1/-2
Tensile strain at break, 5mm/min	4.7/* <sup>[DS]</sup>	%	ISO 527-1/-2
Charpy impact strength, 23°C	80/110	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	3.5/7	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	3/2	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	4.4/-	kJ/m²	ISO 180/1A
Ball indentation hardness, H 358/30	-/110 <sup>[DS]</sup>	MPa	ISO 2039-1
Poisson's ratio	0.36/0.4		
[DS]: Derived from similar grade			



### Thermal properties

dry/cond.		
260/*	°C	ISO 11357-1/-3
80/20	°C	ISO 11357-1/-3
80/*	°C	ISO 75-1/-2
230/*	°C	ISO 75-1/-2
220/- <sup>[DS]</sup>	°C	IEC 60695-10-2
60/*	E-6/K	ISO 11359-1/-2
65/-	E-6/K	ASTM E 831
70/*	E-6/K	ISO 11359-1/-2
70/*	E-6/K	ISO 11359-1/-2
115/*	E-6/K	ISO 11359-1/-2
75/-	E-6/K	ASTM E 831
0.17	W/(m K)	ISO 22007-2
2590	J/(kg K)	ISO 22007-4
130		UL 746B
		UL 746B
110	°C	UL 746B
dry/cond.		
V-0/*	class	IEC 60695-11-10
1.5/*	mm	IEC 60695-11-10
yes/*		UL 94
V-0/*	class	IEC 60695-11-10
0.4/*	mm	IEC 60695-11-10
yes/*		UL 94
39/*	%	ISO 4589-1/-2
960/-	°C	IEC 60695-2-12
		IEC 60695-2-13
960/-	°C	IEC 60695-2-12
960/-		IEC 60695-2-13
	°C	IEC 60695-2-13
DNI		ISO 3795 (FMVSS 302)
	260 /* 80 /20 80 /* 230 /* 220 / _[DS] 60 /* 65 /- 70 /* 70 /* 115 /* 75 /- 0.17 2590 130 130 130 130 95 95 95 95 95 110 110 /* 110 /* 110 * 110 /* 110 * 10 * * * * * * * * * * * * * * *	$\begin{array}{ccccc} 260/* & ^{\circ} C \\ 80/20 & ^{\circ} C \\ 80/* & ^{\circ} C \\ 230/* & ^{\circ} C \\ 220/-^{[DS]} & ^{\circ} C \\ 60/* & E-6/K \\ 65/- & E-6/K \\ 70/* & E-6/K \\ 70/* & E-6/K \\ 70/* & E-6/K \\ 115/* & E-6/K \\ 75/- & E-6/K \\ \hline \\ 0.17 & W/(m K) \\ 2590 & J/(kg K) \\ 130 & ^{\circ} C \\ 95 & ^{\circ} C \\ 110 & ^{\circ} C \\ \hline \\ \frac{drycond.}{} \\ V-0/* & class \\ 1.5/* & mm \\ yes/* \\ V-0/* & class \\ 0.4/* & mm \\ yes/* \\ 39/* & ^{\circ} \\ 960/- & ^{\circ} C \\ 960/- & ^{$

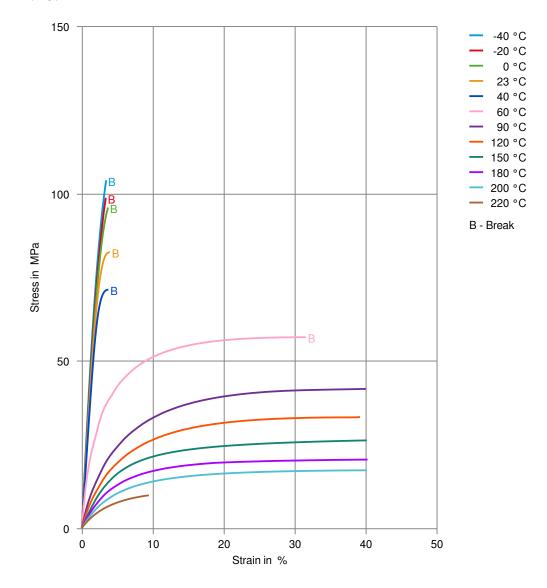


### NYLON RESIN

Electrical properties	dry/cond.			
Surface resistivity	*/>1E15 <sup>[A,</sup> Ohm 1]		IEC 62631-3-2	
Electric strength Comparative tracking index Comparative tracking index, 23°C [A]: Assessed [1]: based on CTI and similar values for FR g	31/30 600/- 0/-	kV/mm PLC	IEC 60243-1 IEC 60112 UL 746A	
Physical/Other properties Humidity absorption, 2mm Water absorption, 2mm Water absorption, Immersion 24h Density Density of melt [2]: wall thickness 2mm	dry/cond. 2.5/* 8/* 1.8 <sup>[2]</sup> /* 1160/- 1030	% % kg/m <sup>3</sup> kg/m <sup>3</sup>	Sim. to ISO 62 Sim. to ISO 62 Sim. to ISO 62 ISO 1183	
VDA Properties				
Odour	5	class	VDA 270	
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 Hold pressure time Ejection temperature	2 - 4 ≤0.2 280 270 290 ≤0.2 70 60 80 50 - 100	% °C °C °C m/s °C °C °C MPa s/mm		
Characteristics				
Processing	Injection Moulding			
Delivery form	Pellets			
Additives	Release agent, Flame retardant, Non-halogenated/Red phosphorous free flame retardant			
Special characteristics	Flame retardant			

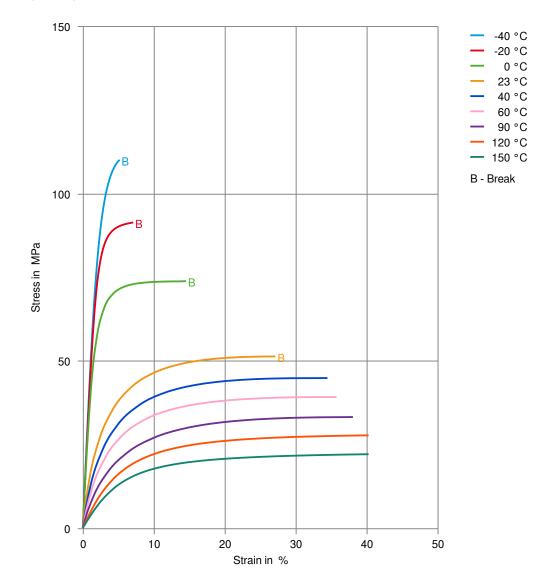


#### Stress-strain (dry)



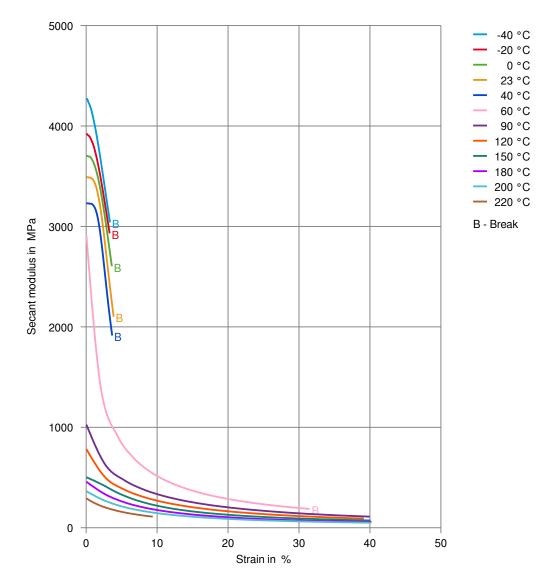


#### Stress-strain (cond.)



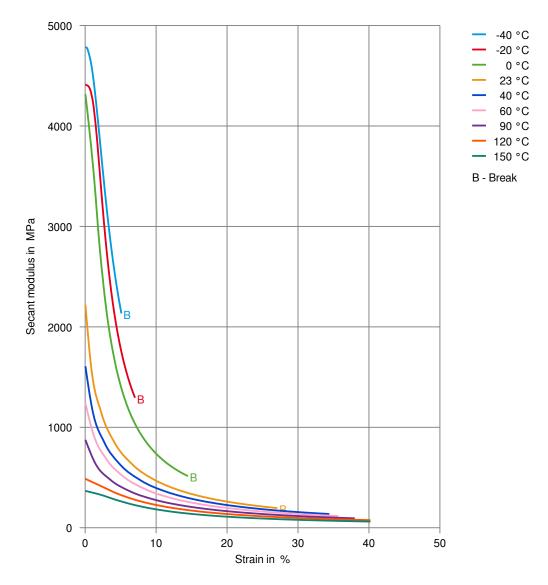


#### Secant modulus-strain (dry)



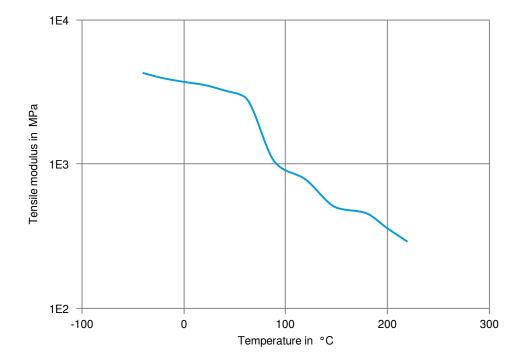


#### Secant modulus-strain (cond.)



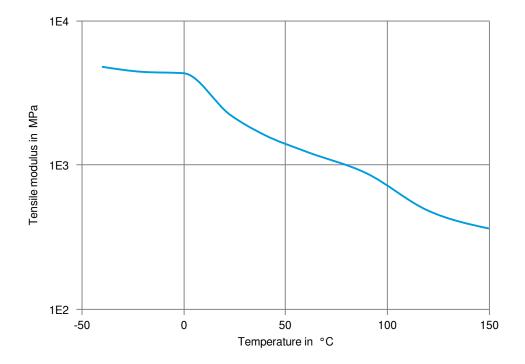


Tensile modulus-temperature (dry)





Tensile modulus-temperature (cond.)





#### **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
- ★ 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
- 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
- X 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
- ★ 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
- ★ 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: 2024-06-26 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 product 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 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, processing technique or material mentioned in this publication should satisfy themselves that they can meet all applicable safety and health standards. We strongly recommend that users s

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