



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® ST801AHS NC010 is a Super Tough, high performance polyamide 66 resin. It offers outstanding moulding performance in injection molding applications.

Product information

Resin Identification Part Marking Code	PA66-HI >PA66-HI< ISO 16396-PA66-I,,M1G1HNR,S12-020		ISO 1043 ISO 11469
ISO designation	150 10390-PA0	0-1,,W1G1HNK,S12-020	
Rheological properties	dry/cond.		
Viscosity number	120/*	cm³/g	ISO 307, 1628
Moulding shrinkage, parallel	1.8/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.4/-	%	ISO 294-4, 2577
Postmoulding shrinkage, normal, 48h at 80°C	0.05/*	%	ISO 294-4
Postmoulding shrinkage, parallel, 48h at 80°C	0.05/*	%	ISO 294-4
Typical mechanical properties	dry/cond.		
	•	145	100 507 4/0
Tensile modulus	2000/900	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	52/*	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4/*	%	ISO 527-1/-2
Tensile stress at 50% strain	*/45	MPa	ISO 527-1/-2
Nominal strain at break	50/*	%	ISO 527-1/-2
Tensile strain at break, 50mm/min	50/-	%	ISO 527-1/-2
Flexural modulus	1900/800	MPa	ISO 178
Flexural stress at 3.5%	55/-	MPa	ISO 178
Charpy impact strength, 23°C	N/N	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	80/110	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	20/17	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	80/95	kJ/m²	ISO 180/1A
Izod notched impact strength, -30°C	19.0/19.0	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	19.0/16.0	kJ/m²	ISO 180/1A
Hardness, Rockwell, R-scale	107/69		ISO 2039-2
Ball indentation hardness, H 961/30	104/-	MPa	ISO 2039-1
Poisson's ratio	0.4/0.45		

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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	62/*	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	157/*	°C	ISO 75-1/-2
Coefficient of linear thermal expansion	90/*	E-6/K	ISO 11359-1/-2
(CLTE), parallel	007	_ 0/10	100 11000 17 2
Coefficient of linear thermal expansion (CLTE),	120/*	E-6/K	ISO 11359-1/-2
normal	1207	L 0/10	100 11000 1/ 2
RTI, electrical, 0.75mm	130	°C	UL 746B
RTI, electrical, 1.5mm	130	°C	UL 746B
RTI, electrical, 3.0mm	130	°C	UL 746B
RTI, impact, 0.75mm	65	°C	UL 746B
RTI, impact, 1.5mm	105	°C	UL 746B
RTI, impact, 3.0mm	105	°C	UL 746B
RTI, strength, 0.75mm	95	°C	UL 746B
RTI, strength, 1.5mm	105/*	°C	UL 746B
RTI, strength, 3.0mm	110	°C	UL 746B
TTT, Strongth, S.Ohim	110	J	OL 740B
Flammability	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB/*	class	IEC 60695-11-10
Thickness tested	1.5/*	mm	IEC 60695-11-10
UL recognition	yes/*		UL 94
Burning Behav. at thickness h	HB/*	class	IEC 60695-11-10
Thickness tested	0.75/*	mm	IEC 60695-11-10
UL recognition	yes/*		UL 94
Glow Wire Flammability Index, 0.4mm	750/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 0.75mm	750/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.0mm	750/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	750/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2.0mm	750/-	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0mm	750/-	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 0.75mm	725/-	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 0.4mm	725/-	°C	IEC 60695-2-12
Glow Wire Ignition Temperature, 1.0mm	725/-	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 1.5mm	725/-	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 2.0mm	725/-	°C	IEC 60695-2-13
Glow Wire Ignition Temperature, 3.0mm	725/-	°C	IEC 60695-2-13
Glow Wire Temperature, No Flame, 0.75mm	700/-	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 1mm	700/-	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 1.5mm	700/-	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 2mm	700/-	°C	IEC 60335-1
Glow Wire Temperature, No Flame, 3mm	700/-	°C	IEC 60335-1
FMVSS Class	В		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	26	mm/min	ISO 3795 (FMVSS 302)

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Electrical properties	dry/cond.		
Relative permittivity, 100Hz	3.5/6.2		IEC 62631-2-1
Relative permittivity, 1MHz	3.3/3.6		IEC 62631-2-1
Dissipation factor, 100Hz	50/1770	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	110/400	E-4	IEC 62631-2-1
Volume resistivity	>1E13/2.7E10	Ohm.m	IEC 62631-3-1
Surface resistivity	*/5E12	Ohm	IEC 62631-3-2
Electric strength	24/24	kV/mm	IEC 60243-1
Comparative tracking index	600/-		IEC 60112
Electric Strength, Short Time, 2mm	24/24	kV/mm	IEC 60243-1
Physical/Other properties	dry/cond.		
Humidity absorption, 2mm	2/*	%	Sim. to ISO 62
Water absorption, 2mm	6.5/*	%	Sim. to ISO 62
Water absorption, Immersion 24h	1.1 ^[1] /*	%	Sim. to ISO 62
Density	1080/-	kg/m³	ISO 1183
[1]: 3mm wall thickness			
Film Properties	dry/cond.		
Strain at yield, parallel	4.4/*	%	ISO 527-3
VDA Properties	dry/cond.		
Emission of organic compounds	13	μgC/g	VDA 277
Odour	5	class	VDA 277
Fogging, G-value (condensate)	0.1/*	mg	ISO 6452
Injection			
Drying Recommended	yes		
Drying Temperature	80	°C	
Drying Time, Dehumidified Dryer	2-4 h		
Processing Moisture Content	≤0.2 %		
Melt Temperature Optimum	290		
Min. melt temperature	280 °C		
Max. melt temperature	300 °C ≤0.3 m/s		
Screw tangential speed Mold Temperature Optimum	≥0.3 80		
Min. mould temperature	50		
Max. mould temperature	100		
Hold pressure range	50 - 100		
Hold pressure time		s/mm	
Ejection temperature	190		
•			

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Extrusion

Characteristics

Processing Injection Moulding

Delivery form Pellets

Additives Release agent

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

Automotive

OEM STANDARD ADDITIONAL INFORMATION

Ford WSS-M4D666-B1

General Motors GMW16447P-PA66-T3 Natural

Hyundai MS211-46 Type C-2 Mercedes-Benz DBL5410.01 PA66-I

 Stellantis
 MS.50017 / PA66.1800F.70I.HS.TG
 CPN2438

 Stellantis - Chrysler
 MS.50017 / CPN-2438
 Natural

 VW Group
 VW 50127 PA66-2

 VW Group
 VW 50127 PA66-3

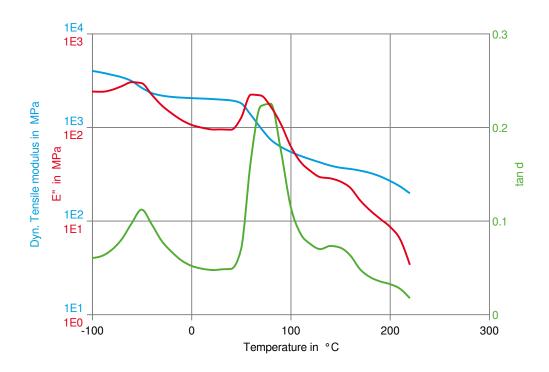
 VW Group
 VW 50133 PA66-2-A

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Dynamic Tensile modulus-temperature (dry)

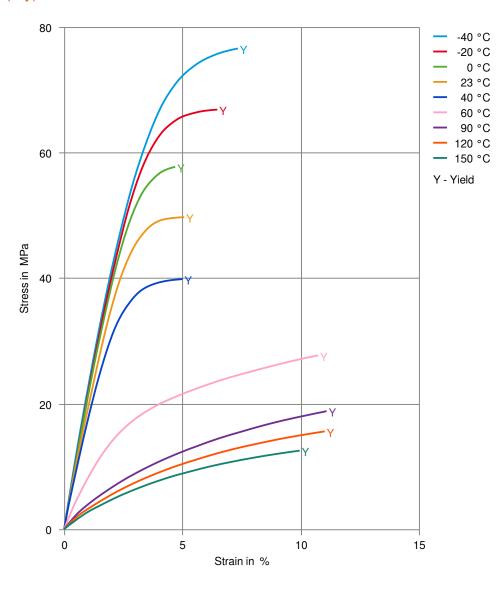


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Stress-strain (dry)

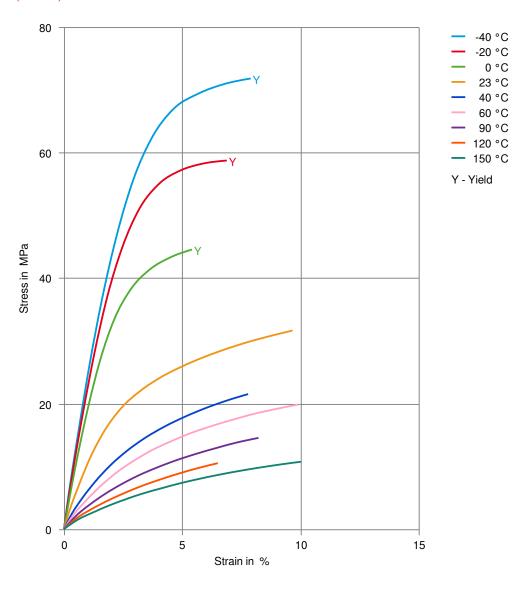


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Stress-strain (cond.)

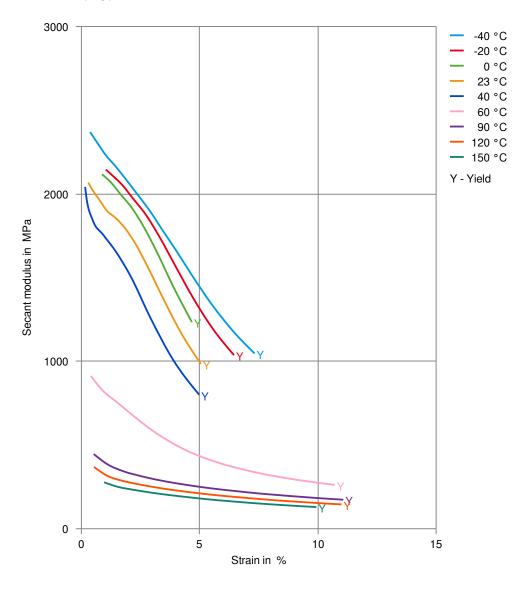


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Secant modulus-strain (dry)

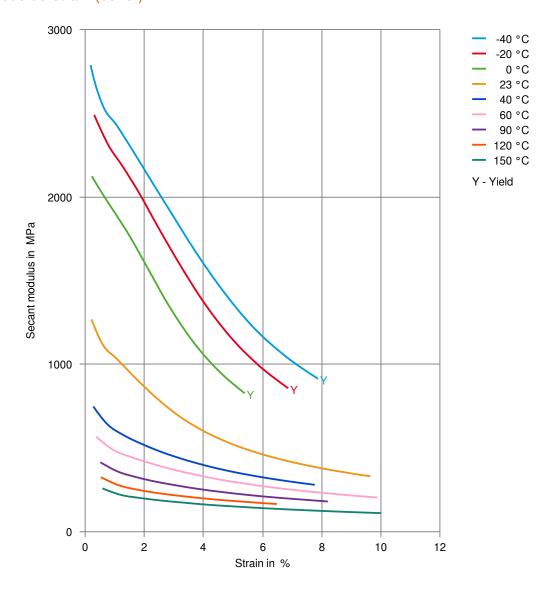


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Secant modulus-strain (cond.)



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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

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Zytel® ST801AHS NC010

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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
- **★** 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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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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