



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® 80G14AHS BK099 is a 14% glass fiber reinforced, toughened, high flow, heat stabilized polyamide 66 resin. It offers outstanding performance in injection molding applications.

Product information

Product information			
Resin Identification	PA66-IGF14		ISO 1043
Part Marking Code	>PA66-IGF14<		ISO 11469
ISO designation	ISO 16396-PA66-I,GF14,M1CGHR,S14-050		
Rheological properties	dry/cond.		
Moulding shrinkage, parallel	0.4/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.8/-	%	ISO 294-4, 2577
Typical mechanical properties	dry/cond.		
Tensile modulus	5000/3300	MPa	ISO 527-1/-2
Tensile stress at break, 5mm/min	110/70	MPa	ISO 527-1/-2
Tensile strain at break, 5mm/min	3.8/6	%	ISO 527-1/-2
Flexural modulus	4400/3100	MPa	ISO 178
Charpy impact strength, 23°C	70/75	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	50/70	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	13/17	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	6/7	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	13/17	kJ/m²	ISO 180/1A
Izod notched impact strength, -30°C	6.0/7.0	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	6.0/6.0	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	55/-	kJ/m²	ISO 180/1U
Poisson's ratio	0.35/0.37		
Thermal properties	dry/cond.		
Melting temperature, 10°C/min	263/*	°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	240/*	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	258/*	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	40/*	E-6/K	ISO 11359-1/-2
CLTE, Parallel, 23-55°C(73-130°F)	40/-	E-6/K	ASTM E 831
Coeff. of linear therm. expansion, parallel, 55-160°C	40/*	E-6/K	ISO 11359-1/-2

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Coeff. of linear therm. expansion, normal, -40-23°C Coeff. of linear therm. expansion, normal, 55-160°C Coeff. of linear therm. expansion, Normal,23-55°C	97/* 135/* 104/-	E-6/K E-6/K E-6/K	ISO 11359-1/-2 ISO 11359-1/-2 ASTM E 831
(73-130°F) RTI, electrical, 0.75mm RTI, electrical, 1.5mm RTI, electrical, 3.0mm RTI, impact, 0.75mm RTI, impact, 1.5mm RTI, impact, 3.0mm RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3.0mm	120 120 120 65 95 105 85 105/* 105		UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B
Flammability	dry/cond.		
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested UL recognition Oxygen index FMVSS Class Burning rate, Thickness 1 mm	HB/* 1.5/* yes/* HB/* 3/* yes/* 21/* ^[DS] B <80	class mm class mm %	IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94 ISO 4589-1/-2 ISO 3795 (FMVSS 302) ISO 3795 (FMVSS 302)
[DS]: Derived from similar grade	\00	11111/111111	100 07 00 (1 141 00 002)
Physical/Other properties	dry/cond.		
Density	1190/-	kg/m³	ISO 1183
VDA Properties			
Emission of organic compounds Odour		μgC/g class	VDA 277 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 ≤0.2 295 285 305 ≤0.2 75 50 100 50 - 100	% °C °C m/s °C °C C C MPa s/mm	

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Characteristics

Processing Injection Moulding

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

Automotive

OEM STANDARD ADDITIONAL INFORMATION

Ford WSK-M4D591-A

General Motors GMW17263P-PA66-GF15 Black
Stellantis - Chrysler MS.50017 / CPN-2184 Black

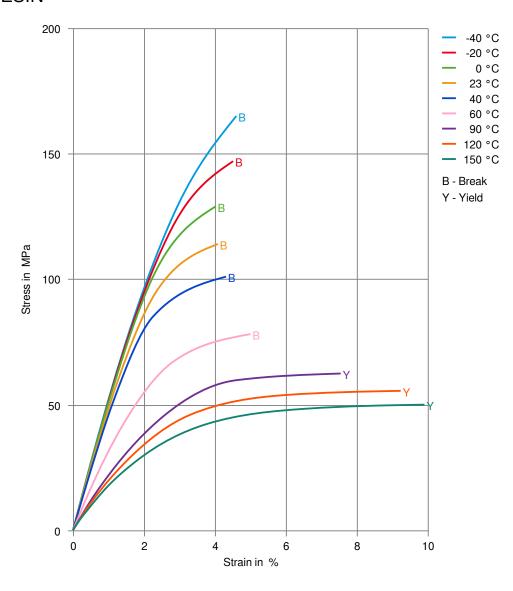
Stress-strain (dry) (measured on Zytel® 80G14AHS NC010)

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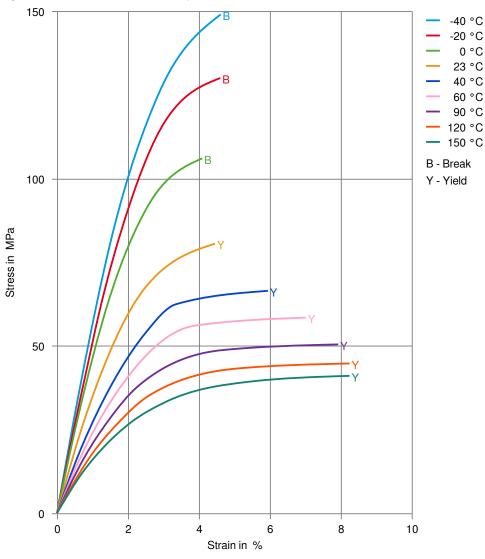
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Stress-strain (cond.) (measured on Zytel® 80G14AHS NC010)



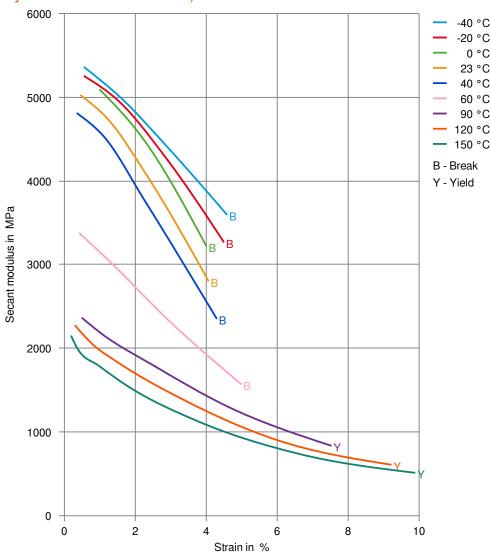
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Secant modulus-strain (dry) (measured on Zytel® 80G14AHS NC010)



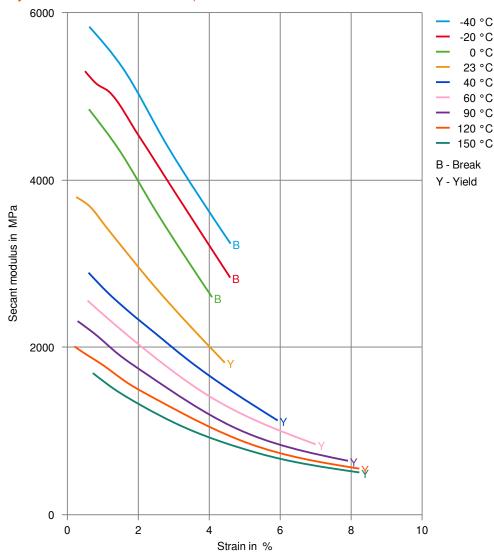
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Secant modulus-strain (cond.) (measured on Zytel® 80G14AHS NC010)



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Zytel® 80G14AHS BK099

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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

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

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
- 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).

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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 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

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