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Zytel® MT409AHS BK010

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® MT409AHS BK010 is a Medium Toughened, high performance, heat stabilised polyamide 66 resin having good stiffness, improved knit line strength, surface appearance with outstanding processability.

Product information

Resin Identification Part Marking Code	PA66-I >PA66-I<		ISO 1043 ISO 11469
ISO designation	ISO 16396-PA66-I,,M1CG1HR,S14-020		100 11403
Rheological properties	dry/cond.		
Moulding shrinkage, parallel	1.7/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.7/-	%	ISO 294-4, 2577
Typical mechanical properties	dry/cond.		
Tensile modulus	2400/1100	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	61/43	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	5/28	%	ISO 527-1/-2
Tensile stress at break, 50mm/min	50/-	MPa	ISO 527-1/-2
Nominal strain at break	25/>50	%	ISO 527-1/-2
Tensile strain at break, 50mm/min	45/-	%	ISO 527-1/-2
Flexural modulus	2200/1000	MPa	ISO 178
Flexural strength	75/40	MPa	ISO 178
Charpy impact strength, 23°C	N/N	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	N/N	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	17/40	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	13/12	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	12/12	kJ/m ²	ISO 179/1eA
Izod notched impact strength, 23°C	17/90	kJ/m²	ISO 180/1A
Izod notched impact strength, -30°C	13.0/15.0	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	11.0/-	kJ/m²	ISO 180/1A
Hardness, Rockwell, M-scale	65/55 ^[DS]		ISO 2039-2
Hardness, Rockwell, R-scale	115/105 ^[DS]		ISO 2039-2
Ball indentation hardness, H 358/30	-/60 ^[DS, 1]	MPa	ISO 2039-1
Ball indentation hardness, H 961/30	125/-	MPa	ISO 2039-1
Poisson's ratio	0.38/0.45		
[DS]: Derived from similar grade			
[1]: 132/30			

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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	80/20	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	65/*	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	187/*	°C	ISO 75-1/-2
Coefficient of linear thermal expansion	100/*	E-6/K	ISO 11359-1/-2
(CLTE), parallel			
Coefficient of linear thermal expansion (CLTE),	100/*	E-6/K	ISO 11359-1/-2
normal			
Thermal conductivity, flow	0.21	W/(m K)	ISO 22007-2
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
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	0.8/*	mm	IEC 60695-11-10
UL recognition	yes/*		UL 94
Thickness tested	3/*	mm	IEC 60695-11-20
UL recognition	yes/*		UL 94
Oxygen index	21/*	%	ISO 4589-1/-2
Glow Wire Flammability Index, 3.0mm	700/- ^[DS]	°C	IEC 60695-2-12
FMVSS Class	В		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	29	mm/min	ISO 3795 (FMVSS 302)
[DS]: Derived from similar grade			
Electrical properties	dry/cond.		
Relative permittivity, 100Hz	3.9/9.8		IEC 62631-2-1
Relative permittivity, 1MHz	3.7/4		IEC 62631-2-1
Dissipation factor, 100Hz	60/4350	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	130/5100	E-4	IEC 62631-2-1
Volume resistivity	>1E13/9.7E9	Ohm.m	IEC 62631-3-1
Surface resistivity	*/4.7E11	Ohm	IEC 62631-3-2
Comparative tracking index	600/-		IEC 60112
Electric Strength, Short Time, 2mm	25/22	kV/mm	IEC 60243-1

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Physical/Other properties	dry/cond.		
Humidity absorption, 2mm	2.1/*	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.9/*	%	Sim. to ISO 62
Density	1110/-	kg/m³	ISO 1183
VDA Properties	dry/cond.		
Weather stability delta I	2.9		DIN 53236
Weather stability delta a	0.3		DIN 53236
Weather stability delta b	1.6		DIN 53236
Weather stability delta E	2.5		DIN 53236
Weather stability grey scale	2-3		ISO 105-A02
Emission of organic compounds	10	μgC/g	VDA 277
Odour	4	class	VDA 270
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	285	°C
Min. melt temperature	270	°C
Max. melt temperature	300	°C
Screw tangential speed	≤0.3	m/s
Mold Temperature Optimum	70	°C
Min. mould temperature	50	°C
Max. mould temperature	90	°C
Hold pressure range	50 - 100	MPa
Hold pressure time	4	s/mm
Ejection temperature	220	°C

Extrusion

Drying Temperature	≥80	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.2	%
Melt Temperature Optimum	290	°C
Melt Temperature Range	280 - 300	°C

Characteristics

Processing Injection Moulding, Extrusion

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

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Automotive

OEM STANDARD ADDITIONAL INFORMATION

 Bosch
 N28 BN02-O035

 Ford
 WSS-M4D706-B1

 General Motors
 GMW16447P-PA66-T2
 Black

 General Motors
 GMW16558P-PA66-T1
 Black

 General Motors
 GMW16558P-PA66-T3
 Black

Mercedes-Benz DBL5403.22 PA66-I
Mercedes-Benz DBL5410.01 PA66-I

Renault-Nissan UB15b, No Spec, Special Part Approval, See

Your CE Account Manager.

Stellantis MS.50017 / PA66-EPDM.1600F.201.HS CPN4853, CPN2055,

CPN1826;01994_16_00011

Stellantis - ChryslerMS.50017 / CPN-1826BlackStellantis - ChryslerMS.50017 / CPN-2055BlackStellantis - ChryslerMS.50017 / CPN-4853Black

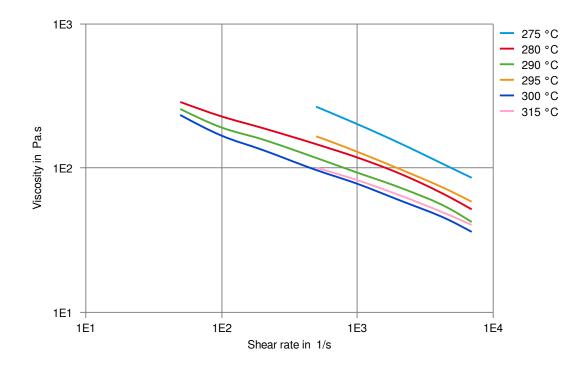
VW Group VW 50133 PA66-2-A

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Viscosity-shear rate (measured on Zytel® MT409AHS NC010)

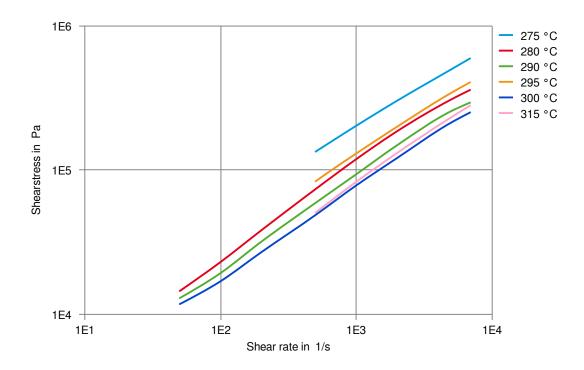


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Shearstress-shear rate (measured on Zytel® MT409AHS NC010)

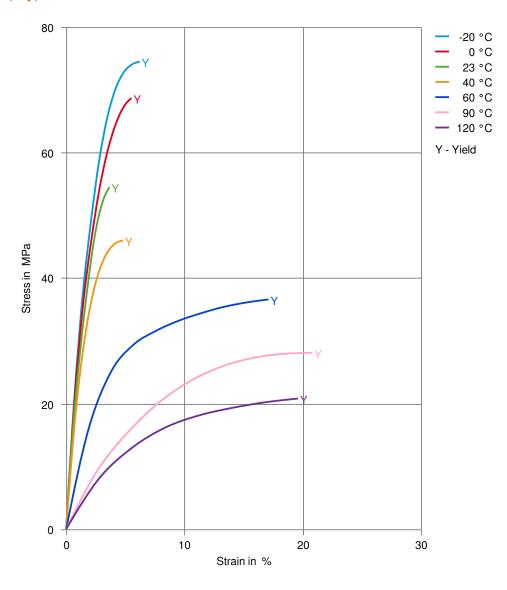


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Stress-strain (dry)

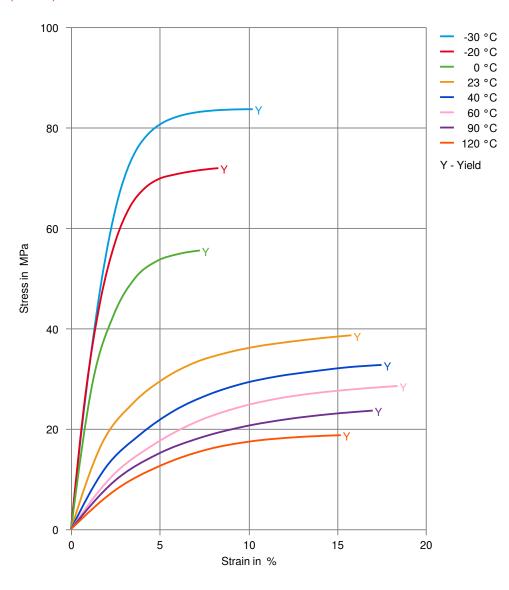


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Stress-strain (cond.)

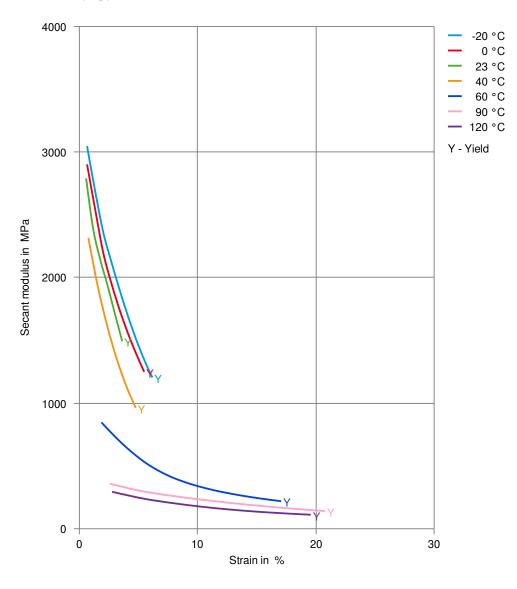


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Secant modulus-strain (dry)

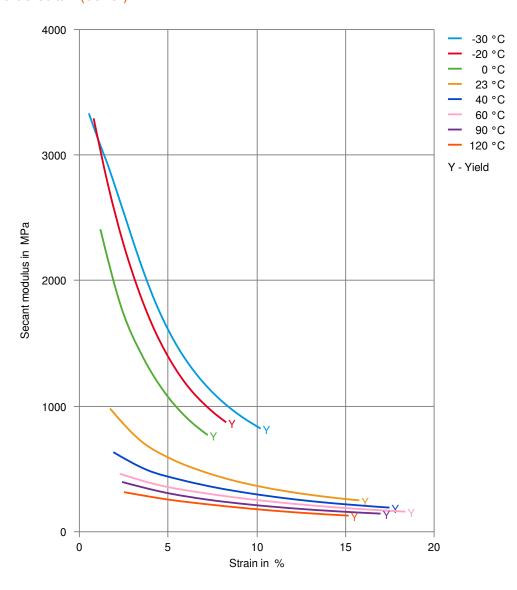


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Secant modulus-strain (cond.)

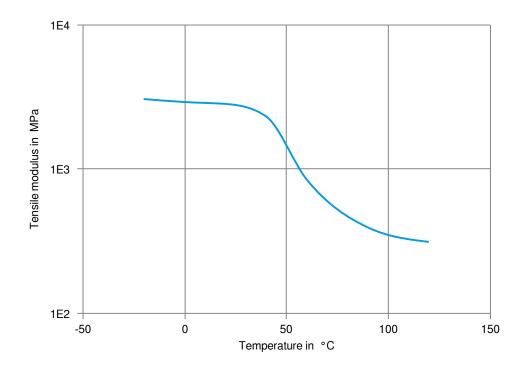


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Tensile modulus-temperature (dry) (measured on Zytel® MT409AHS NC010)

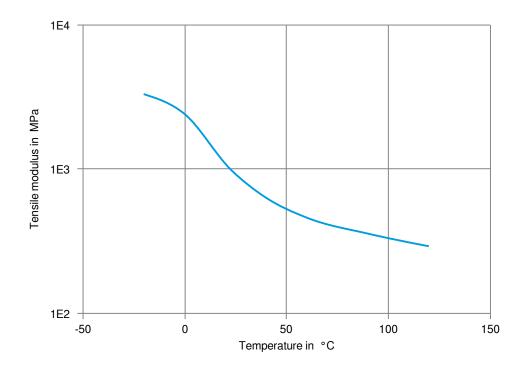


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Tensile modulus-temperature (cond.) (measured on Zytel® MT409AHS NC010)



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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
- 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
- ➤ 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
- 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
- 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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Revised: 2025-05-01 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 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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