

DuPont™ Zytel® 101L NC010

NYLON RESIN

Product Information

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, DuPont recommends, 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® 101L NC010 is a lubricated polyamide 66 resin for injection molding.

General information	Value	Unit	Test Standard
Resin Identification	PA66	-	ISO 1043
Part Marking Code	PA66	-	ISO 11469
Rheological properties	dry / cond	Unit	Test Standard
Viscosity number	150 ⁽¹⁾ / *	cm ³ /g	ISO 307, 1157, 1628
Molding shrinkage, parallel	1.4 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	1.4 / -	%	ISO 294-4, 2577
1: Sulfuric acid 96%			
Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	3100 / 1400	MPa	ISO 527-1/-2
Yield stress	82 / 55	MPa	ISO 527-1/-2
Yield strain	4.5 / 25	%	ISO 527-1/-2
Nominal strain at break	25 / >50	%	ISO 527-1/-2
Strain at Break, 23°C, 50mm/min	45 / -	%	ISO 527-1/-2
Flexural Modulus	2800 / 1200	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	* / 1400	MPa	
1000h	* / 820	MPa	
Charpy impact strength			ISO 179/1eU
73°F	N / N	kJ/m ²	
-22°F	400 / N	kJ/m ²	
Charpy notched impact strength			ISO 179/1eA
73°F	5.5 / 15	kJ/m ²	
-22°F	4.5 / 3	kJ/m ²	
Izod notched impact strength			ISO 180/1A
73°F	5.5 / 12	kJ/m ²	
-22°F	5.5 / 3	kJ/m ²	
-40°F	5.5 / 3	kJ/m ²	
Izod impact strength			ISO 180/1U
73°F	N / N	kJ/m ²	
-22°F	300 / N	kJ/m ²	
Ball indentation hardness, H 358/30	180 / 85	MPa	ISO 2039-1
Hardness, Rockwell, M-scale	79 / 59	-	ISO 2039-2
Hardness, Rockwell, R-scale	121 / 108	-	ISO 2039-2
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 18°F/min	262 / *	°C	ISO 11357-1/-3
Glass transition temperature, 18°F/min	60 / -	°C	ISO 11357-1/-2

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

Asia Pacific

Europe/Middle East/Africa

DONGGUAN FUMEI PLASTICS CO.,LTD.

TEL: +86 0769-82339888 / 87798999

EMAIL: fumei@foomx.com



DuPont™ Zytel® 101L NC010

NYLON RESIN

Temp. of deflection under load				ISO 75-1/-2
260 psi	70 / *	°C		
65 psi	190 / *	°C		
Vicat softening temperature, 90°F/h, 11 lbf	240 / *	°C		ISO 306
Ball pressure test	240 / -	°C		IEC 60309
Coeff. of linear therm. expansion, parallel	100 / *	E-6/K		ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	110 / *	E-6/K		ISO 11359-1/-2
Thermal conductivity of melt	0.16	W/(m K)		-
Spec. heat capacity of melt	2790	J/(kg K)		-
Eff. thermal diffusivity	5E-8	m ² /s		-
RTI, electrical				UL 746B
30mil	130 / *	°C		
60mil	130 / *	°C		
120mil	130	°C		
240mil	130	°C		
RTI, impact				UL 746B
30mil	75	°C		
60mil	75 / *	°C		
120mil	75	°C		
240mil	75	°C		
RTI, strength				UL 746B
30mil	85	°C		
60mil	85 / *	°C		
120mil	85	°C		
240mil	85	°C		
Flammability	dry / cond	Unit	Test Standard	
Burning Behav. at 60mil nom. thickn.	V-2 / *	class	IEC 60695-11-10	
Thickness tested	1.5 / *	mm	IEC 60695-11-10	
UL recognition	yes / *	-	UL 94	
Burning Behav. at thickness h	V-2 / *	class	IEC 60695-11-10	
Thickness tested	0.71 / *	mm	IEC 60695-11-10	
UL recognition	yes / *	-	UL 94	
Oxygen index	28 / *	%	ISO 4589-1/-2	
Glow Wire Flammability Index			IEC 60695-2-12	
30mil	960 / -	°C		
60mil	960 / -	°C		
120mil	960 / -	°C		
Glow Wire Ignition Temperature			IEC 60695-2-13	
30mil	725 / -	°C		
60mil	750 / -	°C		
120mil	800 / -	°C		
FMVSS Class	DNI	-	ISO 3795 (FMVSS 302)	
Electrical properties	dry / cond	Unit	Test Standard	
Relative permittivity			IEC 62631-2-1	
100Hz	3.8 / 11	-		
1MHz	3.5 / 4	-		
Dissipation factor			IEC 62631-2-1	
100Hz	80 / 2100	E-4		
1MHz	180 / 750	E-4		
Volume resistivity	1E12 / 1E10	Ohm*m	IEC 62631-3-1	
Electric strength	32 / 28	kV/mm	IEC 60243-1	
Comparative tracking index				
Comparative tracking index	600 / -	-	IEC 60112	
CTI, 23°C	0 / -	PLC	UL 746A	

Revised: 2018-03-27

Page: 2 of 18

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

Asia Pacific

Europe/Middle East/Africa

DONGGUAN FUMEI PLASTICS CO.,LTD.

TEL: +86 0769-82339888 / 87798999

EMAIL: fumei@foomx.com



Copyright 2017 DuPont. The DuPont Oval Logo is a trademark or registered trademark of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.

DuPont™ Zytel® 101L NC010

NYLON RESIN

Other properties	dry / cond	Unit	Test Standard
Humidity absorption, 80mil	2.6 / *	%	Sim. to ISO 62
Water absorption, 80mil	8.5 / *	%	Sim. to ISO 62
Density	1140 / -	kg/m ³	ISO 1183
Density of melt	970	kg/m ³	-
Water Absorption, Immersion 24h 2: 1mm thickness	4.2 ^[2] / *	%	Sim. to ISO 62
Film Properties	dry / cond	Unit	Test Standard
Strain at yield, parallel	4.5 / *	%	ISO 527-3
VDA Properties	dry / cond	Unit	Test Standard
Emission of organic compounds	10	µgC/g	VDA 277
Odor test	3.5	class	VDA 270
Fogging, G-value (condensate)	0.4 / *	mg	ISO 6452
Injection	dry / cond	Unit	Test Standard
Drying Recommended	yes	-	-
Drying Temperature	≥80	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.2	%	-
Melt Temperature Optimum	290	°C	-
Min. melt temperature	280	°C	-
Max. melt temperature	300	°C	-
Max. screw tangential speed	0.4 / *	m/s	-
Mold Temperature Optimum	70	°C	-
Min. mold temperature	50	°C	-
Max. mold temperature	90	°C	-
Hold pressure range	50 - 100	MPa	-
Hold pressure time	4	s/mm	-
Ejection temperature	190	°C	-

Characteristics			
Processing	• Injection Molding		
Delivery form	• Pellets		
Additives	• Release agent		
Regional Availability	• North America	• Asia Pacific	• Near East/Africa
	• Europe	• South and Central America	• Global

Processing Texts

Injection molding POSTPROCESSING

Annealing: 30min at 200°C

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

Asia Pacific

Europe/Middle East/Africa

DONGGUAN FUMEI PLASTICS CO.,LTD.

TEL: +86 0769-82339888 / 87798999

EMAIL: fumei@foomx.com

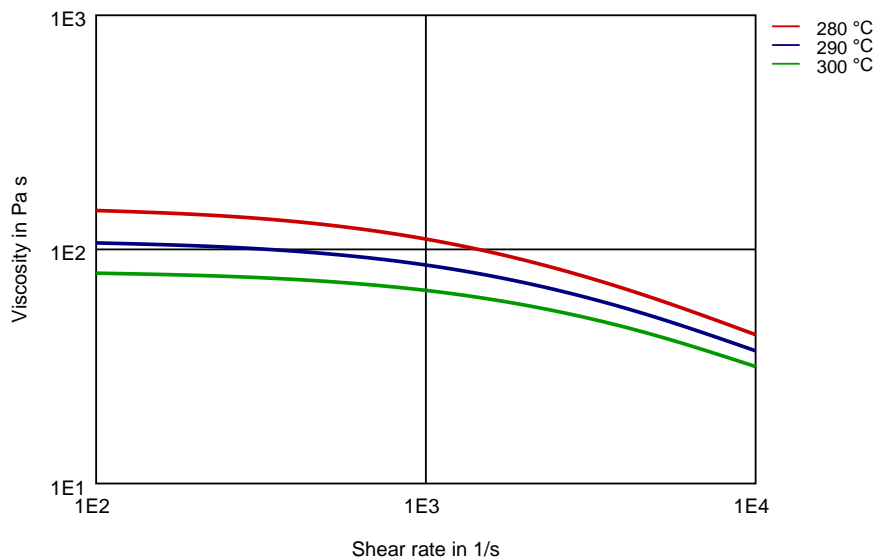


DuPont™ Zytel® 101L NC010

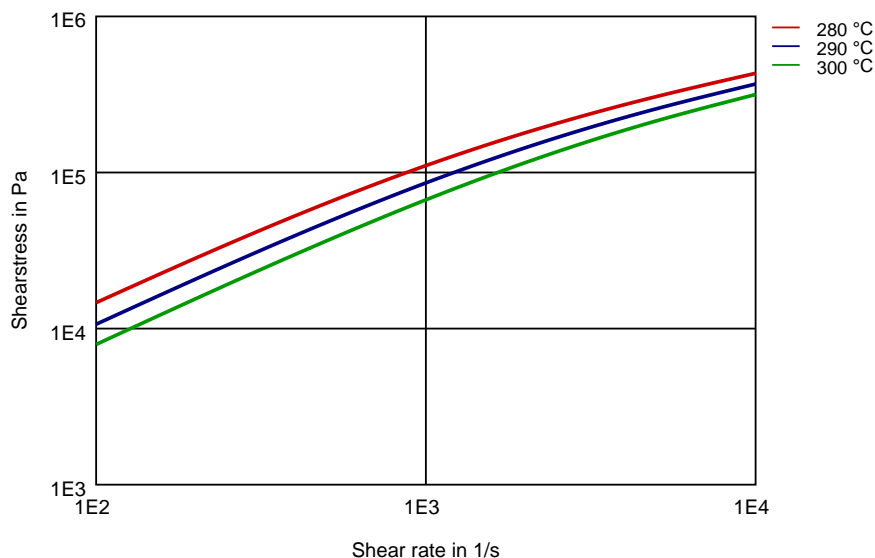
NYLON RESIN

Diagrams

Viscosity-shear rate



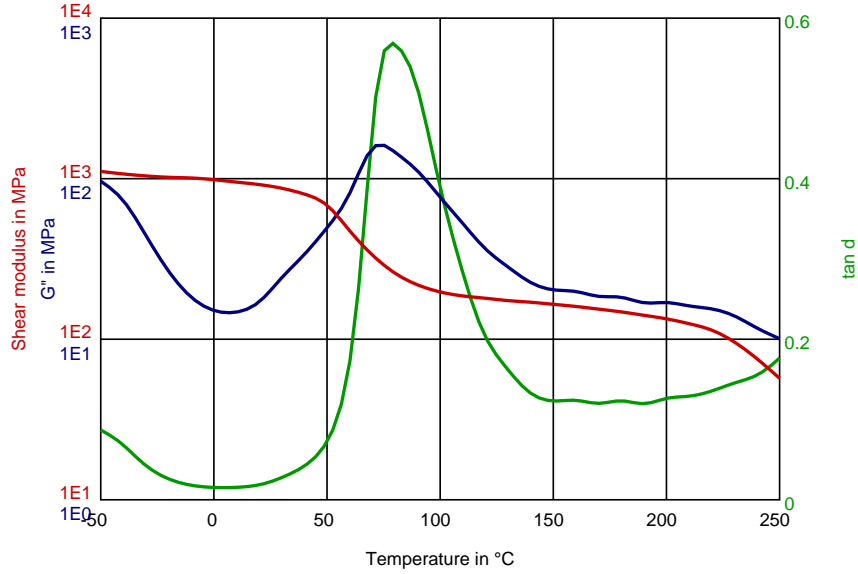
Shearstress-shear rate



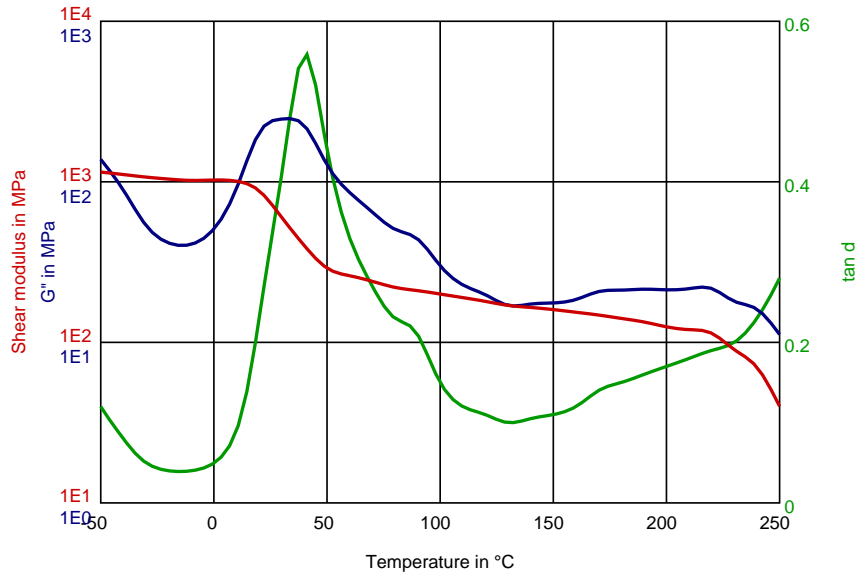
DuPont™ Zytel® 101L NC010

NYLON RESIN

Dynamic Shear modulus-temperature (dry)



Dynamic Shear modulus-temperature (cond.)



To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

Asia Pacific

Europe/Middle East/Africa

DONGGUAN FUMEI PLASTICS CO.,LTD.

TEL: +86 0769-82339888 / 87798999

EMAIL: fumei@foomx.com

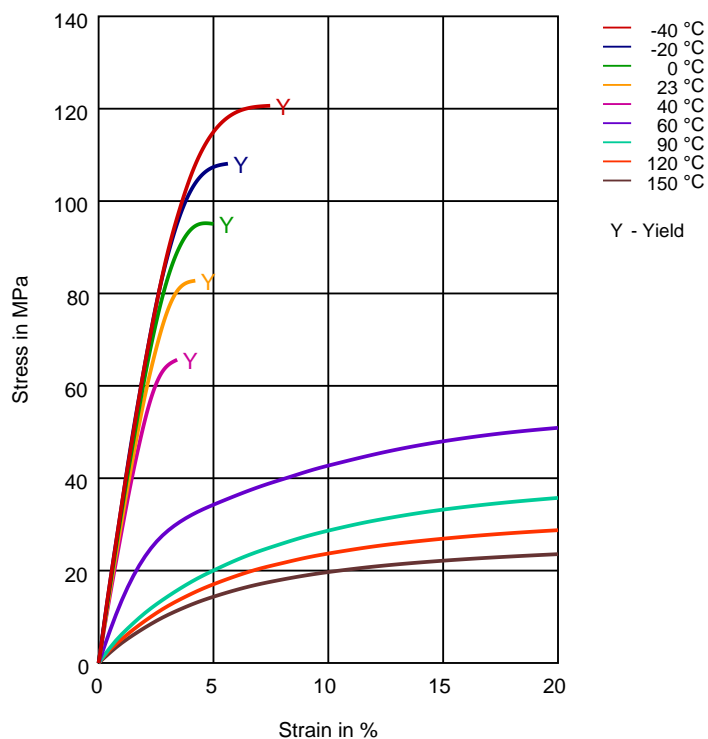
Copyright 2017 DuPont. The DuPont Oval Logo is a trademark or registered trademark of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.



DuPont™ Zytel® 101L NC010

NYLON RESIN

Stress-strain (dry)



Revised: 2018-03-27

Page: 6 of 18

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

Europe/Middle East/Africa

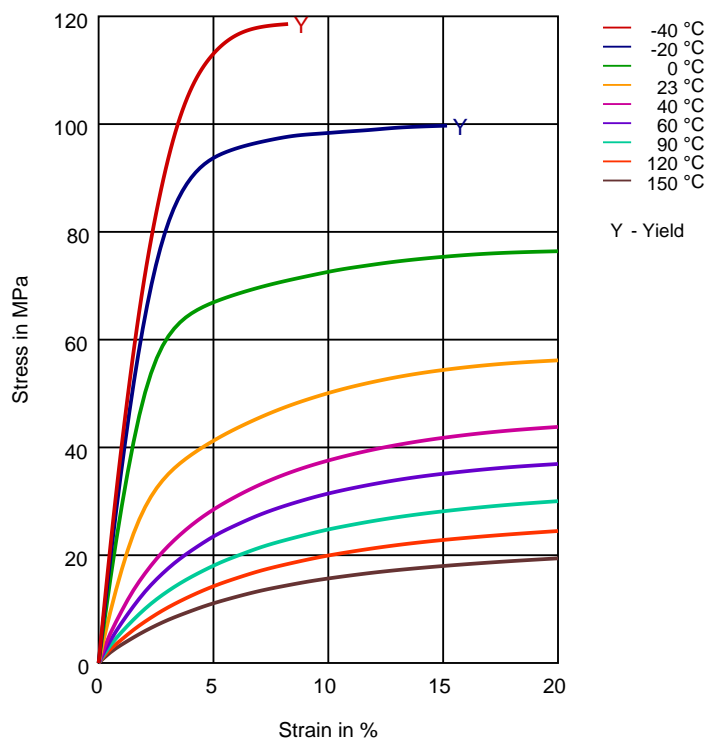
Copyright 2017 DuPont. The DuPont Oval Logo is a trademark or registered trademark of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.



DuPont™ Zytel® 101L NC010

NYLON RESIN

Stress-strain (cond.)



Revised: 2018-03-27

Page: 7 of 18

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

Europe/Middle East/Africa

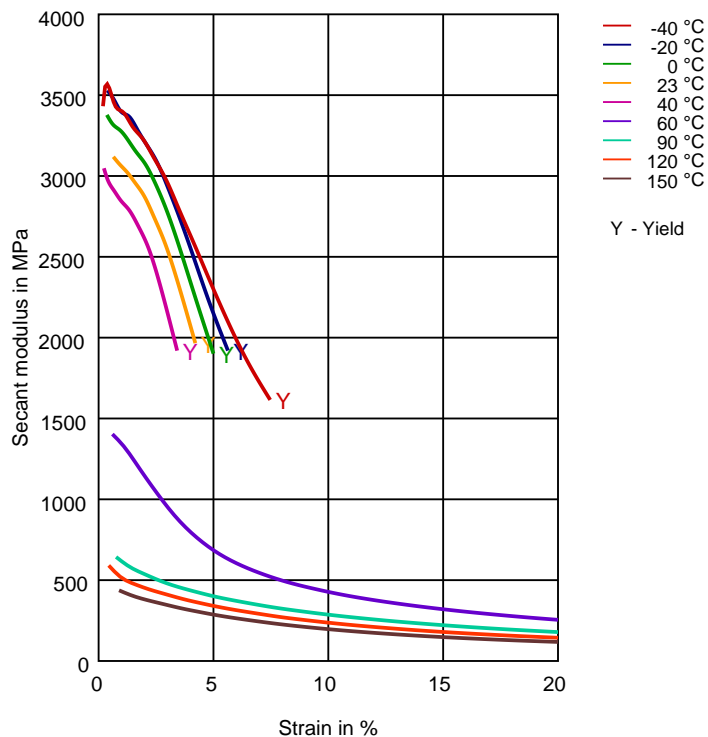
Copyright 2017 DuPont. The DuPont Oval Logo is a trademark or registered trademark of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.



DuPont™ Zytel® 101L NC010

NYLON RESIN

Secant modulus-strain (dry)



To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

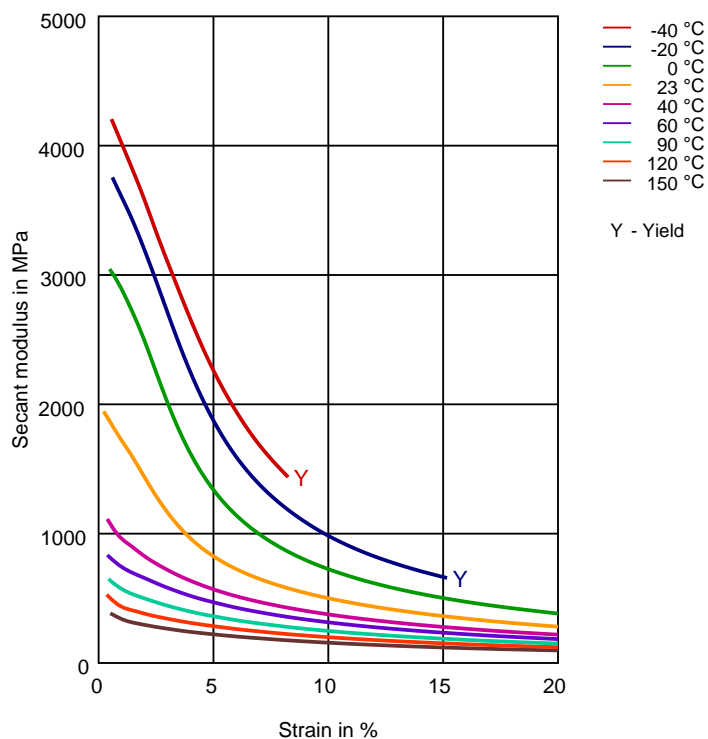
Europe/Middle East/Africa



DuPont™ Zytel® 101L NC010

NYLON RESIN

Secant modulus-strain (cond.)



To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

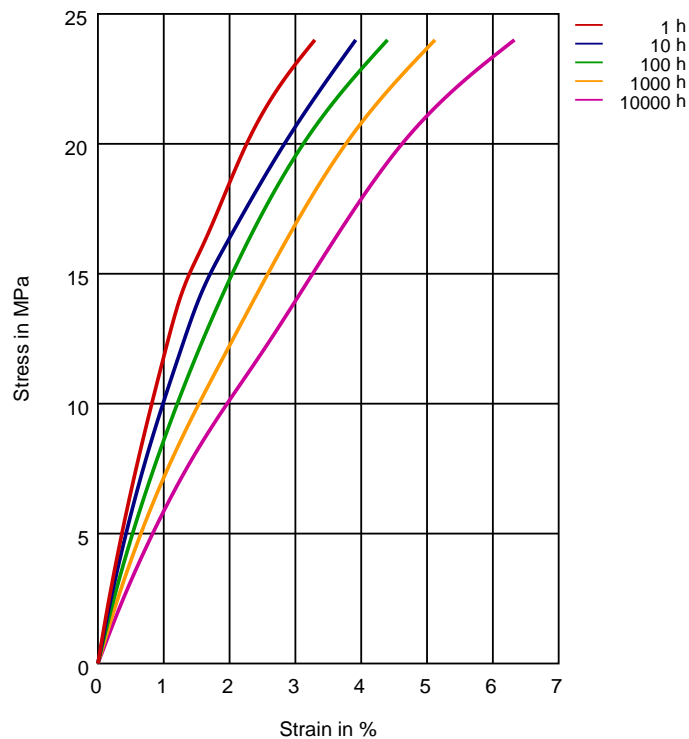
Europe/Middle East/Africa



DuPont™ Zytel® 101L NC010

NYLON RESIN

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



To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

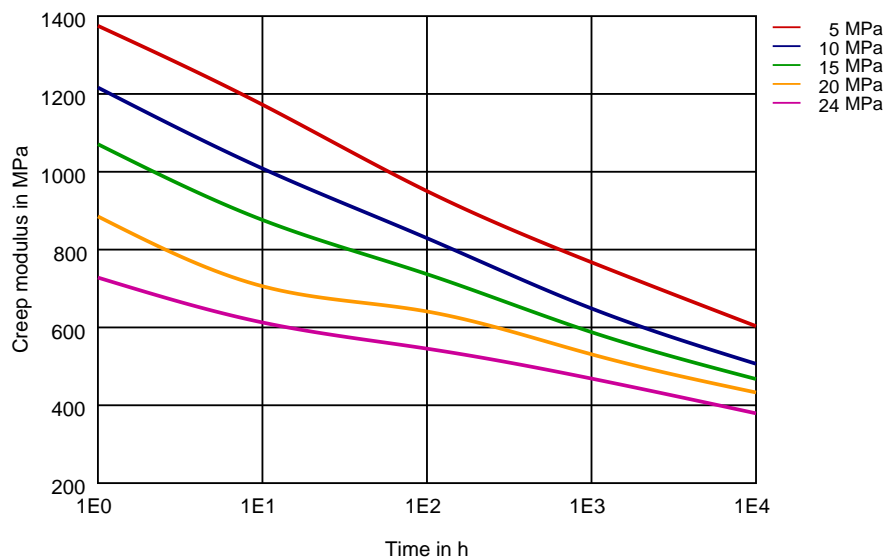
Europe/Middle East/Africa



DuPont™ Zytel® 101L NC010

NYLON RESIN

Creep modulus-time 23 °C (cond.)



To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

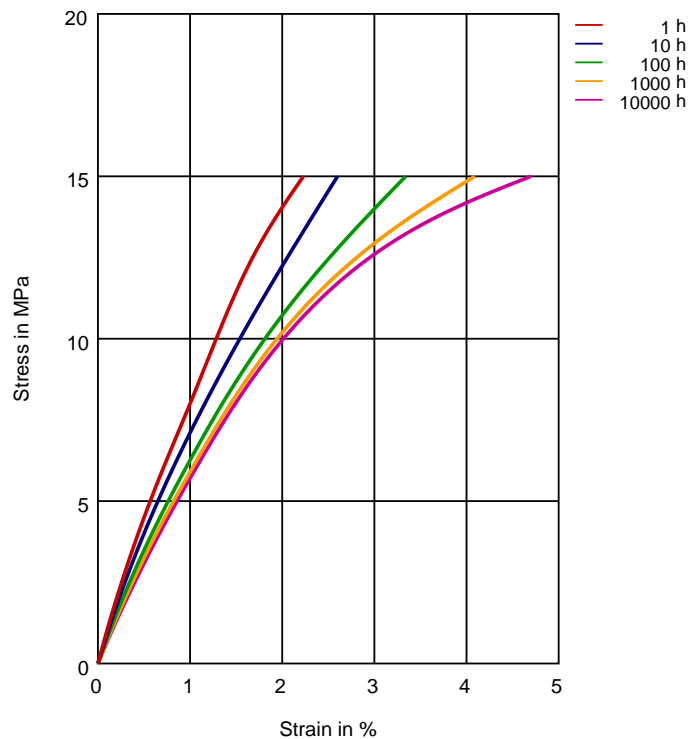
Europe/Middle East/Africa



DuPont™ Zytel® 101L NC010

NYLON RESIN

Stress-strain (isochronous) 60°C (cond.)



To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

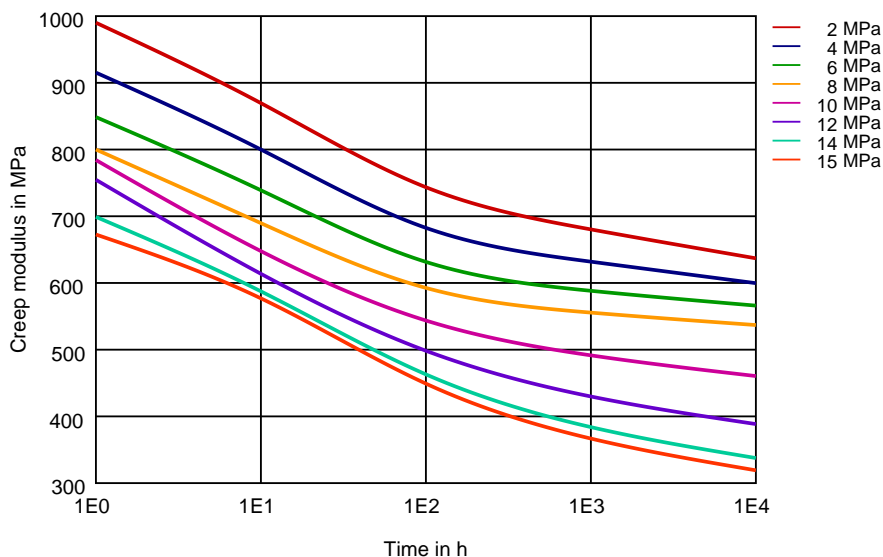
Europe/Middle East/Africa



DuPont™ Zytel® 101L NC010

NYLON RESIN

Creep modulus-time 60°C (cond.)



To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

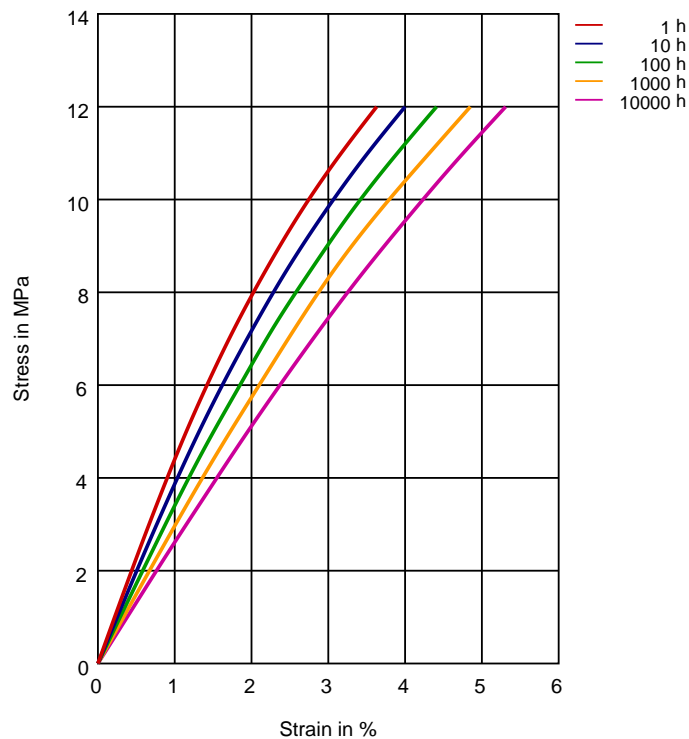
Europe/Middle East/Africa



DuPont™ Zytel® 101L NC010

NYLON RESIN

Stress-strain (isochronous) 90°C (cond.)



To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

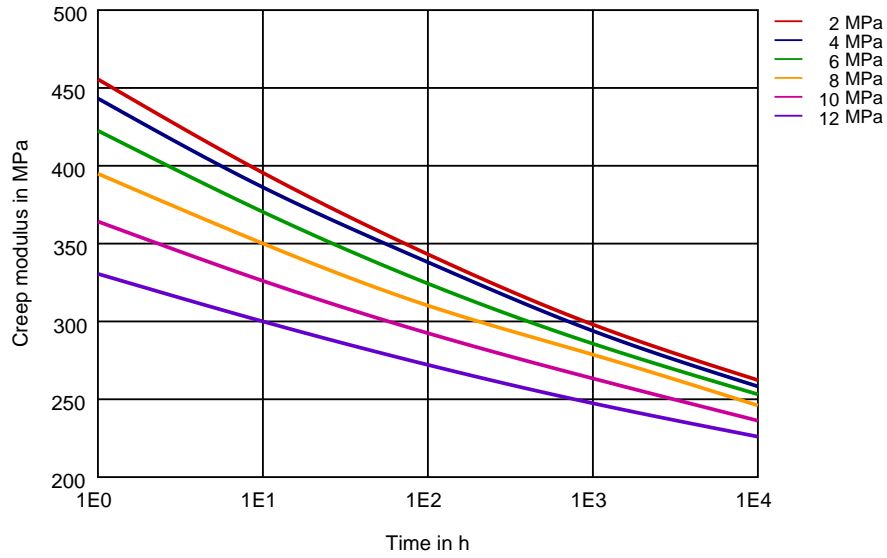
Europe/Middle East/Africa



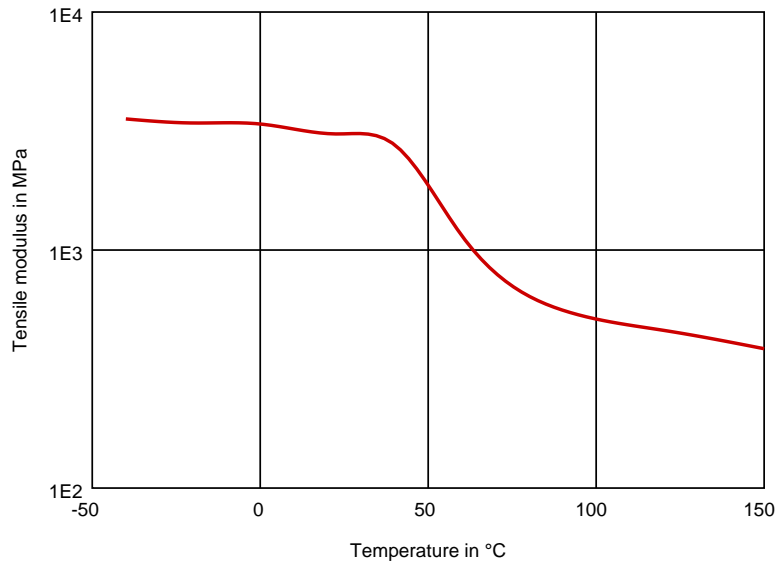
DuPont™ Zytel® 101L NC010

NYLON RESIN

Creep modulus-time 90 °C (cond.)



Tensile modulus-temperature (dry)



To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

Asia Pacific

Europe/Middle East/Africa

DONGGUAN FUMEI PLASTICS CO.,LTD.

TEL: +86 0769-82339888 / 87798999

EMAIL: fumei@foomx.com

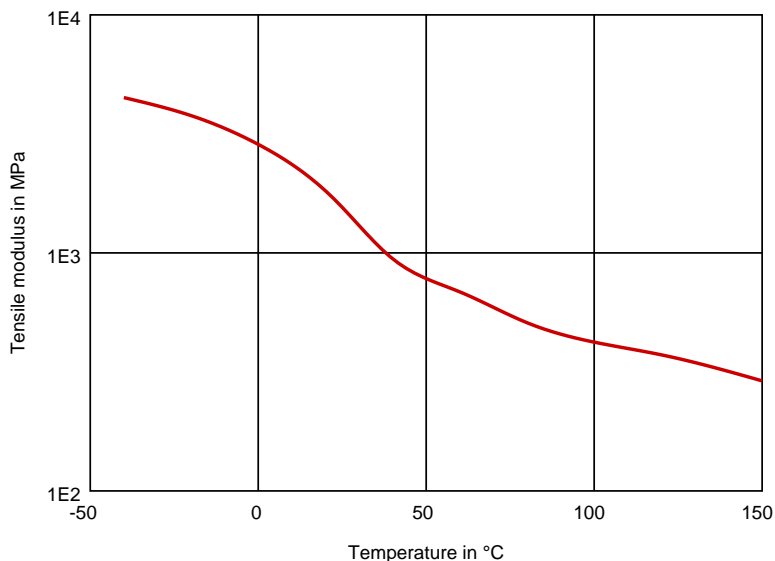
Copyright 2017 DuPont. The DuPont Oval Logo is a trademark or registered trademark of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.



DuPont™ Zytel® 101L NC010

NYLON RESIN

Tensile modulus-temperature (cond.)



To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

Europe/Middle East/Africa



DuPont™ Zytel® 101L NC010

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)
- ✗ Hydrochloric Acid (36% by mass) (23 °C)
- ✗ Nitric Acid (40% by mass) (23 °C)
- ✗ Sulfuric Acid (38% by mass) (23 °C)
- ✗ Sulfuric Acid (5% by mass) (23 °C)
- ✗ 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)
- ✗ 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)



DuPont™ Zytel® 101L NC010

NYLON RESIN

- ✓ 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)
- ✓ Sodium Carbonate solution (20% by mass) (23°C)
- ✓ Sodium Carbonate solution (2% by mass) (23°C)
- ✗ Zinc Chloride solution (50% by mass) (23°C)

Other

- ✓ Ethyl Acetate (23°C)
- ✗ 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).

✗ 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).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73°F unless otherwise stated.

The information set forth herein is furnished free of charge and is based on technical data that DuPont believes to be reliable and falls within the normal range of properties. It is intended for use by persons having technical skill, at their own discretion and risk. This data should not be used to establish specification limits nor used alone as the basis of design. Handling precaution information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Since conditions of product use and disposal are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. As with any product, evaluation under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate or a recommendation to infringe on patents. Caution: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, discuss with your DuPont customer representative and read Medical Caution H-50103-5.

Copyright © 2017 DuPont or its affiliates. All Rights Reserved. The DuPont Oval Logo, DuPont™, The miracles of science™ and all products denoted with ® or ™ are registered trademarks or trademarks of E.I. du Pont de Nemours and Company or its affiliates.

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

DONGGUAN FUMEI PLASTICS CO.,LTD.

EMAIL: fumei@foomx.com

Asia Pacific

TEL: +86 0769-82339888 / 87798999

Europe/Middle East/Africa

