

DuPont™ Zytel® 70G30L 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® 70G30L NC010 is a 30% glass fiber reinforced polyamide 66 resin for injection moulding.

General information	Value	Unit	Test Standard
Resin Identification	PA66-GF30	-	ISO 1043
Part Marking Code	>PA66-GF30<	-	ISO 11469
Rheological properties	dry / cond	Unit	Test Standard
Moulding shrinkage, parallel	0.3 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.1 / -	%	ISO 294-4, 2577
Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	9800 / 7200	MPa	ISO 527-1/-2
Stress at break	195 / 130	MPa	ISO 527-1/-2
Strain at break	3.5 / 5	%	ISO 527-1/-2
Charpy impact strength			ISO 179/1eU
23 °C	80 / 93	kJ/m ²	
-30 °C	60 / -	kJ/m ²	
Charpy notched impact strength			ISO 179/1eA
23 °C	13 / 15	kJ/m ²	
-30 °C	10 / 10	kJ/m ²	
Izod notched impact strength, 23 °C	12 / 14	kJ/m ²	ISO 180/1A
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 10 °C/min	262 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10 °C/min	80 / 20	°C	ISO 11357-1/-2
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	253 / *	°C	
0.45 MPa	260 / *	°C	
Coeff. of linear therm. expansion, parallel	28 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	95 / *	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.21	W/(m K)	-
Spec. heat capacity of melt	2290	J/(kg K)	-
Eff. thermal diffusivity	6.85E-8	m ² /s	-
RTI, electrical			UL 746B
0.75mm	130 / *	°C	
1.5mm	130 / *	°C	
3mm	130	°C	
RTI, impact			UL 746B
0.75mm	120	°C	
1.5mm	120 / *	°C	
3mm	120	°C	
RTI, strength			UL 746B
0.75mm	130	°C	
1.5mm	130 / *	°C	
3mm	130	°C	

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NYLON RESIN

Flammability			
Burning Behav. at 1.5mm nom. thickn.	dry / cond	Unit	Test Standard
Thickness tested	HB / *	class	IEC 60695-11-10
UL recognition	1.5 / *	mm	IEC 60695-11-10
Burning Behav. at thickness h	yes / *	-	UL 94
Thickness tested	HB / *	class	IEC 60695-11-10
UL recognition	0.71 / *	mm	IEC 60695-11-10
Oxygen index	yes / *	-	UL 94
FMVSS Class	24 / *	%	ISO 4589-1/-2
Burning rate, Thickness 1 mm	SE/B	-	ISO 3795 (FMVSS 302)
	24	mm/min	ISO 3795 (FMVSS 302)
Electrical properties			
Dissipation factor	dry / cond	Unit	Test Standard
100Hz			IEC 60250
1MHz	160 / -	E-4	
Volume resistivity	160 / -	E-4	
Surface resistivity	1E11 / -	Ohm*m	IEC 60093
Comparative tracking index	* / 1E12	Ohm	IEC 60093
Comparative tracking index			
3.0mm	600 / -	-	IEC 60112
	0 / -	PLC	UL 746A
Other properties			
Humidity absorption, 2mm	dry / cond	Unit	Test Standard
Water absorption, 2mm	2 / *	%	Sim. to ISO 62
Density	6.9 / *	%	Sim. to ISO 62
Density of melt	1370 / -	kg/m ³	ISO 1183
	1210	kg/m ³	-
VDA Properties			
Emission of organic compounds	dry / cond	Unit	Test Standard
Thermal desorption analysis of organic emissions	6	µgC/g	VDA 277
Odour	5	µg/g	VDA 278
Fogging, F-value (refraction)	4.5	class	VDA 270
Fogging, G-value (condensate)	95 / *	%	ISO 6452
	0.3 / *	mg	ISO 6452
Injection			
Drying Recommended	dry / cond	Unit	Test Standard
Drying Temperature	yes	-	-
Drying Time, Dehumidified Dryer	80	°C	-
Processing Moisture Content	2 - 4	h	-
Melt Temperature Optimum	≤0.2	%	-
Min. melt temperature	295	°C	-
Max. melt temperature	285	°C	-
Max. screw tangential speed	305	°C	-
Mold Temperature Optimum	0.2 / *	m/s	-
Min. mould temperature	100	°C	-
Max. mould temperature	70	°C	-
Hold pressure range	120	°C	-
Hold pressure time	50 - 100	MPa	-
	3	s/mm	-
Characteristics			
Processing	• Injection Moulding		
Delivery form	• Pellets		
Additives	• Lubricants		
Regional Availability	• Release agent		
	• North America		
	• Asia Pacific		
	• South and Central America		
	• Europe		
	• Near East/Africa		
	• Global		

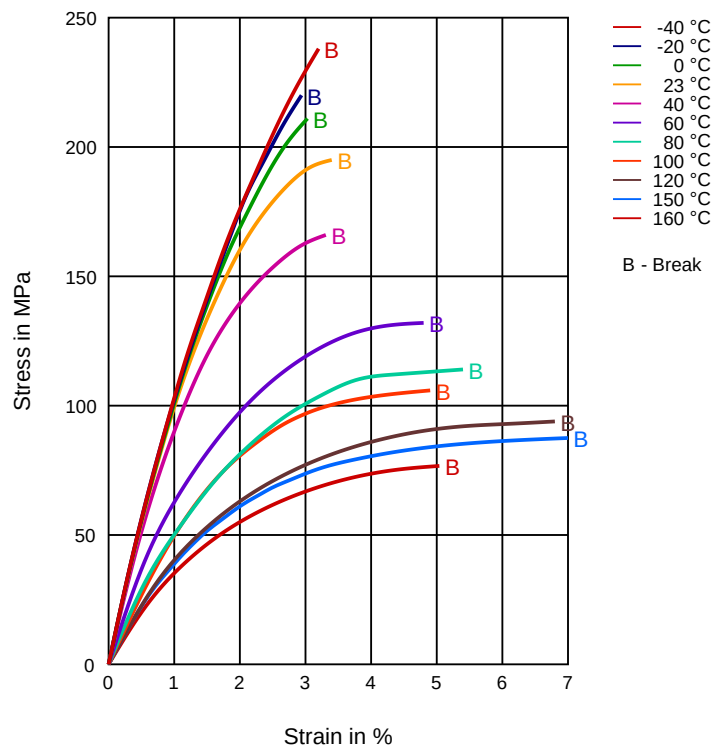


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Diagrams

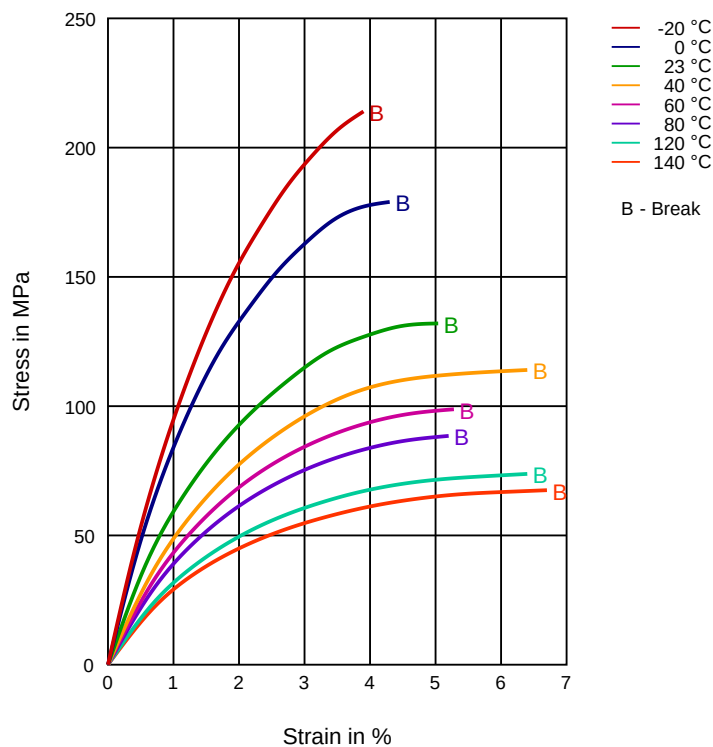
Stress-strain (dry)



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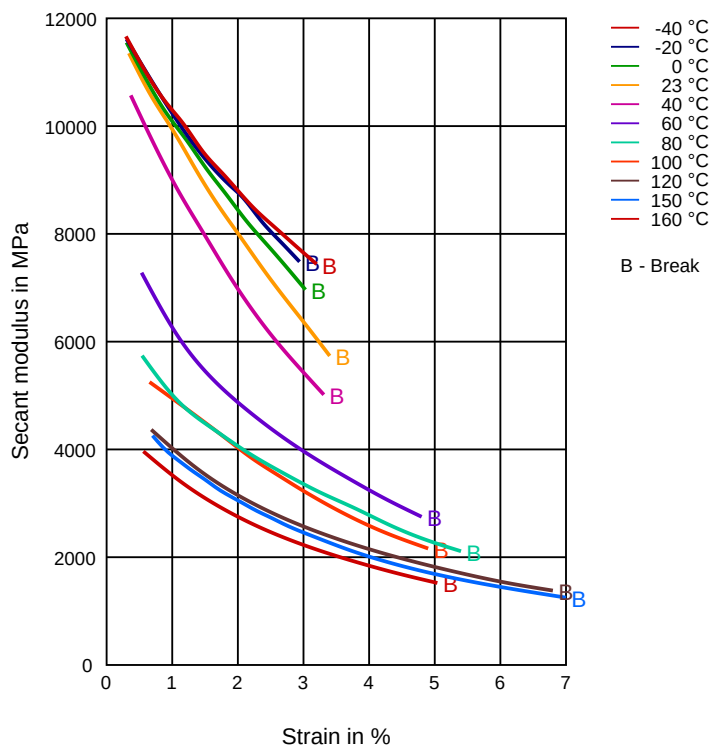
Stress-strain (cond.)



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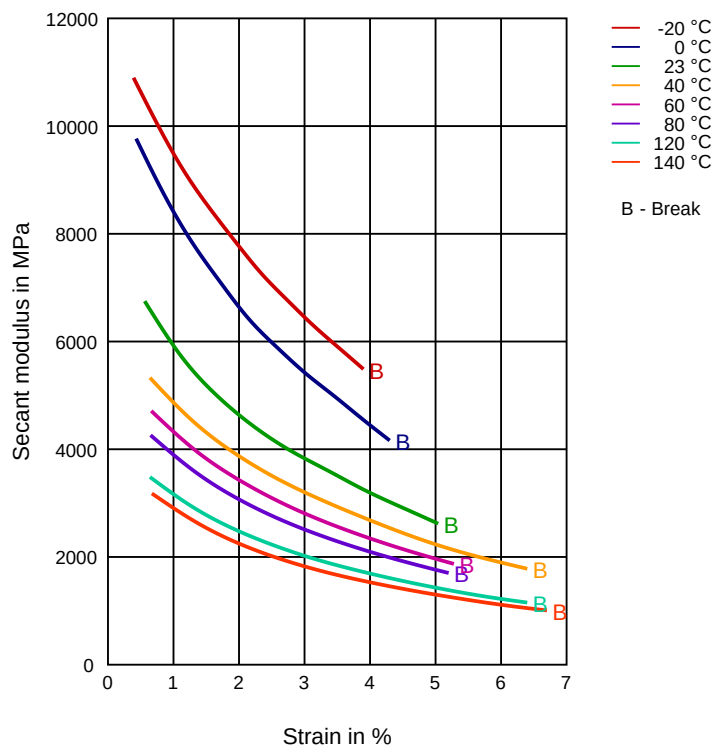
Secant modulus-strain (dry)



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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)
- ✗ 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)



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- ✓ 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)
- ✗ Coolant Glysantin G48, 1:1 in water (125°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 4mm (Hytrel® measured at 2 mm), IEC Electrical properties measured at 2mm, all ASTM properties measured at 3.2mm, and test temperatures are 23°C unless otherwise stated.

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