

# DuPont™ Zytel® 70G30HSL 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® 70G30HSL NC010 is a 30% glass reinforced, heat stabilised nylon 66 resin for injection moulding.**

General information	Value	Unit	Test Standard
Resin Identification	PA66-GF30	-	-
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	10000 / 7000	MPa	ISO 527-1/-2
Stress at break	200 / 130	MPa	ISO 527-1/-2
Strain at break	3.4 / 5	%	ISO 527-1/-2
Tensile creep modulus			ISO 899-1
1h	* / 6800	MPa	
1000h	* / 5100	MPa	
Charpy impact strength			ISO 179/1eU
23 °C	82 / 93	kJ/m <sup>2</sup>	
-30 °C	70 / 73	kJ/m <sup>2</sup>	
Charpy notched impact strength			ISO 179/1eA
23 °C	12 / 16	kJ/m <sup>2</sup>	
-30 °C	10 / 10	kJ/m <sup>2</sup>	
Izod notched impact strength			ISO 180/1A
23 °C	13 / 17	kJ/m <sup>2</sup>	
-30 °C	12 / 10	kJ/m <sup>2</sup>	
Hardness, Rockwell, M-scale	104 / 88	-	ISO 2039-2
Hardness, Rockwell, R-scale	124 / 117	-	ISO 2039-2
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 10 °C/min	263 / *	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
1.8 MPa	248 / *	°C	
0.45 MPa	261 / *	°C	
Coeff. of linear therm. expansion, parallel	22 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	107 / *	E-6/K	ISO 11359-1/-2
RTI, electrical			UL 746B
0.75 mm	140 / *	°C	
1.5mm	140 / *	°C	
3mm	140	°C	
RTI, impact			UL 746B
0.75 mm	125	°C	
1.5mm	125 / *	°C	
3mm	125	°C	

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RTI, strength		UL 746B	
0.75 mm	140	°C	
1.5mm	140 / *	°C	
3mm	140	°C	
Flammability		dry / cond	Unit
Burning Behav. at 1.5mm nom. thickn.	HB / *		class
Thickness tested	1.5 / *		mm
UL recognition	UL / *		-
Burning Behav. at thickness h	HB / *		class
Thickness tested	0.75 / *		mm
UL recognition	UL / *		-
Flammability, 3.0mm	HB / *		-
Burning rate, Thickness 1 mm	13		mm/min
Electrical properties		dry / cond	Unit
Relative permittivity			IEC 60250
100Hz	4.4 / 10.8		-
1MHz	4.1 / 4.6		-
Dissipation factor			IEC 60250
100Hz	70 / 4600		E-4
1MHz	150 / 650		E-4
Volume resistivity	>1E13 / 1E9		Ohm*m
Surface resistivity	* / 1E13		Ohm
Electric strength	38 / 32		kV/mm
Comparative tracking index	400 / -		-
Surface Resistivity	1E15 / -		Ohm
Other properties		dry / cond	Unit
Humidity absorption, 2mm	1.9 / *		%
Water absorption, 2mm	6 / *		%
Density	1370 / -		kg/m <sup>3</sup>
Characteristics			
Processing	• Injection Moulding		
Special characteristics	• Heat stabilised or stable to heat		
Regional Availability	• Europe	• Near East/Africa	

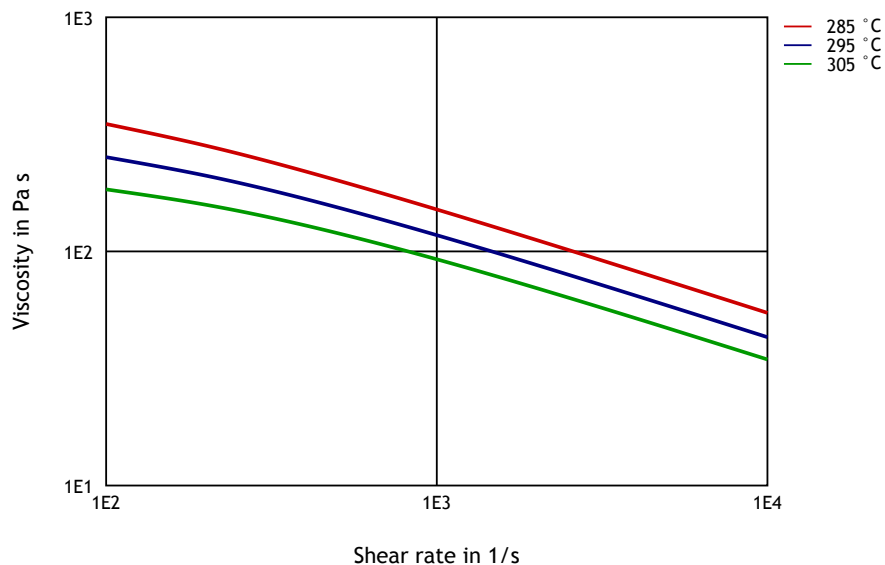


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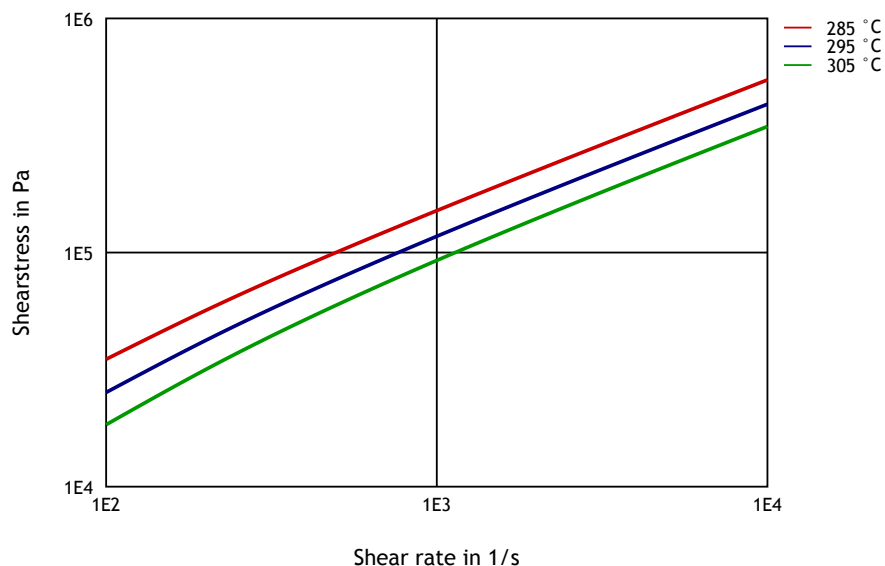
## NYLON RESIN

### Diagrams

#### Viscosity-shear rate



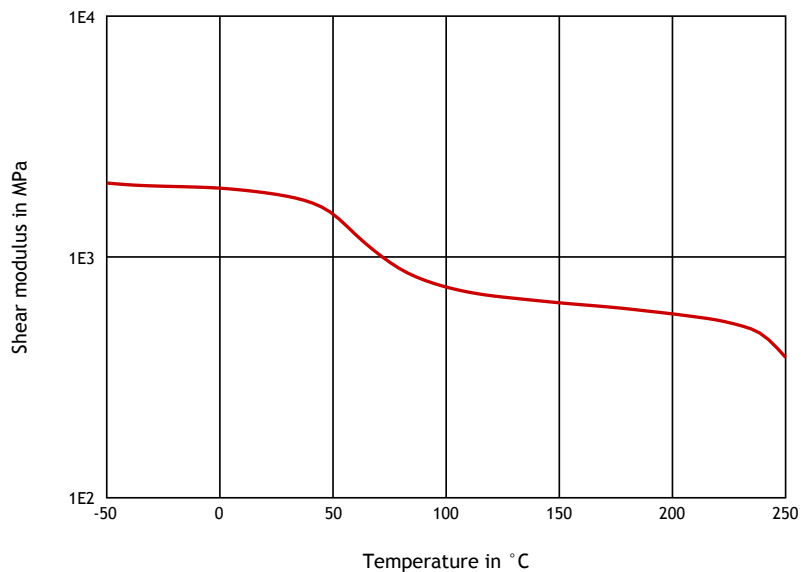
#### Shearstress-shear rate



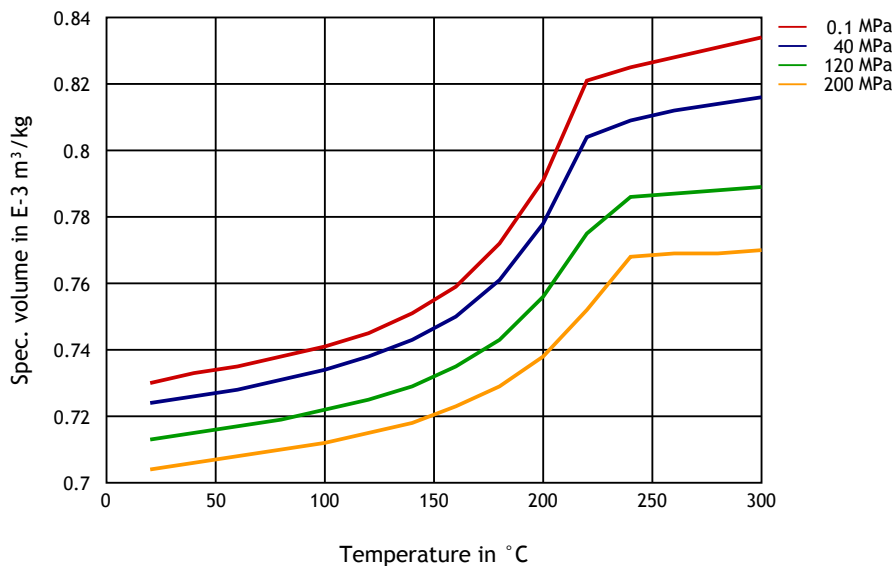
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### Dynamic Shear modulus-temperature (dry)



### Specific volume-temperature (pvT)



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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 4.0mm (Hytrel® measured at 2 mm), IEC Electrical properties measured at 2.0mm, all ASTM properties measured at 3.2mm, and test temperatures are 23°C unless otherwise stated.

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