

# DuPont™ Zytel® FR95G25V0NH 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® FR95G25V0NH NC010 is a 25% glass fiber reinforced, flame retardant polyamide resin for injection molding. It is halogen and red phosphorous free, has high flow characteristics and .**

General information	Value	Unit	Test Standard
Resin Identification	PA-GF25FR(40)	-	ISO 1043
Part Marking Code	PA-GF25FR(40)	-	ISO 11469
Rheological properties	dry / cond	Unit	Test Standard
Molding shrinkage, parallel	0.1 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	0.6 / -	%	ISO 294-4, 2577
Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	8900 / 8700	MPa	ISO 527-1/-2
Stress at break	110 / 90	MPa	ISO 527-1/-2
Strain at break	2.2 / 2.2	%	ISO 527-1/-2
Flexural Modulus	9000 / 9000	MPa	ISO 178
Flexural Strength	185 / 165	MPa	ISO 178
Charpy impact strength, 73°F	35 / 31	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength			ISO 179/1eA
73°F	4.6 / -	kJ/m <sup>2</sup>	
-22°F	4.5 / -	kJ/m <sup>2</sup>	
-40°F	4.5 / -	kJ/m <sup>2</sup>	
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 18°F/min	267 / *	°C	ISO 11357-1/-3
Temp. of deflection under load, 260 psi	233 / *	°C	ISO 75-1/-2
RTI, electrical			UL 746B
15mil	160	°C	
30mil	160 / *	°C	
60mil	160 / *	°C	
120mil	160	°C	
RTI, impact			UL 746B
30mil	155	°C	
60mil	155 / *	°C	
120mil	155	°C	
RTI, strength			UL 746B
30mil	155	°C	
60mil	155 / *	°C	
120mil	155	°C	
Temperature index, tensile strength, 20 000h	160 / *	°C	IEC 60216-1
Temperature index, tensile strength, 5000h	190 / *	°C	IEC 60216-1
Flammability	dry / cond	Unit	Test Standard
Burning Behav. at 60mil nom. thickn.	V-0 / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
UL recognition	yes / *	-	UL 94

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Burning Behav. at thickness h	V-0 / *	class	IEC 60695-11-10
Thickness tested	0.75 / *	mm	IEC 60695-11-10
UL recognition	yes / *	-	UL 94
Burning Behav. 5V at thickness h	5VA / *	class	IEC 60695-11-20
Thickness tested	1.5 / *	mm	IEC 60695-11-20
UL recognition	yes / *	-	UL 94
Oxygen index	32 / *	%	ISO 4589-1/-2
Glow Wire Flammability Index			IEC 60695-2-12
40mil	960 / -	°C	
80mil	960 / -	°C	
120mil	960 / -	°C	
Glow Wire Ignition Temperature, 40mil	725 / -	°C	IEC 60695-2-13
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<100	mm/min	ISO 3795 (FMVSS 302)
<b>Electrical properties</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Volume resistivity	>1E13 / 8E11	Ohm*m	IEC 62631-3-1
Surface resistivity	* / >1E15	Ohm	IEC 62631-3-2
Electric strength	37 / 37	kV/mm	IEC 60243-1
Comparative tracking index	600 / -	-	IEC 60112
<b>Other properties</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Humidity absorption, 80mil	1.2 <sup>[1]</sup> / *	%	Sim. to ISO 62
Water absorption, 80mil	4 / *	%	Sim. to ISO 62
Density	1400 / -	kg/m <sup>3</sup>	ISO 1183
1: 4mm wall thickness			
<b>Injection</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Drying Recommended	yes	-	-
Drying Temperature	≥80	°C	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.1 <sup>[2]</sup>	%	-
Melt Temperature Optimum	280	°C	-
Min. melt temperature	270	°C	-
Max. melt temperature	290	°C	-
Max. screw tangential speed	0.2 / *	m/s	-
Mold Temperature Optimum	100	°C	-
Min. mold temperature	80	°C	-
Max. mold temperature	120	°C	-
Hold pressure range	50 - 100	MPa	-
Hold pressure time	2.5	s/mm	-
Ejection temperature	210	°C	-

2: flame retardant grade below 0.1%

### Characteristics

Processing	<ul style="list-style-type: none"> <li>• Injection Molding</li> </ul>	<ul style="list-style-type: none"> <li>• Other Extrusion</li> </ul>	
Regional Availability	<ul style="list-style-type: none"> <li>• North America</li> <li>• Europe</li> </ul>	<ul style="list-style-type: none"> <li>• Asia Pacific</li> <li>• South and Central America</li> </ul>	<ul style="list-style-type: none"> <li>• Near East/Africa</li> <li>• Global</li> </ul>

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#### North America

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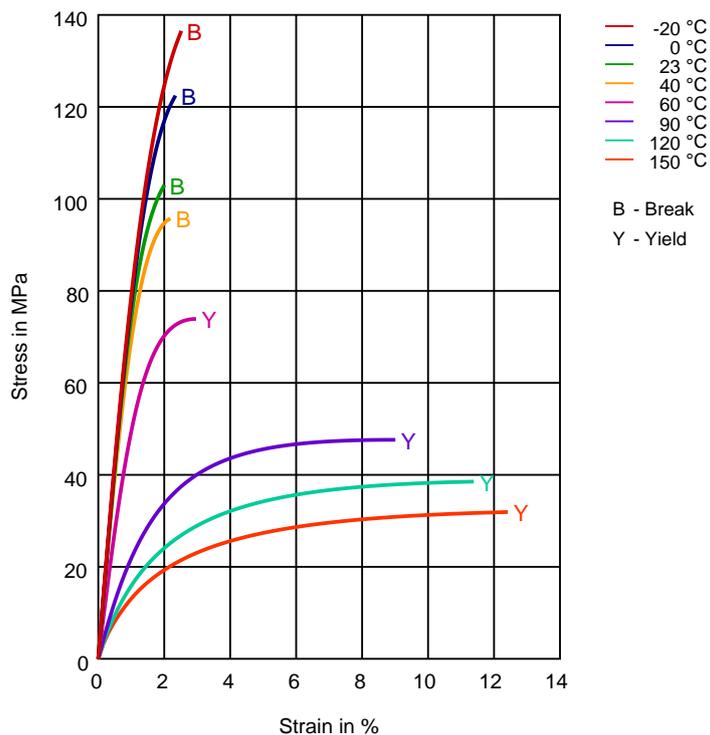


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## NYLON RESIN

Diagrams

Stress-strain (dry)



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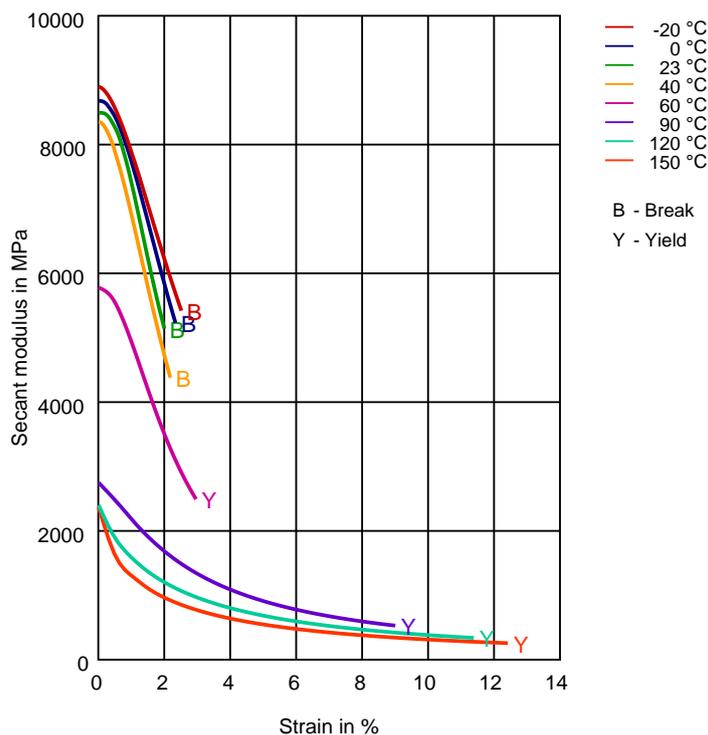
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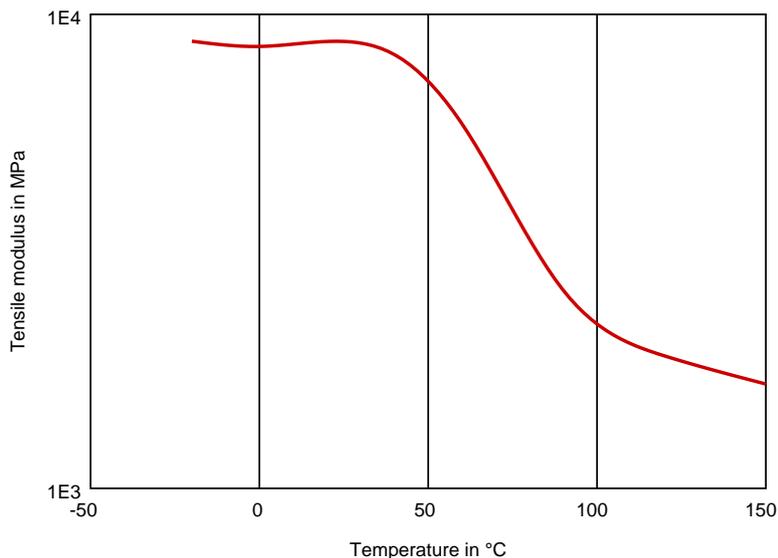
Secant modulus-strain (dry)



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Tensile modulus-temperature (dry)



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### Chemical Media Resistance

#### Mineral oils

- ✓ SAE 10W40 multigrade motor oil (130°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

- ✗ Zinc Chloride solution (50% by mass) (23°C)

#### Other

- ✓ Water (23°C)
- ✗ Water (90°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 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.

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