

# DuPont™ Zytel® FG101 NC010

## NYLON RESIN

### Product Information

Zytel® FG101 NC010 is a general purpose polyamide 66 resin for injection molding and extrusion. It has been developed for consideration into applications such as parts for the food industry.

### FOOD CONTACT

This product is manufactured according to Good Manufacturing Practice (GMP) principles and generally accepted in food contact applications in Europe and the USA when meeting applicable use conditions. For details, individual compliance statements are available from your DuPont representative.

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 <sup>(1)</sup> / *	cm <sup>3</sup> /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	4.5 / -	%	ISO 527-1/-2
Flexural Modulus	2800 / 1200	MPa	ISO 178
Tensile creep modulus			ISO 899-1
1h	* / 1200	MPa	
1000h	* / 700	MPa	
Charpy impact strength			ISO 179/1eU
73°F	N / N	kJ/m <sup>2</sup>	
-22°F	400 / N	kJ/m <sup>2</sup>	
Charpy notched impact strength			ISO 179/1eA
73°F	5.5 / 15	kJ/m <sup>2</sup>	
-22°F	4.5 / 3	kJ/m <sup>2</sup>	
Izod notched impact strength			ISO 180/1A
73°F	5.5 / 12	kJ/m <sup>2</sup>	
-22°F	5.5 / -	kJ/m <sup>2</sup>	
-40°F	5.5 / -	kJ/m <sup>2</sup>	
Izod impact strength			ISO 180/1U
73°F	N / N	kJ/m <sup>2</sup>	
-22°F	300 / -	kJ/m <sup>2</sup>	
Ball indentation hardness, H 358/30	180 / 85	MPa	ISO 2039-1
Ball indentation hardness, H 961/30	160 / *	MPa	ISO 2039-1
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
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
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 <sup>2</sup> /s	-

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

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RTI, electrical, 30mil	130 / *	°C	UL 746B
RTI, impact, 30mil	75	°C	UL 746B
RTI, strength, 30mil	85	°C	UL 746B
<b>Flammability</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Burning Behav. at 60mil nom. thickn.	V-2 / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
Burning Behav. at thickness h	V-2 / *	class	IEC 60695-11-10
Thickness tested	0.71 / *	mm	IEC 60695-11-10
Oxygen index	28 / *	%	ISO 4589-1/-2
FMVSS Class	DNI	-	ISO 3795 (FMVSS 302)
<b>Electrical properties</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Relative permittivity			IEC 60250
100Hz	3.8 / 6	-	
1MHz	3.5 / 4	-	
Dissipation factor			IEC 60250
100Hz	80 / 2100	E-4	
1MHz	180 / 750	E-4	
Volume resistivity	1E13 / 1E11	Ohm*m	IEC 60093
Surface resistivity	* / 1E12	Ohm	IEC 60093
Electric strength	32 / 28	kV/mm	IEC 60243-1
<b>Other properties</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Humidity absorption, 80mil	2.6 / *	%	Sim. to ISO 62
Water absorption, 80mil	8.5 / *	%	Sim. to ISO 62
Density	1140 / -	kg/m <sup>3</sup>	ISO 1183
Density of melt	980	kg/m <sup>3</sup>	-
<b>VDA Properties</b>	<b>dry / cond</b>	<b>Unit</b>	<b>Test Standard</b>
Emission of organic compounds	5	µgC/g	VDA 277
Odor test	3	class	VDA 270
Fogging, F-value (refraction)	99 / *	%	ISO 6452
Fogging, G-value (condensate)	0.1 / *	mg	ISO 6452
<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	≤0.2	%	-
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	-
<b>Extrusion</b>	<b>Value</b>	<b>Unit</b>	<b>Test Standard</b>
Drying Temperature	≤80	°C	-
Drying Time, Dehumidified Dryer	4 - 6	h	-
Melt Temperature Optimum	285	°C	-
Melt Temperature Range	275 - 290	°C	-

### Characteristics

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

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Processing Texts

Injection molding  
POSTPROCESSING

Annealing: 30min at 200°C

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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)

#### 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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