

# DuPont™ Zytel® FG53 NC010

## NYLON RESIN

### Product Information

Zytel® FG50 is an unreinforced, very high viscosity polyamide 66 for 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	360 <sup>(1)</sup> / *	cm <sup>3</sup> /g	ISO 307, 1157, 1628
Molding shrinkage, parallel	1.6 / -	%	ISO 294-4, 2577
1: Sulfuric acid 96%			
Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	3000 / 1200	MPa	ISO 527-1/-2
Yield stress	84 / 55	MPa	ISO 527-1/-2
Yield strain	4.4 / 30	%	ISO 527-1/-2
Nominal strain at break	>50 / >50	%	ISO 527-1/-2
Charpy impact strength, 73°F	N / -	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy notched impact strength			ISO 179/1eA
73°F	7 / 40	kJ/m <sup>2</sup>	
-22°F	6 / 4	kJ/m <sup>2</sup>	
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 18°F/min	263 / *	°C	ISO 11357-1/-3
Temp. of deflection under load			ISO 75-1/-2
260 psi	74 / *	°C	
65 psi	205 / *	°C	
Coeff. of linear therm. expansion, parallel	100 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	100 / *	E-6/K	ISO 11359-1/-2
Flammability	Value	Unit	Test Standard
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<100	mm/min	ISO 3795 (FMVSS 302)
Electrical properties	dry / cond	Unit	Test Standard
Relative permittivity, 100Hz	3.9 / -	-	IEC 62631-2-1
Volume resistivity	1E11 / -	Ohm*m	IEC 62631-3-1
Other properties	dry / cond	Unit	Test Standard
Humidity absorption, 80mil	2.7 / *	%	Sim. to ISO 62
Water absorption, 80mil	8.5 / *	%	Sim. to ISO 62
Density	1140 / -	kg/m <sup>3</sup>	ISO 1183
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	-

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

North America

Asia Pacific

Europe/Middle East/Africa

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Hold pressure range	50 - 100	MPa	-
Hold pressure time	4	s/mm	-
Ejection temperature	190	°C	-

### Characteristics

Processing	<ul style="list-style-type: none"><li>• Injection Molding</li><li>• Film Extrusion</li><li>• Profile Extrusion</li></ul>	<ul style="list-style-type: none"><li>• Sheet Extrusion</li><li>• Other Extrusion</li><li>• Coating</li></ul>	<ul style="list-style-type: none"><li>• Casting</li></ul>
Delivery form	<ul style="list-style-type: none"><li>• Pellets</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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### 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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