

Zytel® FG53 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 our representative

Product information

Resin Identification Part Marking Code ISO designation	IdentificationPA66Marking Code>PA66<lesignationISO 16396-PA66,,M1G1N,S34-030		ISO 1043 ISO 11469
Rheological properties	dry/cond.		
Viscosity number	360 ^[1] /*	cm ³ /a	ISO 307, 1157, 1628
Moulding shrinkage, parallel	1.6/-	%	ISO 294-4, 2577
[1]: Sulfuric acid 96%			
Typical mechanical properties	dry/cond.		
Tensile Modulus	3000/1200	MPa	ISO 527-1/-2
Yield stress, 50mm/min	84/55	MPa	ISO 527-1/-2
Yield strain, 50mm/min	4.4/30	%	ISO 527-1/-2
Nominal strain at break	>50/>50	%	ISO 527-1/-2
Charpy impact strength, 23°C	N/-	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	7/40	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	6/4	kJ/m²	ISO 179/1eA
Poisson's ratio	0.37/0.44		
Thermal properties	dry/cond.		
Melting temperature, 10°C/min	263/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	70/20	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	74/*	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	200/*	°C	ISO 75-1/-2
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			
FMVSS Class	В		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80 mm/min		ISO 3795 (FMVSS 302)
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Electrical properties	dry/cond.		
Relative permittivity, 100Hz	3.9/-		IEC 62631-2-1
Volume resistivity	1E11/-	Ohm.m	IEC 62631-3-1
Other properties	dry/cond.		
Humidity absorption, 2mm	2.7/*	%	Sim. to ISO 62
Water absorption, 2mm	8.5/*	%	Sim. to ISO 62
Density	1140/-	kg/m³	ISO 1183
Injection			
Drying Recommended	yes		
Drying Temperature	80	°C	
Drying Time, Dehumidified Dryer	2 - 4	h	
Processing Moisture Content	≤0.2	%	
Melt Temperature Optimum	290	°C	Internal
Min. melt temperature	280	°C	
Max. melt temperature	300	°C	
Screw tangential speed	≤0.4	m/s	
Mold Temperature Optimum	70	°C	
Min. mould temperature	50	°C	
Max. mould temperature	90	°C	
Hold pressure range	50 - 100	MPa	
Hold pressure time	4	s/mm	
Ejection temperature	190	°C	Internal
Extrusion			
Drying Temperature	80	°C	
Drying Time, Dehumidified Dryer	4 - 6	h	
Processing Moisture Content	≤0.06	%	
Melt Temperature Range	275 - 290	°C	
Chomical Modia Resistance			

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
- X Nitric Acid (40% by mass), 23°C
- X Sulfuric Acid (38% by mass), 23°C
- X Sulfuric Acid (5% by mass), 23°C
- ✗ Chromic Acid solution (40% by mass), 23°C

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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
- X 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
- ✓ 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
- X Sodium Hypochlorite solution (10% by mass), 23°C
- ✓ Sodium Carbonate solution (20% by mass), 23°C
- ✓ Sodium Carbonate solution (2% by mass), 23°C
- X 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

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- 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).







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