Celanese
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Zytel® FG50 NC010

NYLON RESIN

Zytel® FG50 is an unreinforced, high viscosity polyamide 66 for injection molding and extrusion. It has improved break resistance for thick-walled parts. 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	PA66	ISO 1043
Part Marking Code	>PA66<	ISO 11469
ISO designation	ISO 16396-PA66,,M1G1N,S32-030	

Rheological properties

	dry/cond.		
Viscosity number	320[1]/*	cm^3/g	ISO 307, 1628
Moulding shrinkage, parallel	1.5 / -	%	ISO 294-4, 2577

[1]: Sulfuric acid 96%

Typical mechanical properties

	dry/cond.		
Tensile modulus	3000 / 1200	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	82 / 54	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4.5 / 28	%	ISO 527-1/-2
Nominal strain at break	>50 / >50	%	ISO 527-1/-2
Charpy impact strength, 23°C	N / N	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	N / N	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	7 / 29	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	6 / 4	kJ/m^2	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
Temperature of deflection under load, 1.8 MPa	74 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	205 / *	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	245 / *	°C	ISO 306
Coefficient of linear thermal expansion (CLTE), parallel	100 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	100 / *	E-6/K	ISO 11359-1/-2

Flammability

FMVSS Class	DNI	ISO 3795 (FMVSS 302)

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Physical/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
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

Extrusion

Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	4 - 6	h
Processing Moisture Content	≤0.06	%
Melt Temperature Range	275 - 290	°C

Characteristics

Processing	Injection Moulding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion, Coatable, Casting
Delivery form	Pellets

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

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- ✔ 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
- ✔ 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

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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).