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Zytel® FG101L NC010

NYLON RESIN

Zytel® FG101L NC010 is a lubricated polyamide 66 resin for injection molding. 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 | | | |
| Rheological properties | dry/cond. | | | |
| Viscosity number | 150 ^[1] /* | cm³/g | ISO 307, 1628 | |
| Moulding shrinkage, parallel | 1.4/- | % | ISO 294-4, 2577 | |
| Moulding shrinkage, normal | 1.4/- | % | ISO 294-4, 2577 | |
| [1]: Sulfuric acid 96% | | | | |
| Typical mechanical properties | dry/cond. | | | |
| Tensile modulus | 3100/1400 | MPa | ISO 527-1/-2 | |
| Tensile stress at yield, 50mm/min | 82/55 | MPa | ISO 527-1/-2 | |
| Tensile strain at yield, 50mm/min | 4.5/25 | % | ISO 527-1/-2 | |
| Nominal strain at break | 25/>50 | % | ISO 527-1/-2 | |
| Tensile strain at break, 50mm/min | 45/- | % | ISO 527-1/-2 | |
| Flexural modulus | 2800/1200 | MPa | ISO 178 | |
| Tensile creep modulus, 1h | */1400 | MPa | ISO 899-1 | |
| Tensile creep modulus, 1000h | */820 | MPa | ISO 899-1 | |
| Charpy impact strength, 23°C | N/N | kJ/m² | ISO 179/1eU | |
| Charpy impact strength, -30°C | 400/N | kJ/m² | ISO 179/1eU | |
| Charpy notched impact strength, 23°C | 5.5/15 | kJ/m² | ISO 179/1eA | |
| Charpy notched impact strength, -30°C | 4.5/3 | kJ/m² | ISO 179/1eA | |
| Hardness, Rockwell, M-scale | 79/59 | | ISO 2039-2 | |
| Hardness, Rockwell, R-scale | 121/108 | | ISO 2039-2 | |
| Poisson's ratio | 0.37/0.43 | | | |
| Thermal properties | dry/cond. | | | |
| Melting temperature, 10°C/min | 262/* | °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 | 70/* | °C | ISO 75-1/-2 | |
| Temperature of deflection under load, 0.45 MPa | 190/* | °C | ISO 75-1/-2 | |
| Vicat softening temperature, 50°C/h 50N | 240/* | °C | ISO 306 | |
| Coefficient of linear thermal expansion | 100/* | E-6/K | ISO 11359-1/-2 | |
| (CLTE), parallel | | | | |
| Coefficient of linear thermal expansion (CLTE), | 110/* | E-6/K | ISO 11359-1/-2 | |
| normal | | | | |
| Thermal conductivity of melt | 0.16 | W/(m K) | ISO 22007-2 | |

Printed: 2025-05-29 Page: 1 of 5





Zytel® FG101L NC010

NYLON RESIN

| Effective thermal diffusivity, flow Specific heat capacity of melt RTI, electrical, 0.75mm RTI, electrical, 1.5mm RTI, electrical, 3.0mm RTI, impact, 0.75mm RTI, impact, 1.5mm RTI, impact, 3.0mm RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3.0mm | 5E-8 2790 130 130 130 75 75 75 85 85 | m ² /s J/(kg K) °C °C °C °C °C °C °C | ISO 22007-4 ISO 22007-4 UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B |
|--|--|---|---|
| Flammability | dry/cond. | | |
| Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested UL recognition Oxygen index FMVSS Class [2]: UL yellow card (f1) | V-2/* 1.5/* yes/* V-2/* 0.71/* yes ^[2] /* 28/* DNI | class mm class mm | IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94 ISO 4589-1/-2 ISO 3795 (FMVSS 302) |
| | | | |
| Electrical properties Relative permittivity, 100Hz Relative permittivity, 1MHz Dissipation factor, 100Hz Dissipation factor, 1MHz Volume resistivity Surface resistivity Electric strength Comparative tracking index | dry/cond. 3.8/6 3.5/4 80/2100 180/750 1E12/1E10 */1E12 32/28 600/- | E-4 E-4 Ohm.m Ohm kV/mm | IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-3-1 IEC 62631-3-2 IEC 60243-1 IEC 60112 |
| Physical/Other properties | dry/cond. | | |
| Humidity absorption, 2mm Water absorption, 2mm Density Density of melt | 2.6/* 8.5/* 1140/- 970 | % % kg/m³ kg/m³ | Sim. to ISO 62 Sim. to ISO 62 ISO 1183 |
| Film Properties | dry/cond. | | |
| Strain at yield, parallel | 4.5/* | % | ISO 527-3 |
| VDA Properties | dry/cond. | | |
| Emission of organic compounds Odour Fogging, F-value (refraction) Fogging, G-value (condensate) | 5 3 99/* 0.1/* | μgC/g class % mg | VDA 277 VDA 270 ISO 6452 ISO 6452 |

Printed: 2025-05-29 Page: 2 of 5





Zytel® FG101L NC010

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Injection

| yes | |
|----------|--|
| 80 | °C |
| 2 - 4 | h |
| ≤0.2 | % |
| 295 | °C |
| 280 | °C |
| 305 | °C |
| ≤0.4 | m/s |
| 70 | °C |
| 40 | °C |
| 95 | °C |
| 50 - 100 | MPa |
| 4 | s/mm |
| 190 | °C |
| | 80 2 - 4 ≤0.2 295 280 305 ≤0.4 70 40 95 50 - 100 |

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

Delivery form Pellets

Additives Release agent

Additional information

Injection molding POSTPROCESSING

Annealing: 30min at 200°C

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
- X 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

Printed: 2025-05-29 Page: 3 of 5

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Bases

- X 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
- X 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
- X 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
- X DOT No. 4 Brake fluid, 130°C
- X 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
- X Water, 90°C

Printed: 2025-05-29 Page: 4 of 5

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X 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).

Printed: 2025-05-29 Page: 5 of 5

Revised: 2025-05-01 Source: Celanese Materials Database

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