Zytel® 70G25EF BK538LM (PRELIMINARY)

NYLON RESIN

Zytel® 70G25EF BK538LM is a 25% glass reinforced polyamide 66 developed for electrical and electronics applications.

It is well suited for laser marking.

Product information

Resin Identification	PA66-GF25	ISO 1043
Part Marking Code	>PA66-GF25<	ISO 11469

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.3 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.1 / -	%	ISO 294-4, 2577
Melt viscosity , @ 1000 sec-1, 280 °C	144 / *	Pa.s	ISO 11443

Typical mechanical properties

	dry/cond.		
Tensile Modulus	8400 / 6000	MPa	ISO 527-1/-2
Stress at break, 5mm/min	165 / 110	MPa	ISO 527-1/-2
Strain at break, 5mm/min	3 / 5	%	ISO 527-1/-2
Flexural Modulus	7000 / 5000[DS]	MPa	ISO 178
Charpy impact strength, 23 °C	55 / 75	kJ/m²	ISO 179/1eU
Charpy impact strength, -30 °C	50 / -	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23 °C	8 / 10	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30 °C	7 / -	kJ/m²	ISO 179/1eA
Poisson's ratio	0.34 / 0.35		

[DS]: Derived from similar grade

Thermal properties

	dry/cond.		
Melting temperature, 10 °C/min	260 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10 °C/min	80 / 25	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	238 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23 °C	28 / *[DS]	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel	30 / *[DS]	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160 °C	19 / *[DS]	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23 °C	73 / *[DS]	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	90 / *[DS]	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160 °C	146 / *[DS]	E-6/K	ISO 11359-1/-2

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Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB / *[DS]	class	UL 94
Thickness tested	1.5 / *	mm	UL 94
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	17	mm/min	ISO 3795 (FMVSS 302)

[DS]: Derived from similar grade

Electrical properties

	dry/cond.		
Volume resistivity	>1E13 / 1E11[DS]	Ohm.m	IEC 62631-3-1
Comparative tracking index	525 / -		IEC 60112

[DS]: Derived from similar grade

Other properties

	dry/cond.		
Humidity absorption, 2mm	2 / *	%	Sim. to ISO 62
Water absorption, 2mm	6.4 / *	%	Sim. to ISO 62
Density	1320 / -	kg/m³	ISO 1183

Injection

Drying Recommended	yes		
Drying Time, Dehumidified Dryer	2 - 4	h	
Processing Moisture Content	≤0.2	%	
Melt Temperature Optimum	295	°C	Internal
Min. melt temperature	285	°C	
Max. melt temperature	305	°C	
Screw tangential speed	≤0.2	m/s	
Mold Temperature Optimum	100	°C	
Min. mould temperature	70	°C	
Max. mould temperature	120	°C	
Hold pressure range	50 - 100	MPa	
Hold pressure time	3	s/mm	
Ejection temperature	210	°C	Internal

Characteristics

Additives	Release agent, Low halide content

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

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- ✗ 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
- ✓ Hydraulic oil Pentosin CHF 202, 125°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
- ✗ Diesel EN 590, 100°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

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- ✗ Zinc Chloride solution (50% by mass), 23°C

Other

- ✓ Ethyl Acetate, 23°C
- ✗ Hydrogen peroxide, 23°C
- ✓ DOT No. 4 Brake fluid, 130°C
- ✓ DOT No. 4 Brake fluid, 120°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).