Celanese
The chemistry inside innovation™

Zytel® 80G25HS BK117

NYLON RESIN

Common features of Zytel® nylon resin include mechanical and physical properties such as high mechanical strength, excellent balance of stiffness and toughness, good high temperature performance, good electrical and flammability properties, good abrasion and chemical resistance. In addition, Zytel® nylon resins are available in different modified and reinforced grades to create a wide range of products with tailored properties for specific processes and end-uses. Zytel® nylon resin, including most flame retardant grades, offer the ability to be coloured.

The good melt stability of Zytel® nylon resin normally enables the recycling of properly handled production waste. If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-31kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Zytel® nylon resin typically is used in demanding applications in the automotive, furniture, domestic appliances, sporting goods and construction industry.

Zytel® 80G25HS is a 25% glass fiber reinforced, toughened, heat stabilised, black polyamide 66 resin for injection moulding.

Product information

Resin Identification	PA66-IGF25	ISO 1043
Part Marking Code	>PA66-IGF25<	ISO 11469
ISO designation	ISO 16396-PA66-I,GF25,M1CGHR,S14-070	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.3 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.8 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile Modulus	7000 / 4500	MPa	ISO 527-1/-2
Stress at break, 5mm/min	120 / 90	MPa	ISO 527-1/-2
Strain at break, 5mm/min	4 / 8	%	ISO 527-1/-2
Flexural Modulus	6000 / -	MPa	ISO 178
Flexural Strength	200 / -	MPa	ISO 178
Flexural Stress at 3.5%	190 / -	MPa	ISO 178
Charpy impact strength, 23 °C	80 / 80	kJ/m²	ISO 179/1eU
Charpy impact strength, -30 °C	80 / 80	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23 °C	22 / 24	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30 °C	14 / 13	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23 °C	20 / 23	kJ/m²	ISO 180/1A
Izod notched impact strength, -30 °C	13 / 12	kJ/m²	ISO 180/1A
Izod notched impact strength, -40 °C	13 / 12	kJ/m²	ISO 180/1A
Ball indentation hardness, H 961/30	200 / 140[DS]	MPa	ISO 2039-1
Poisson's ratio	0.35 / 0.36		

[DS]: Derived from similar grade

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Thermal properties

	dry/cond.		
Melting temperature, 10 °C/min	262 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10 °C/min	75 / 20	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	240 / *	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	260 / *	°C	ISO 75-1/-2
Thermal conductivity of melt	0.21	W/(m K)	Internal

Flammability

	dry/cond.		
Glow Wire Flammability Index, 0.4mm	700 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 0.75mm	700 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1mm	700 / -	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5mm	700 / -	°C	IEC 60695-2-12
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Electric strength	32 / -	kV/mm	IEC 60243-1
Comparative tracking index	* / 375		IEC 60112

Other properties

	dry/cond.		
Density	1250 / -	kg/m³	ISO 1183

VDA Properties

Weather stability delta l	8		DIN 53236
Weather stability delta a	0.2		DIN 53236
Weather stability delta b	0.7		DIN 53236
Weather stability delta E	8		DIN 53236
Weather stability grey scale	4		ISO 105-A02

Injection

Drying Recommended	yes		
Drying Temperature	80	°C	
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	80	°C	
Min. mould temperature	50	°C	
Max. mould temperature	100	°C	
Hold pressure range	50 - 100	MPa	
Hold pressure time	3	s/mm	

Zytel® 80G25HS BK117

NYLON RESIN

Ejection temperature	210 °C	Internal

Characteristics

Additives	Release agent

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

Zytel® 80G25HS BK117

NYLON RESIN

- ✔ 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
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).