Celanese
The chemistry inside innovation™

Zytel® 8018HS BKB085

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® 8018HS BKB085 is a 14% glass reinforced heat stabilized, toughened polyamide 66 resin.

Product information

Resin Identification	PA66-IGF14	ISO 1043
Part Marking Code	>PA66-IGF14<	ISO 11469
ISO designation	ISO 16396-PA66-I,GF14,M1CGHR,S14-040	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.4 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.8 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile Modulus	4200 / 2300	MPa	ISO 527-1/-2
Stress at break, 5mm/min	85 / 55	MPa	ISO 527-1/-2
Strain at break, 5mm/min	4 / 13	%	ISO 527-1/-2
Flexural Modulus	3600 / 2000	MPa	ISO 178
Flexural Strength	140 / -	MPa	ISO 178
Charpy impact strength, 23°C	80 / 100	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	14 / 18	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	6 / 6	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	4 / 4	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	13 / 18	kJ/m²	ISO 180/1A
Izod notched impact strength, -30°C	10 / 5	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	7 / 5	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	90 / 100	kJ/m²	ISO 180/1U
Izod impact strength, -30°C	90 / 70	kJ/m²	ISO 180/1U
Hardness, Rockwell, M-scale	70 / -		ISO 2039-2
Hardness, Rockwell, R-scale	110 / -		ISO 2039-2
Poisson's ratio	0.36 / 0.39		

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Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	263 / *	°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	220 / *	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	250 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	52 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel	50 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	46 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	96 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	118 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	123 / *	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.75mm	120	°C	UL 746B
RTI, electrical, 1.5mm	120	°C	UL 746B
RTI, electrical, 3mm	120	°C	UL 746B
RTI, impact, 0.75mm	65	°C	UL 746B
RTI, impact, 1.5mm	95	°C	UL 746B
RTI, impact, 3mm	105	°C	UL 746B
RTI, strength, 0.75mm	85	°C	UL 746B
RTI, strength, 1.5mm	105 / *	°C	UL 746B
RTI, strength, 3mm	105	°C	UL 746B

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB / *	class	UL 94
Thickness tested	1.5 / *	mm	UL 94
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	HB / *	class	UL 94
Thickness tested	0.75 / *	mm	UL 94
UL recognition	yes / *		UL 94
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Comparative tracking index	580 / -		IEC 60112

Other properties

	dry/cond.		
Density	1190 / -	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	295	°C	Internal

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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	
Ejection temperature	210	°C	Internal

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

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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
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).