Celanese
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Zytel® ST801A NC010A

NYLON RESIN

Zytel® ST801A NC010A is an Unreinforced, Super Toughened, partially UV stabilized,Polyamide 66

Product information

Resin Identification	PA66-HI	ISO 1043
Part Marking Code	>PA66-HI<	ISO 11469
ISO designation	ISO 16396-PA66-I,,M1G1NR,S12-020	

Rheological properties

	dry/cond.		
Viscosity number	130 / *	cm^3/g	ISO 307, 1628
Moulding shrinkage, parallel	1.8 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.4 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile modulus	2000 / 900	MPa	ISO 527-1/-2
Tensile stress at 50% strain	49 / 44	MPa	ISO 527-1/-2
Flexural modulus	1800 / 700	MPa	ISO 178
Tensile creep modulus, 1h	* / 800	MPa	ISO 899-1
Tensile creep modulus, 1000h	* / 700	MPa	ISO 899-1
Charpy impact strength, 23°C	- / N	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	70 / 100[P]	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	20 / 20	kJ/m^2	ISO 179/1eA
Izod notched impact strength, 23°C	80 / 90	kJ/m^2	ISO 180/1A
Izod notched impact strength, -30°C	15.0 / 15.0	kJ/m^2	ISO 180/1A
Izod notched impact strength, -40°C	20.0 / 17.0	kJ/m^2	ISO 180/1A
Poisson's ratio	0.4 / 0.45		

[P]: Partial Break

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
Temperature of deflection under load, 1.8 MPa	63 / *	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	157 / *	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	205 / *	°C	ISO 306
Coeff. of linear therm. expansion, parallel, -40-23°C	110 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	140 / *	E-6/K	ISO 11359-1/-2
CLTE, Parallel, 23-55°C(73-130°F)	140 / -	E-6/K	ASTM E 831
Coeff. of linear therm. expansion, parallel, 55-160°C	160 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	110 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), normal	130 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	130 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, Normal,23-55°C (73-130°F)	130 / -	E-6/K	ASTM E 831
RTI, electrical, 0.75mm	125	°C	UL 746B
RTI, electrical, 1.5mm	125	°C	UL 746B
RTI, electrical, 3.0mm	125	°C	UL 746B
RTI, impact, 0.75mm	75	°C	UL 746B

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RTI, impact, 1.5mm	75	°C	UL 746B
RTI, impact, 3.0mm	75	°C	UL 746B
RTI, strength, 0.75mm	85	°C	UL 746B
RTI, strength, 1.5mm	85 / *	°C	UL 746B
RTI, strength, 3.0mm	85	°C	UL 746B

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.81 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Oxygen index	20 / *	%	ISO 4589-1/-2
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	mm/min	ISO 3795 (FMVSS 302)
Hot Wire Ignition, 1.5mm	15 / *	s	UL 746A
Hot Wire Ignition, 3mm	20 / *	s	UL 746A

Electrical properties

	dry/cond.		
Relative permittivity, 100Hz	3.5 / 5.9		IEC 62631-2-1
Relative permittivity, 1MHz	3.3 / 3.5		IEC 62631-2-1
Dissipation factor, 100Hz	50 / 1580	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	100 / 380	E-4	IEC 62631-2-1
Volume resistivity	>1E13 / 8.7E10	Ohm.m	IEC 62631-3-1
Surface resistivity	* / 1E12	Ohm	IEC 62631-3-2
Electric strength	25 / -	kV/mm	IEC 60243-1
Comparative tracking index	600 / -		IEC 60112
Electric Strength, Short Time, 2mm	25 / 26	kV/mm	IEC 60243-1
High Amperage Arc Ignition Resistance, 1.5 mm	200[1] / *	arcs	UL 746A
High Amperage Arc Ignition Category, 1.5 mm	200[1] / *	class	UL 746A

[1]: >200

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	2 / *	%	Sim. to ISO 62
Water absorption, 2mm	6.5 / *	%	Sim. to ISO 62
Water absorption, Immersion 24h	1.1 / *	%	Sim. to ISO 62
Density	1070 / -	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	≤0.3	m/s

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Mold Temperature Optimum	80	°C
Min. mould temperature	50	°C
Max. mould temperature	100	°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	3 - 4	h
Processing Moisture Content	≤0.06	%
Melt Temperature Optimum	280	°C
Melt Temperature Range	275 - 290	°C

Characteristics

Processing	Injection Moulding, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion, Coatable, Casting
Delivery form	Pellets
Additives	Release agent
Special characteristics	High impact or impact modified, U.V. stabilised or stable to weather

Automotive

OEM	STANDARD	ADDITIONAL INFORMATION
Hyundai	MS211-46 Type C-2	
Mercedes-Benz	DBL5404.00 PA6	
Mercedes-Benz	DBL5410.01 PA66-I	
Stellantis - Chrysler	MS.50017 / CPN-2959	Natural

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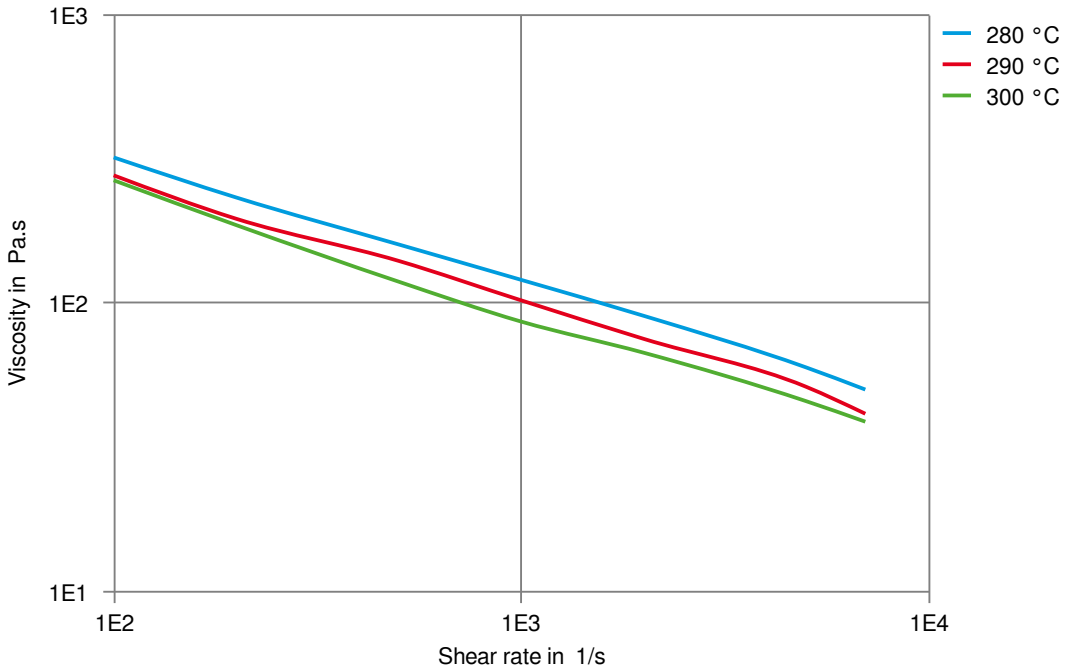
Viscosity-shear rate



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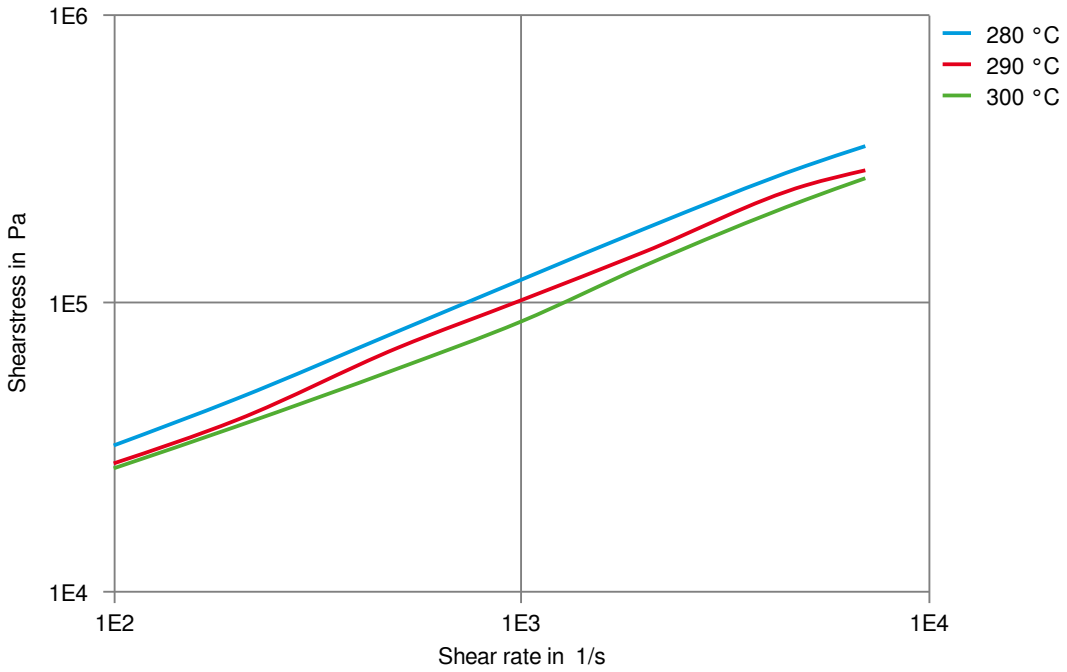
Shearstress-shear rate



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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
- ✔ 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

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- ✔ 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).