Celanese
The chemistry inside innovation™

Zytel® 74G33W BK196

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® 74G33W BK196 is a high gloss automotive weatherable black 33% glass reinforced nylon 66 and nylon 6 comelt resin.

Product information

Resin Identification	PA66+PA6-GF33	ISO 1043
Part Marking Code	>PA66+PA6-GF33<	ISO 11469
ISO designation	ISO 16396-(PA66+PA6),GF33,M1CGL1,S14-100	

Rheological properties

	dry/cond.		
Moulding shrinkage, parallel	0.1 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.7 / -	%	ISO 294-4, 2577

Typical mechanical properties

	dry/cond.		
Tensile Modulus	10000 / 7100	MPa	ISO 527-1/-2
Stress at break, 5mm/min	180 / 120	MPa	ISO 527-1/-2
Strain at break, 5mm/min	3 / 6	%	ISO 527-1/-2
Flexural Modulus	8900 / -	MPa	ISO 178
Charpy impact strength, 23°C	80 / 100	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	70 / 65	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	12 / 18	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	10 / 10	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -40°C	10 / -	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	12 / -	kJ/m²	ISO 180/1A
Izod notched impact strength, -40°C	11 / -	kJ/m²	ISO 180/1A
Izod impact strength, 23°C	80 / -	kJ/m²	ISO 180/1U
Poisson's ratio	0.34 / 0.35		

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Thermal properties

	dry/cond.		
Melting temperature, 10 °C/min	255 / *	°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	14 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	108 / *	E-6/K	ISO 11359-1/-2
RTI, electrical, 0.75mm	65	°C	UL 746B
RTI, electrical, 3mm	65	°C	UL 746B
RTI, impact, 0.75mm	65	°C	UL 746B
RTI, impact, 3mm	65	°C	UL 746B
RTI, strength, 0.75mm	65	°C	UL 746B
RTI, strength, 3mm	65	°C	UL 746B

Flammability

	dry/cond.		
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.		
Dissipation factor, 100Hz	290 / -[DS]	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	250 / -[DS]	E-4	IEC 62631-2-1
Volume resistivity	>1E13 / 1E11[DS]	Ohm.m	IEC 62631-3-1
Surface resistivity	* / 1E12[DS]	Ohm	IEC 62631-3-2
Electric strength	37 / -[DS]	kV/mm	IEC 60243-1

[DS]: Derived from similar grade

Other properties

	dry/cond.		
Density	1390 / -	kg/m³	ISO 1183

VDA Properties

Weather stability delta E	4.7[1]		DIN 53236

[1]: Without washing

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	Internal
Min. melt temperature	280	°C	

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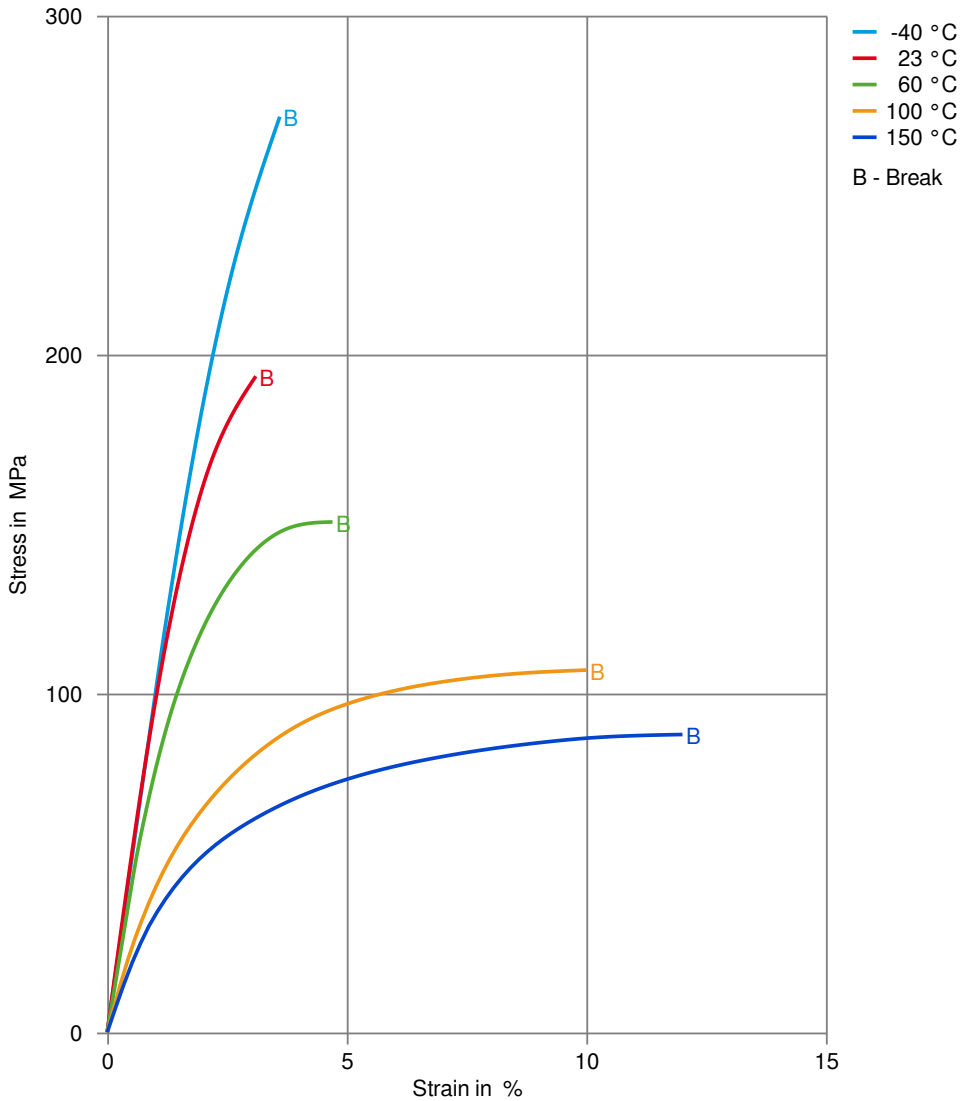
Max. melt temperature	300 °C	
Screw tangential speed	≤0.2 m/s	
Mold Temperature Optimum	100 °C	
Min. mould temperature	70 °C	
Max. mould temperature	120 °C	
Hold pressure range	50 - 100 MPa	
Hold pressure time	3 s/mm	
Ejection temperature	210 °C	Internal

Stress-strain (dry)



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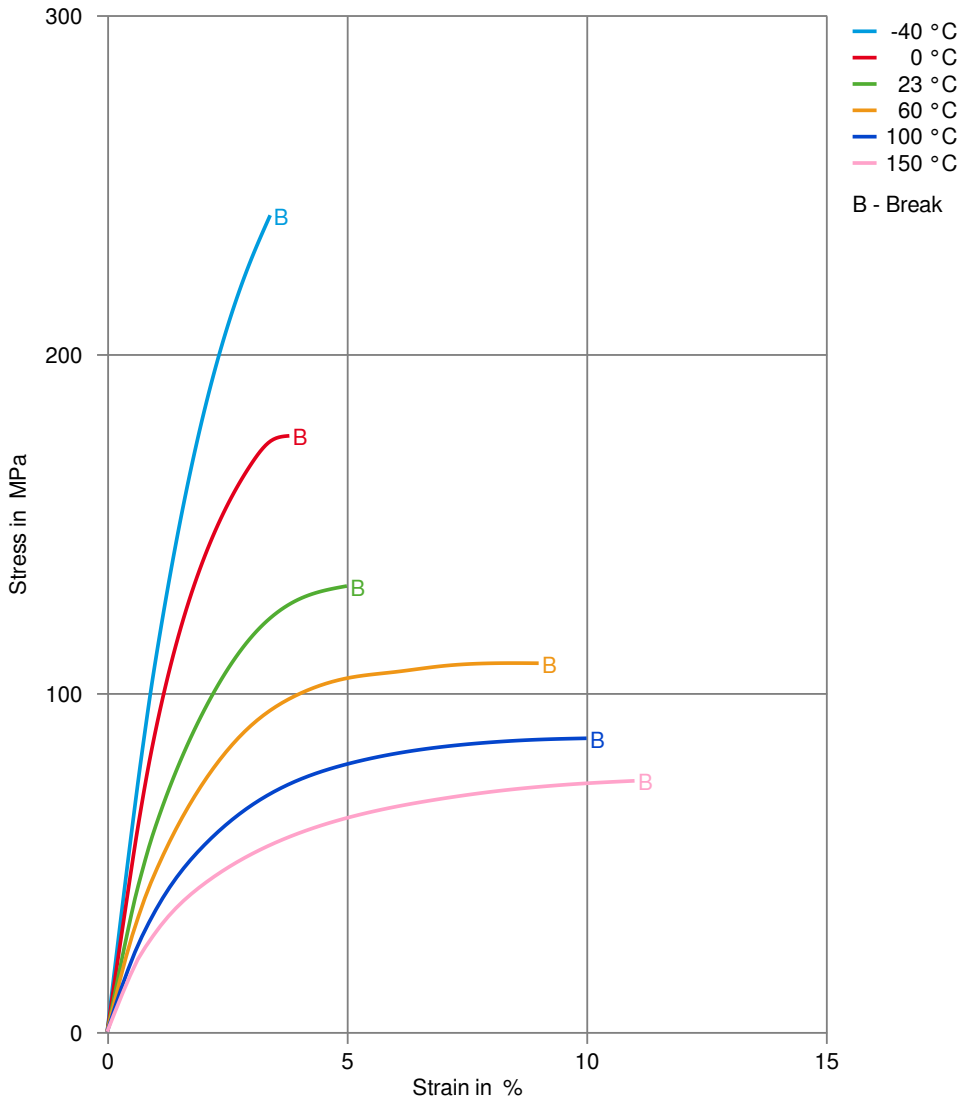
Stress-strain (cond.)



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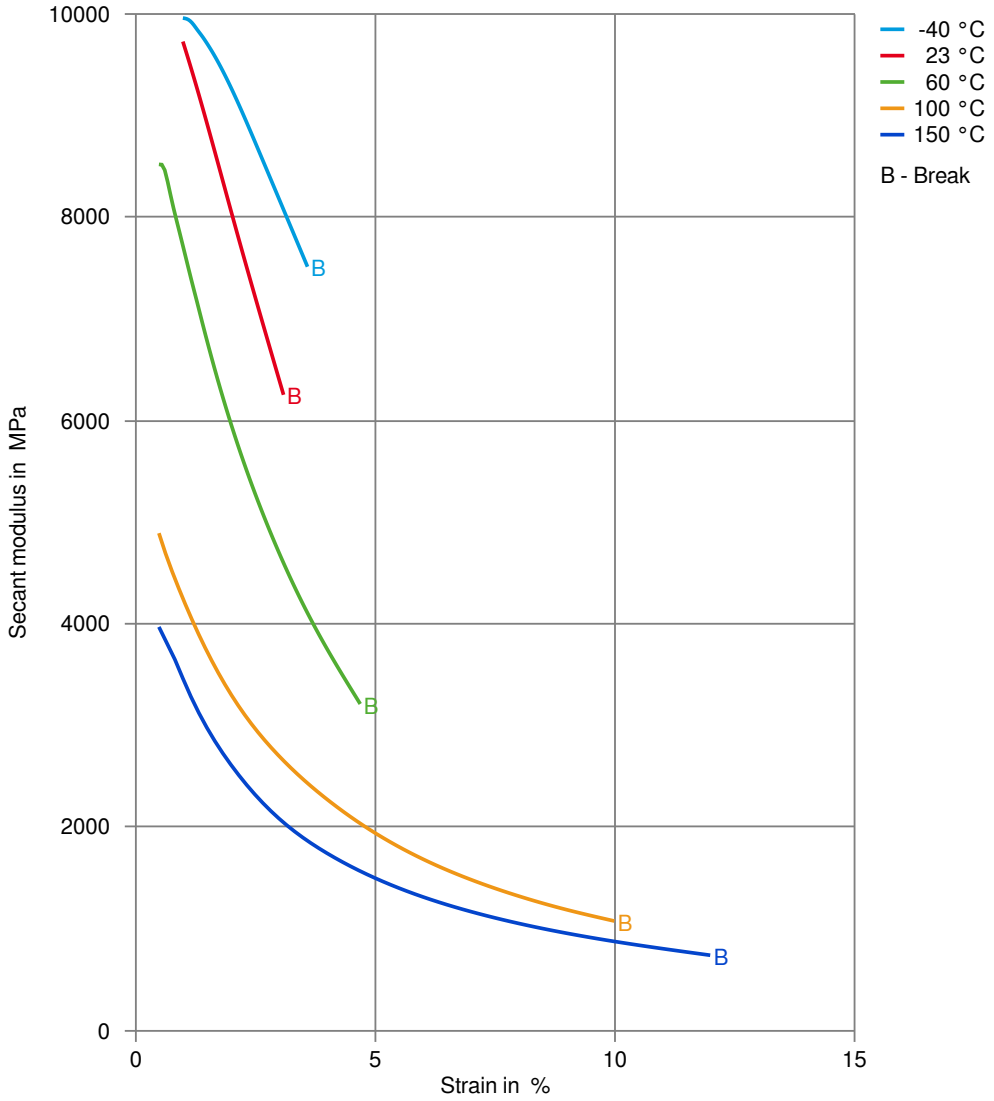
Secant modulus-strain (dry)



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Secant modulus-strain (cond.)