



## ZYTEL® T73 ECO-R 311 BLK1

### **NYLON RESIN**

Zytel® T73 ECO-R 311 BLK1 incorporates 30% of post-industrial recycled content by weight in the finished product. It is a general purpose PA6 grade with improved impact resistance.

Product information			
Resin Identification	PA6-I(R30)		ISO 1043
Part Marking Code	>PA6-I(R30)<		ISO 11469
Rheological properties			
Moulding shrinkage range, parallel	1.6 - 2	%	ISO 294-4, 2577
Moulding shrinkage range, normal	1.6 - 2		ISO 294-4, 2577
Typical mechanical properties	dry/cond.		
Tensile modulus	2500/-	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	60/-	MPa	ISO 527-1/-2
Tensile strain at break, 50mm/min	25/-	%	ISO 527-1/-2
Flexural modulus	2100/-	MPa	ISO 178
Flexural strength	80/-	MPa	ISO 178
Charpy impact strength, 23°C	150/-	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	10.5/-	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy notched impact strength, -30°C	8/- 11/-	kJ/m² kJ/m²	ISO 179/1eA ISO 180/1A
Izod notched impact strength, 23°C Poisson's ratio	0.38/- <sup>[C]</sup>	KJ/III <sup>-</sup>	ISO 180/TA
[C]: Calculated	0.367 -		
Thermal properties	dry/cond.		
	,	0.0	100 11057 1/0
Melting temperature, 10°C/min	225/* 52/*	°C	ISO 11357-1/-3 ISO 75-1/-2
Temperature of deflection under load, 1.8 MPa	52/	-0	150 /5-1/-2
Physical/Other properties	dry/cond.		
Humidity absorption, 2mm	2.3/*	%	Sim. to ISO 62
Water absorption, 2mm	8.3/*	%	Sim. to ISO 62
Density	1110/-	kg/m³	ISO 1183
Injection			
Drying Recommended	yes		
Drying Temperature	80 °C		
Drying Time, Dehumidified Dryer	2-4 h		
Processing Moisture Content	≤0.15		
Melt Temperature Optimum	260		
Min. melt temperature	240		
Max. melt temperature	270		
Screw tangential speed Mold Temperature Optimum	≤0.25	m/s °C	
Min. mould temperature	-	°C	
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Max. mould temperature 90 °C

#### Characteristics

Processing Injection Moulding

Delivery form Granules
Additives Nucleated

Special characteristics High impact or impact modified, Heat stabilised or stable to heat

Sustainability Recycled Content

#### Additional information

Injection molding

#### Preprocessing

PA materials, stocked in a moisture-proof packaging, can be processed without drying; however, it is always recommended drying the product that comes from a large package (e.g. Octabin). The moisture content suggested for the injection molding process should be lower than 0.15%, according to the grade and to the molded part characteristics. The materials containing flame retardants should have moisture content below 0.10%. Red phosphorous containing grades must always be dried below 0.08%. The drying time depends on the moisture content and the drying conditions. Typically, 4-8 hours at 80-90°C using dehumidified air (dew point of -20°C) are suitable conditions for a starting moisture content of 0.20%-0.40%.

#### **Processing**

The following conditions apply to a standard injection molding process. Machine temperatures: barrel 265-290°C (PA66), 235-270°C (PA6), nozzle and hot runners up to 300°C (up to 290°C products with flame retardants). Mold temperatures: 60-80°C, (80-100°C highly reinforced grades). Back pressure: typically, 5-10 bar (hydraulic pressure). Temperatures exceeding 300°C and long residence time could lead to additives degradation and brittleness of the material. In case of gas generation in the melt, please verify moisture content and processing temperatures. Usage of regrind is possible depending on the molded part characteristics. For further details, please refer to the document 'Instructions for injection molding' or contact our technical support team.

#### Postprocessing

PA materials reach their final performance with a water content of about 1.5 to 3.5% by weight, depending on the type. This percentage corresponds to the point of equilibrium between the rates of absorption and desorption of moisture. After molding, in favorable environmental conditions, a part can quickly absorbs moisture up to 0.5-1.0%, while the equilibrium will be reached during its life. A conditioning treatment can accelerate further the initial water absorption of the molded parts. Conditioning is usually carried out in hot and humid environment (for example 50 °C, 100% RH), inside climatic chambers. Slight dimensional variations (increase in volume due to the water absorbed) must be considered,

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especially in unfilled grades. Post-treatments of parts may also include the annealing (60-80 °C in oven, up to four hours). This procedure can be useful to relax any internal stresses.

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