

Datasheet AS ZL 202 XN



This polyamide is a high tech material, developed with ASEC Kunststoffen B.V. brand-new technology which goes beyond the boundaries of Newton's physics and enters into quantum physics. This uniquely reinforced PA 6 outperforms standard PA 6, PA 6.6 and in several properties PA 6.6 with 30% glass fibers. AS ZL 202 XN has an elevated service temperature of 140 °C with an HDT of 168 °C. It features increased mechanical strength with a tensile modulus of elasticity of 4200 MPa (ISO 527, dry).

Reduced water absorption ensures better dimensional stability. This product is applicable for direct food contact (BfR, FDA) and offers in comparison to glass-filled nylons approx. 15% lower specific gravity resulting in less volume costs.

The flame-retardant effect of the nanoparticles is expressing additionally the extraordinary properties of AS ZL 202 XN.

Applications: AS ZL 202 XN is the alternate choice for many applications, where other products are lacking the necessary properties (e.g. service temperature) or standard materials are too soft as PTFE or too expensive as PEEK. In comparison to glass filled nylons it is easy to machine as no preheating or usage of diamond tipped tools is necessary.

(1): Data of the resin only.

(2): Made by a pin/rotating disc test according DIN ISO 7148-2 under following conditions: Ra = 0.35 – 0.45 µm (steel disc), v = 0.3 m/s, p = 3 N/mm² and time T>16h.

Dry: Dried at 80 °C and 1 mbar until weight is constant (moisture content less than 0.2%).

Moist: After storage in a standard atmosphere of 23 °C and 50% relative humidity (DIN 50014) until saturation.

Availability*: In stock.

Availability **: Not in stock.

Material	
Material	Nylon 6 reinforced with nanoparticles
Color	Ivory

Availability*	Unit	Value
Rod diameter	mm	6-150
Tube O.D.	mm	-
Sheet thickness	mm	8-100

Physical Properties	Test Standard	Unit	Condition of Specimen	Value
Mass density (method D and E)	ISO 1183	g/cm ³	Dry	1.15
Moisture absorption at 23 °C and 50% RH (saturation)	ISO 62	%		-
Water absorption at 23 °C (saturation)	ISO 62	%		-

Mechanical Properties	Test Standard	Unit	Condition of Specimen	Value
Tensile strength at break	ISO 527	MPa	Dry	93
Tensile strength at break	ISO 527	MPa	Moist	-
Elongation at break	ISO 527	%	Dry	5
Elongation at break	ISO 527	%	Moist	-
Modulus of elasticity in tension	ISO 527	MPa	Dry	4200
Modulus of elasticity in tension	ISO 527	MPa	Moist	-
Charpy impact strength (+23 °C)	ISO 179/IeU	kJ/m ²	Dry	-
Charpy impact strength (-40 °C)	ISO 179/IeU	kJ/m ²	Dry	-
Charpy impact strength (notched)	ISO 179/IeA	kJ/m ²	Dry	-
Charpy impact strength (notched)		kJ/m ²	Moist	-
Hardness shore scale D	ISO 868		Dry	80
Time yield limit σ 1/1000 (23 °C /50% RH)	ISO 899	MPa	Moist	-
Time yield limit σ 1/1000 (100 °C)	ISO 899	MPa	Dry	-
Apparent modulus E C/1000 20 (23 °C/50% RH)	ISO 899	MPa	Moist	-

Electrical Properties	Test Standard	Unit	Condition of Specimen	Value
Dielectric constant 1 MHz	IEC 250		Dry	-
Dielectric constant	IEC 250		Moist	-
Dissipation factor tan δ (1 MHz)	IEC 250		Dry	-
Dissipation factor tan δ	IEC 250		Moist	-
Dielectric strength	IEC 243	kV/mm	Dry	-
Dielectric strength	IEC 243	kV/mm	Moist	-
Volume resistivity	IEC 93	$\Omega \cdot \text{cm}$	Dry	$>10^{12}$
Volume resistivity	IEC 93	$\Omega \cdot \text{cm}$	Moist	-
Surface resistivity ROA	IEC 93	Ω	Dry	10^{11}
Surface resistivity ROA	IEC 93	Ω	Moist	-
Resistance to tracking (KA/KB method)	IEC 112		Dry/Moist	-
Resistance to tracking (KC method)	IEC 112		Dry/Moist	-

Thermal Properties	Test Standard	Unit	Condition of Specimen	Value
Heat distortion temperature (method A)	ISO 75	°C	Dry	168
Heat distortion temperature (method B)	ISO 75	°C	Dry	-
Melting point (method A)	ISO 3146	°C		215
Max. service temperature for few hours operation		°C		-
TEP 5.000 hours (50% of tensile strength) ⁽¹⁾	IEC 216	°C		-
TEP 20.000 hours (50% of tensile strength) ⁽¹⁾	IEC 216	°C		140
Thermal coefficient of linear expansion	DIN 53752	1/K \cdot 10 ⁻⁵	Dry	-
Thermal conductivity (method A)		W/(K \cdot m)	Dry	-
Specific heat	IEC 1006	J/(g \cdot K)	Dry	-
Fire performance (flameability according VDE)	VDE 0304		Dry	-
Fire performance (flameability of interior materials in passenger cars h>1 mm)	FMVSS 302	mm/min	Moist	-
Fire performance (flameability according UL standards, thickness of specimen 1.6 mm)	UL 94			HB

Friction Properties	Test Standard	Unit	Condition of Specimen	Value
Resistance to wear ⁽²⁾	ISO 7148-2	$\mu\text{m}/\text{km}$	Dry	-