

Datasheet AS ZL 1000



PEI is a high strength amorphous thermoplastic polymer and performs in continuous use up to 170 °C paired with an excellent flame resistance (UL 94 V-0) and low smoke generation.

AS ZL 1000 is ideal for high strength plus high heat applications and those requiring excellent electrical insulating properties which are stable over wide ranges of temperature and frequency. It is hydrolysis resistant, highly resistant to a broad range of chemicals though chemical resistance is strongly dependent on stress.

AS ZL 1000 is capable of withstanding repeated autoclaving cycles. PEI is also resistant to gamma radiation. It excels in medical reusable applications requiring repeated sterilization.

Good impact resistance, although chemical attack under stress might lead to cracking.

Used in: Medical, electrical, electronic and semiconductor, automotive, aerospace and specialty applications.

Applications: Load-bearing components, structural probes, microwave applications, replacing glass in medical lamps, reusable medical devices, manifolds resistant to daily sanitation, high voltage circuit breaker housings, electrical insulators, electrical hardware components, integrated-circuit chip carriers for accelerated testing at high temperatures, non-combustible plenum connectors, high-temperature bobbins, coils and fuse blocks, under the hood automotive components, connector clamps for printed-wiring boards, jet-engine components.

(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	PEI
Color	Amber

Availability**	Unit	Value
Rod diameter	mm	10-125
Tube O.D.	mm	-
Sheet thickness	mm	10-125

Physical Properties	Test Standard	Unit	Condition of Specimen	Value
Mass density (method D and E)	ISO 1183	g/cm ³	Dry	1.27
Moisture absorption at 23 °C and 50% RH (saturation)	ISO 62	%		0.7
Water absorption at 23 °C (saturation)	ISO 62	%		1.25

Mechanical Properties	Test Standard	Unit	Condition of Specimen	Value
Tensile strength at break	ISO 527	MPa	Dry	105
Tensile strength at break	ISO 527	MPa	Moist	-
Elongation at break	ISO 527	%	Dry	60
Elongation at break	ISO 527	%	Moist	-
Modulus of elasticity in tension	ISO 527	MPa	Dry	3200
Modulus of elasticity in tension	ISO 527	MPa	Moist	-
Charpy impact strength (+23 °C)	ISO 179/IeU	kJ/m ²	Dry	No break
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	86
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	$>10^{13}$
Volume resistivity	IEC 93	$\Omega \cdot \text{cm}$	Moist	-
Surface resistivity ROA	IEC 93	Ω	Dry	$>10^{13}$
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	190
Heat distortion temperature (method B)	ISO 75	°C	Dry	200
Melting point (method A)	ISO 3146	°C		-
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		-
Thermal coefficient of linear expansion	DIN 53752	1/K \cdot 10 ⁻⁵	Dry	5
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			V0

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