

Datasheet AS ZL 1500



PEEK is a high-temperature-resistant thermoplastic and can be used continuously up to 260 °C and in hot water or steam. It displays outstanding mechanical performance in both high temperature and cryogenic conditions.

When exposed to a flame there is very low smoke and toxic gas emission. Unfilled AS ZL 1500 (and AS ZL 1500 X) stock shapes are compliant for food contact (BfR, FDA). The material also resists a wide range of solvents and organic solvents. It is self-extinguishing and carries a flammability UL 94 V-0 rating. AS ZL 1500 (and AS ZL 1500 X) have a balanced profile of properties such as a low level of creep combined with a high modulus of elasticity.

PEEK is a high strength alternative to fluoropolymers featuring better performance in wear and abrasion applications. It is a material with outstanding tribological properties.

(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	PEEK
Color	Brown

Availability*	Unit	Value
Rod diameter	mm	5-200
Tube O.D.	mm	25-280
Sheet thickness	mm	8-60

Physical Properties	Test Standard	Unit	Condition of Specimen	Value
Mass density (method D and E)	ISO 1183	g/cm ³	Dry	1.32
Moisture absorption at 23 °C and 50% RH (saturation)	ISO 62	%		0.1
Water absorption at 23 °C (saturation)	ISO 62	%		0.5

Mechanical Properties	Test Standard	Unit	Condition of Specimen	Value
Tensile strength at break	ISO 527	MPa	Dry	97
Tensile strength at break	ISO 527	MPa	Moist	-
Elongation at break	ISO 527	%	Dry	25
Elongation at break	ISO 527	%	Moist	-
Modulus of elasticity in tension	ISO 527	MPa	Dry	3600
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	88
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	3.2
Dielectric constant	IEC 250		Moist	-
Dissipation factor tan δ (1 MHz)	IEC 250		Dry	0.004
Dissipation factor tan δ	IEC 250		Moist	-
Dielectric strength	IEC 243	kV/mm	Dry	20
Dielectric strength	IEC 243	kV/mm	Moist	-
Volume resistivity	IEC 93	$\Omega \cdot \text{cm}$	Dry	10 ¹⁶
Volume resistivity	IEC 93	$\Omega \cdot \text{cm}$	Moist	-
Surface resistivity ROA	IEC 93	Ω	Dry	-
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	152
Heat distortion temperature (method B)	ISO 75	°C	Dry	-
Melting point (method A)	ISO 3146	°C		340
Max. service temperature for few hours operation		°C		300
TEP 5.000 hours (50% of tensile strength) ⁽¹⁾	IEC 216	°C		260
TEP 20.000 hours (50% of tensile strength) ⁽¹⁾	IEC 216	°C		-
Thermal coefficient of linear expansion	DIN 53752	1/K·10 ⁻⁵	Dry	4.7
Thermal conductivity (method A)		W/(K·m)	Dry	0.25
Specific heat	IEC 1006	J/(g·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	-