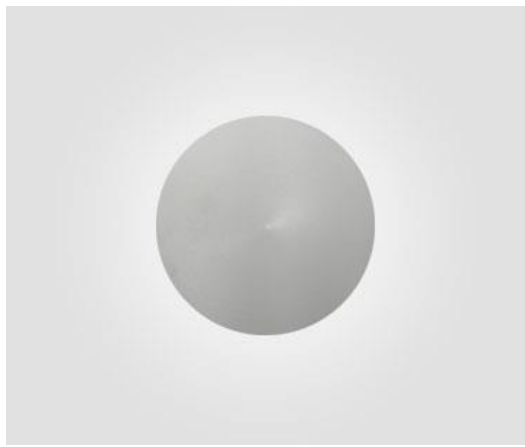


## Datasheet AS ZL 1400



PET is a partly crystalline thermoplastic polyester based on polyethylene-terephthalate. This material features outstanding dimensional stability as it is virtually unaffected by ambient moisture. A low coefficient of friction and excellent wear resistance combined with low creep and high modulus make this the choice material for moving parts. Hot water resistance is low but it has better resistance to acids than nylon or acetal.

AS ZL 1400 is produced without centerline porosity and is approved for contact with food (BfR, FDA). As it is more rigid than other thermoplastics, please consult our machining guidelines.

(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/mm<sup>2</sup> 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	PET copolymer
Color	White

Availability*	Unit	Value
Rod diameter	mm	6-200
Tube O.D.	mm	25-280
Sheet thickness	mm	3-100

Physical Properties	Test Standard	Unit	Condition of Specimen	Value
Mass density (method D and E)	ISO 1183	g/cm <sup>3</sup>	Dry	1.36
Moisture absorption at 23 °C and 50% RH (saturation)	ISO 62	%		~0.23
Water absorption at 23 °C (saturation)	ISO 62	%		11 b

Mechanical Properties	Test Standard	Unit	Condition of Specimen	Value
Tensile strength at break	ISO 527	MPa	Dry	80
Tensile strength at break	ISO 527	MPa	Moist	-
Elongation at break	ISO 527	%	Dry	20
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 <sup>2</sup>	Dry	82
Charpy impact strength (-40 °C)	ISO 179/IeU	kJ/m <sup>2</sup>	Dry	-
Charpy impact strength (notched)	ISO 179/IeA	kJ/m <sup>2</sup>	Dry	14
Charpy impact strength (notched)		kJ/m <sup>2</sup>	Moist	-
Hardness shore scale D	ISO 868		Dry	81
Time yield limit $\sigma$ 1/1000 (23 °C/50% RH)	ISO 899	MPa	Moist	12
Time yield limit $\sigma$ 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	3.3
Dielectric constant	IEC 250		Moist	-
Dissipation factor tan $\delta$ (1 MHz)	IEC 250		Dry	0.02
Dissipation factor tan $\delta$	IEC 250		Moist	-
Dielectric strength	IEC 243	kV/mm	Dry	50
Dielectric strength	IEC 243	kV/mm	Moist	-
Volume resistivity	IEC 93	$\Omega \cdot \text{cm}$	Dry	10 <sup>16</sup>
Volume resistivity	IEC 93	$\Omega \cdot \text{cm}$	Moist	-
Surface resistivity ROA	IEC 93	$\Omega$	Dry	-
Surface resistivity ROA	IEC 93	$\Omega$	Moist	-
Resistance to tracking (KA/KB method)	IEC 112		Dry/Moist	KA>450
Resistance to tracking (KC method)	IEC 112		Dry/Moist	KC>600

Thermal Properties	Test Standard	Unit	Condition of Specimen	Value
Heat distortion temperature (method A)	ISO 75	°C	Dry	67
Heat distortion temperature (method B)	ISO 75	°C	Dry	165
Melting point (method A)	ISO 3146	°C		255
Max. service temperature for few hours operation		°C		160
TEP 5.000 hours (50% of tensile strength) <sup>(1)</sup>	IEC 216	°C		115
TEP 20.000 hours (50% of tensile strength) <sup>(1)</sup>	IEC 216	°C		100
Thermal coefficient of linear expansion	DIN 53752	1/K·10 <sup>-5</sup>	Dry	6
Thermal conductivity (method A)		W/(K·m)	Dry	-
Specific heat	IEC 1006	J/(g·K)	Dry	-
Fire performance (flameability according VDE)	VDE 0304		Dry	11 b
Fire performance (flameability of interior materials in passenger cars h>1 mm)	FMVSS 302	mm/min	Moist	<100
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 <sup>(2)</sup>	ISO 7148-2	$\mu\text{m}/\text{km}$	Dry	22