

## Datasheet AS ZL 1400 T



This internally lubricated material shows a significantly reduced friction coefficient and increased resistance to wear compared to unfilled PET. It even outperforms materials such as wax or oil filled cast nylon products or other lubricated materials such as Delrin® AF blends. It is also a material of choice for applications involving soft metal and plastic mating surfaces.

**Used for:** Parts exposed to high pressure and velocity.

**Applications:** Rollers, toothed gears, valves, distribution valves, precision plain bearings, plug connectors.

(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 with a solid lubricant
Color	Light grey

Availability*	Unit	Value
Rod diameter	mm	6-160
Tube O.D.	mm	25-280
Sheet thickness	mm	8-100

Physical Properties	Test Standard	Unit	Condition of Specimen	Value
Mass density (method D and E)	ISO 1183	g/cm <sup>3</sup>	Dry	1.38
Moisture absorption at 23 °C and 50% RH (saturation)	ISO 62	%		~0.23
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	75
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	3230
Modulus of elasticity in tension	ISO 527	MPa	Moist	-
Charpy impact strength (+23 °C)	ISO 179/IeU	kJ/m <sup>2</sup>	Dry	23
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	10
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	-
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	-
Dielectric constant	IEC 250		Moist	-
Dissipation factor tan $\delta$ (1 MHz)	IEC 250		Dry	-
Dissipation factor tan $\delta$	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	-
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	-
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	-
Heat distortion temperature (method B)	ISO 75	°C	Dry	-
Melting point (method A)	ISO 3146	°C		-
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	-
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 <sup>(2)</sup>	ISO 7148-2	$\mu\text{m}/\text{km}$	Dry	1.1