

Datasheet AS ZL 1800



AS ZL 1800 is PTFE (polytetrafluoroethylene) is a synthetic fluoropolymer and has a white color. It is very useful material because it has a unique combination of properties. AS ZL 1800 is chemically inert, weather able, excellent electrical insulation, high temperature resistance, the lowest coefficient of friction and non-adhesive properties. Shrinkable tubing is also used as roll covers and to protect electrical parts or components.

AS ZL 1800 can also be skived or extruded into tapes and films that can be used for seals and gasket materials. The carbon-fluorine bond that dominates the molecular structure makes AS ZL 1800 resistant to the most aggressive chemicals, including hydrofluoric acid. AS ZL 1800 also exhibits very high dielectric strength combined with a high melting point (327 °C) and flexibility at low temperature (as low as -79 °C).

AS ZL 1800 is produced under approval of ISO 9001 for all manufacturing operations and tested in laboratories.

AS ZL 1800 is available in rod with 6 mm diameter up to 100 mm outside diameter, and sheet with thickness 0.5 up to 200 mm. Bigger sizes available on request.

AS ZL 1800 is suited for the most demanding environments in commercial, industrial, and aerospace applications, for example side pads, bearings, seals, gaskets.

(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	Synthetic Fluor Polymer
Color	White

Availability	Unit	Value
Rod diameter	mm	5-200
Tube O.D.	mm	20-1.000
Sheet thickness	mm	2-125

Physical Properties	Test Standard	Unit	Condition of Specimen	Value
Mass density (method D and E)	ISO 1183	g/cm ³	Dry	2,21
Moisture absorption at 23 °C and 50% RH (saturation)	ISO 62	%		<0,001
Water absorption at 23 °C (saturation)	ISO 62	%		<0,001

Mechanical Properties	Test Standard	Unit	Condition of Specimen	Value
Tensile strength at break	ISO 527	MPa	Dry	25
Tensile strength at break	ISO 527	MPa	Moist	25
Elongation at break	ISO 527	%	Dry	210-500
Elongation at break	ISO 527	%	Moist	210-500
Modulus of elasticity in tension	ISO 527	MPa	Dry	450-750
Modulus of elasticity in tension	ISO 527	MPa	Moist	450-750
Charpy impact strength (notched)	ISO 179/IeA	kJ/m ²	Dry	15,6
Charpy impact strength (notched)		kJ/m ²	Moist	15,6
Hardness shore scale D	ISO 868		Dry	51
Time yield limit σ 1/1000 (23 °C/50% RH)	ISO 899	MPa	Moist	4,4
Compressive Modulus of Elasticity	ISO 899	MPa	Dry	420
Maximum Pressure	MPC test	MPa	Dry	4,4
Poisson's Ratio		-		0,4

Electrical Properties	Test Standard	Unit	Condition of Specimen	Value
Dielectric constant 1 MHz	ASTM D150	Abs	Dry	7,1
Dielectric constant	ASTM D150		Moist	-
Dielectric loss factor (1 MHz)	ASTM D150	Tan(α)	Dry	7E-05
Dielectric loss factor (1 MHz)	ASTM D150		Moist	-
Dielectric strength	IEC 243	kV/mm	2mm	25
Specific electric resistance	IEC 600093	Ω ·cm		> 1.018
Surface resistance	ASTM D257	Ω		10 ¹⁷
Volume resistance	ASTM D257	Ω		10 ¹⁸

Thermal Properties	Test Standard	Unit	Condition of Specimen	Value
Heat distortion temperature 0,45 MPa	ASTM D648-45	°C	Dry	135
Heat distortion temperature 1,8 MPa	ASTM D648-45	°C	Dry	55
Melting point (method A)	ISO 3146	°C		327
Max. service temperature few hours operation		°C		-240/+300
Thermal coefficient of linear expansion	DIN 53752	$\mu\text{m}/(\text{m}\cdot^\circ\text{K})$	Dry	160
Thermal conductivity (method A)	DIN 52612	W/(K·m)	Dry	0,23
Specific heat	IEC 1006	J/(g·K)	Dry	1,2

Friction Properties	Test Standard	Unit	Condition of Specimen	Value
Coefficient of Friction against mild steel	ISO 7148-2	-	Dry	0,05-0,08
Wear Coefficient on hardened polished steel	Pin-on-ring	$\mu\text{m/s}$	Pv=0,1 MPa*m/s	65