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TECHNICAL PROPERTIES OF ZL™ 1500 X (PEEK)

08/2010

Property		Units	Test Method	Condition of Specimen	Value
MECHANICAL PROPERTIES					
Tensile Strength at Break	at 73 °F	psi	ASTM D 638	dry	13,200
	at 392 °F	psi	ASTM D 638	dry	6,400
Elongation at Break		%	ASTM D 638	dry	119
Flexural Modulus		ksi	ASTM D 638	dry	510
Charpy Impact Strength	+73 °F	kJ/m²	ISO 179/1 eU	dry	no break
	-40 °F	kJ/m²		dry	
Charpy Notched Impact Strength		kJ/m²	ISO 179/1 eA	dry	6.5
		kJ/m²		moist	
Hardness Shore Scale D			ISO 868	dry	87
Time Yield Limit $\sigma_{1/1000}$	73°F/50% RH	MPa	ISO 899	moist	
	100 °C	MPa	ISO 899	dry	
Apparent Modulus $E_{C/1000\ 2O}$	73°F/50% RH	MPa	ISO 899	moist	
THERMAL PROPERTIES					
Heat Distortion Temperature [1]	Method A	°F	ASTM D 648	dry	> 327
	Method B	°F	ASTM D 648	dry	> 518
Melting Point	Method A	°F	ASTM D 3418	-	644
Continuous Application Temperature	Electrical	°F	UL746B	-	500
	Mechanical w/o Impact	°F	UL746B	-	465
	Mechanical w/ Impact	°F	UL746B	-	356
Temperature Index 20,000 hours	Stress at Break	°F	ISO 2578	-	475
	Ultimate Tensile Strength	°F	ISO 2578	-	453
Thermal Coefficient of Linear Expansion		$1/K.10^{-5}$	DIN 53452	dry	5.8
Glass trans. Temperature	DSC	°F	ASTM D 3418	-	306
Specific Heat Capacity		J/(g.K)	IEC 1006	dry	
DIELECTRIC PROPERTIES					
Dielectric Constant	1 MHz	-	IEC 250	dry	
		-	IEC 250	moist	
Dissipation Factor tan δ	1 MHz	-	IEC 250	dry	0.005
		-	IEC 250	moist	
Dielectric Strength		MV/m	ASTM D 149	-	16.4
Volume Resistivity		Ω.cm	ASTM D 257	-	> 1.98 E + 16
Surface Resistivity R_{OA}		Ω	IEC 93	dry	10^{15}
		Ω	IEC 93	moist	
Resistance to Tracking	KA/KB method	-	IEC 112	dry/moist	
	KC method	-	IEC 112	dry/moist	
MISCELLANEOUS PROPERTIES					
Mass Density	Method D, E	lb/inch³	ASTM D 792		0.047
Moisture Absorption at 73°F/50%RH, Saturation		%	ISO 1110	-	
Water Absorption		%	ASTM D 570	-	0.25
Fire Performance	Smoke Density		ASTM DF 814	-	passed
	Oxygen Index	%	ASTM D 2863	-	37
	Flammability acc. UL (thickness of specimen 1.6 mm)	-	UL 94	-	V0
Resistance to Wear [2]		µm/km	ISO 7148-2	dry	

[1] Tested within extruded specimen

[2] Made by a pin / rotating disc test according DIN-ISO 7148-2 under following conditions:
R_a = 0.35 - 0.45 µm (steel disc), v = 0.3 m/s, p = 3 N/mm², time T > 16 h

All statements, technical information and recommendations contained in this brochure are presented in good faith, but all information is given without warranty and liability. The reader is cautioned, however that ZL Engineering Plastics cannot guarantee the accuracy or completeness of this information, and it is the customer's responsibility to determine the suitability of ZL™ products in any given application.

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