Dexnyl PEEK-SF

Datasheet

Properties	Symbol	Unit	Standard	Value
Material code	-	-	Internal Standard	A3A
Colour	-	-	-	Beige
Density	ρ	kg/dm3	ISO 1183	1,3
Mechanical				
Compressive modulus	Ec	MPa	DIN EN ISO 604	4037
Elastic limit	σel	MPa	Internal Standard	108
Comprssive stress at yield	σY	MPa	DIN EN ISO 604	139
Compressive strength	σM	MPa	DIN EN ISO 604	139
Compressive stress at 3,5% strain	σ3,5%	MPa	DIN EN ISO 604	26
Compressive strength (0,01 h)	σM	MPa	Internal Standard	108
Compressive strength (100 h)	σM	MPa	Internal Standard	86
Compressive strength (10000 h)	σM	MPa	Internal Standard	51
Compressive stress at break	σB	MPa	DIN EN ISO 604	k.Br.
Elastic compression limit	εel	%	Internal Standard	8,2
Nominal compressive yield strain	εcy	%	DIN EN ISO 604	15
Nominal compressive strain at compressive strength	εcM	%	DIN EN ISO 604	15
Nominal compressive strain at break	εcB	%	DIN EN ISO 604	n.v.
Modulus in tension (tensile modulus)	Et	MPa	DIN EN ISO 527	3670
Elastic limit	σel	MPa	Internal Standard	80
Tensile stress at yield	σY	MPa	DIN EN ISO 527	102
Tensile strength	σM	MPa	DIN EN ISO 527	102
Tensile stress at break	σB	MPa	DIN EN ISO 527	82
Elastic yield point	εel	%	Internal Standard	2,9
Yield strain	εy	%	DIN EN ISO 527	5
Elongation at maximum force	εM	%	DIN EN ISO 527	5
Tensile elongation at break	εB	%	DIN EN ISO 527	14
Modulus in flexure	Ef	MPa	DIN EN ISO 178	3632
Outer fibre stress at 3,5% outer fibre strain	σf3,5	MPa	DIN EN ISO 178	121
Flexural strength	σfM	MPa	DIN EN ISO 178	158
Flexural stress at break	σfB	MPa	DIN EN ISO 178	k.Br.
Elongation at flexural yield stress	εM	%	DIN EN ISO 178	6,95
Flexural elongation at break	εB	%	DIN EN ISO 178	k.Br.
Creep modulus at 1% deformation after 1000 h	E	N/mm²	DIN 53444	-
Stress at 1% deformation after 1000 h	σ1%	N/mm²	DIN 53444	-
Creep resistance	-	-	Relative value	-
Ball indetation hardness H358/30 (H132/30) [H49/30]	HB	N/mm²	DIN 2039	204
Shore A hardness	-	Shore	DIN 53505	>100
Shore D hardness	-	Shore	DIN 53505	88
Impact strength Charpy not notched	-	kJ/m²	EN ISO 179/1eU	k.Br.
Impact strength Charpy notched	-	kJ/m²	EN ISO 179/1eA	6
Loss tangent (1Hz)	tanδ	1	Internal Standard	-
Fatigue strength at 20°C, 106 stress cycles, 1 Hz	–	MPa	Internal Standard	-
Thermal				
Continuous operating temperature (long therm)	Rti	°C	UL 746B	250
Short term operating temperature (3 h)	-	°C	Internal Standard	260
Maximum Rti temperature for bushings when pressed	-	°C	Internal Standard	100
Melting temperature	Tm	°C	DSC	344
Glass transition temperature	Tg	°C	DSC	154
Coefficient of thermal expansion up to 100°C	α	10^{-5}/K	ISO E830	5
Coefficient of thermal expansion up to 150°C	α	10^{-5}/K	ISO E831	6,3
Heat distortion temperature HDT/A 1,8 M Pa	HDT (A)	°C	DIN EN ISO 75	160
Thermal conductivity	λ	W/(m*K)	DIN 52612	0,24
Specific heat capacity	c_p	W/(m*K)	DSC	1,32
Fire behaviour (3,2 mm) UL94	-	-	UL 94 HB	V-0
Limiting oxygen index (LOI)	%	LOI	DIN EN ISO 4589	-

Properties	Symbol	Unit	Standard	Value
Electrical				
Volume resistivity	K_D	Ω*cm	IEC 60093	-
Surface resistance	R_O	Ω	IEC 60093	1,50E+13
Penetration resistance	E	kV/mm	IEC 243	-
Tracking resistance	-	V	IEC 112	-
Dielectric constant (110Hz)	-	1	IEC 250	3,2
Dissipation factor (110Hz)	tanδ	1	IEC 112	-
PV Values				
Max. surface pressure v=1m/min	p_{zul}	N/mm²	Internal test radial bushing	21,5
Max. surface pressure v=10m/min	p_{zul}	N/mm²		1,94
Max. surface pressure v=100m/min	p_{zul}	N/mm²		0,11
Max. surface pressure v=200m/min	p_{zul}	N/mm²		0,04
Evolution of heat with v=1m/min	-	°C		97
Evolution of heat with v=10m/min	-	°C		102
Evolution of heat with v=100m/min	-	°C		63
Evolution of heat with v=200m/min	-	°C		90
Friction				
µ static 20°C dry operation	$\mu_{stat.}$	1	Internal Standard inclined plane	0,26
µ dynamic 20°C dry operation	$\mu_{dyn.}$	1		0,17
µ dynamic 100°C dry operation	$\mu_{dyn.}$	1		0,17
Wear				
Wear factor at 20°C	-	mm/100 km	Internal test periodic translative movement under load	0,17
Wear factor at 100°C	-	mm/100 km		0,49
Wear factor at 200°C	-	mm/100 km		0,7
Wear factor at 240°C	-	mm/100 km		0,35
Available as				
Tubes (hollow rods)	-	-	-	✓
Sheets	-	-	-	✓
Rods	-	-	-	✓
Plastic granules	-	-	-	✓
Injection moulded parts	-	-	-	✓
Machined parts	-	-	-	✓
Precision				
Dimensional stability with moisture absorption	-	-	Relative value	⑩
Water absorption 23°C / RMC 93%	-	%	DIN EN ISO 62	0,05
Water absorption until an equilibrium moisture content	-	%	DIN EN ISO 62	0,5
Dimensional stability with temperature variation	-	-	Relative value	⑥
High precision bushings (negative clearance)	-	-	-	✓
Alignment adjustment	-	-	Relative value	④
Environmental influences				
Suitable for use in water	-	-	-	✓
Resistance against hot water	–	°C	-	200
Resistance against dust, dirt, abrasive substances	-	-	Relative value	⑦
UV rays resistance	–	-	Relative value	③
Suitable for outdoor use	-	-	Relative value	⑥
Resistance to chemicals	-	–	Relative value	⑨
FDA compliant	-	-	-	✓
Suitable for vaccum	-	-	-	✓
Rate of desorption	a_{1h}	mbar*l (s/cm²)	-	-
ROHS / WEEE	-	-	-	✓
Free from silicone	-	-	-	✓
Free from PTFE	-	-	-	✓
Sterilization				
Resistance against disinfectant	-	-	-	✓
Moist heat sterilization	-	-	Relative value	⑧
Gamma-rays radiation sterilization	-	-	Relative value	⑩
Chemical sterilization	-	-	Relative value	⑩
UV-sterilization	-	-	Relative value	⑦

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❶ Low
⑩ High
✓ Applicable
(✓) Limited
✗ Not applicable

k.Br. No break

n.d. Not feasible
n.v. Non-existent
- Not determined

All the tests are been made with a standard conditioning atmosphere of 23°C (at the moment no other temperature is available). The specified values are established from average values of several tests and they correspond to our today's knowledge. They are only to be used as information about our products and as help for the material selection. With these values, we do not ensure specific properties, or the suitability for certain application, therefore we do not assume any legal responsibility for an improper usage. The used test pieces have been machined from extruded semi-finished material. Since the plastics´ properties depend on the manufacturing process (extrusion, injection moulding), on the dimensions of the semi finished material and on the degree of crystallinity, the actual properties of a specific product may slightly deviate from the tested ones. For information about divergent properties do not hesitate to contact us. On request we advise you regarding the most appropriate component design and the definition of material specifications more suitable to your application data. Notwithstanding, the customer bears all the responsibility for the thorough examination of suitability, efficiency, efficacy and safety of the chosen products in pharmaceutical applications, medical devices or other end uses.