Dexnyl© PEEK + PTFE ca.10% + anderer Kunststoff SF_1

Technical Datasheet

Properties	Symbol	Unit	Standard	Value
Information				
Material code	-	-	Internal Standard	
Colour	-	-	-	Beige
Density	ρ	kg/dm³	ISO 1183	1,33
Mechanical				
Compressive modulus	Ec	MPa	DIN EN ISO 604	3700
Elastic limit	σ_{el}	MPa	Internal Standard	119
Compressive stress at yield	σ_Y	MPa	DIN EN ISO 604	145
Compressive strength	σ_M	MPa	DIN EN ISO 604	n.v.
Compressive stress at 3,5% strain	$\sigma_{3,5\%}$	MPa	DIN EN ISO 604	145
Compressive strength (0,01 h)	σ_M	MPa	Internal Standard	127
Compressive strength (100 h)	σ_M	MPa	Internal Standard	102
Compressive strength (10000 h)	σ_M	MPa	Internal Standard	43
Compressive stress at break	σ_B	MPa	DIN EN ISO 604	k.Br.
Elastic compression limit	ε_{el}	%	Internal Standard	1,7
Nominal compressive yield strain	ε_{cy}	%	DIN EN ISO 604	2,5
Nominal compressive strain at compressive strength	ε_{cM}	%	DIN EN ISO 604	n.v.
Nominal compressive strain at break	ε_{cB}	%	DIN EN ISO 604	k.Br.
Modulus in tension (tensile modulus)	E_t	MPa	DIN EN ISO 527	3500
Elastic limit	σ_{el}	MPa	Internal Standard	74
Tensile stress at yield	σ_Y	MPa	DIN EN ISO 527	-
Tensile strength	σ_M	MPa	DIN EN ISO 527	117
Tensile stress at break	σ_B	MPa	DIN EN ISO 527	117
Elastic yield point	ε_{el}	%	Internal Standard	5
Yield strain	ε_y	%	DIN EN ISO 527	-
Elongation at maximum force	ε_M	%	DIN EN ISO 527	10,1
Tensile elongation at break	ε_B	%	DIN EN ISO 527	10,1
Modulus in flexure	E_f	MPa	DIN EN ISO 178	3900
Outer fibre stress at 3,5% outer fibre strain	$\sigma_{f3,5}$	MPa	DIN EN ISO 178	117,5
Flexural strength	σ_{fM}	MPa	DIN EN ISO 178	143
Flexural stress at break	σ_{fB}	MPa	DIN EN ISO 178	k.Br.
Elongation at flexural yield stress	ε_M	%	DIN EN ISO 178	6,2
Flexural elongation at break	ε_B	%	DIN EN ISO 178	k.Br.
Creep modulus at 1% deformation after 1000h	E	N/mm²	DIN 53444	3040
Stress at 1% deformation after 1000h	$\sigma_{1\%}$	N/mm²	DIN 53444	32
Creep resistance	-	-	Relative value	⑤
Ball indentation hardness H358/30 (H132/30) [H49/30]	HB	N/mm²	DIN 2039	175
Shore A hardness	-	Shore	DIN 53505	>100
Shore D hardness	-	Shore	DIN 53505	86
Impact strength Charpy not notched	-	kJ/m²	EN ISO 179/1eU	k.Br.
Impact strength Charpy notched	-	kJ/m²	EN ISO 179/1eA	6,3
Loss tangent (1Hz)	tanδ	1	Internal Standard	0,061
Fatigue strength at 20°C, 106 stress cycles, 1 Hz	-	MPa	Internal Standard	70
Thermal				
Continuous operating temperature (long term)	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	140
Melting temperature	T_m	°C	DSC	340
Glass transition temperature	T_g	°C	DSC	170
Coefficient of thermal expansion up to 100°C	α	10^{-5}/K	ISO E 830	4,7
Coefficient of thermal expansion up to 150°C	α	10^{-5}/K	ISO E 831	5,9
Heat distortion temperature HDT/A 1,8 MPa	HDT(A)	°C	DIN EN ISO 75	170
Thermal conductivity	λ	W/(m*K)	DIN 52612	-
Specific heat capacity	c_p	kJ/(kg*K)	DSC	1,09
Fire behaviour (3,2mm) UL94	-	-	UL 94 HB	V-0
Limiting oxygen index (LOI)	%	LOI	DIN EN ISO 4589	16

Properties	Symbol	Unit	Standard	Value
Electrical				
Volume resistivity	R_D	Ω*cm	IEC 60093	5E16
Surface resistance	R_O	Ω	IEC 60093	3,2E12
Penetration resistance	E	kV/mm	IEC 243	25
Tracking resistance	-	V	IEC 112	-
Dielectric constant (110Hz)	-	1	IEC 250	3,1
Dissipation factor (110Hz)	tanδ	1	IEC 112	0,002
PV values				
Max. surface pressure v=1m/min	p_{zul}	N/mm²	Internal test radial bushing	50,73
Max. surface pressure v=10m/min	p_{zul}	N/mm²		2,10
Max. surface pressure v=100m/min	p_{zul}	N/mm²		0,24
Max. surface pressure v=200m/min	p_{zul}	N/mm²		0,12
Evolution of heat with v=1m/min	-	°C		61
Evolution of heat with v=10m/min	-	°C		47
Evolution of heat with v=100m/min	-	°C		109
Evolution of heat with v=200m/min	-	°C		115
Friction				
μ static 20° C dry operation	$\mu_{stat.}$	1	Internal Standard inclined plane	0,11
μ dynamic 20° C dry operation	$\mu_{dyn.}$	1		0,13
μ dynamic 100° C dry operation	$\mu_{dyn.}$	1		0,2
Wear				
Wear factor at 20°C	-	mm/100 km	Internal test periodic translative movement under load	0,34
Wear factor at 100°C	-	mm/100 km		0,14
Wear factor at 200°C	-	mm/100 km		0,10
Wear factor at 240°C	-	mm/100 km		0,24
Available as				
Tubes (hollow rods) up to ø (de)	-	-	-	✓
Sheets up to max. thickness	-	-	-	✓
Rods up to ø (de)	-	-	-	✓
Plastic granules	-	-	-	✓
Injection moulded parts	-	-	-	✓
Machined parts	-	-	-	✓
Precision				
Dimensional stability with moisture absorption	-	-	Relative value	⑨
Water absorption 23°C / RMC 93%	-	%	DIN EN ISO 62	0,1
Water absorption until an equilibrium moisture content	-	%	DIN EN ISO 62	0,5
Dimensional stability with temperature variation	-	-	Relative value	⑤
High precision bushings (negative clearance)	-	-	-	✓
Alignment adjustment	-	-	Relative value	④
Envrionmental influences				
Suitable for use in water	-	-	-	✓
Resistance against hot water	-	°C	-	140
Resistance against dust, dirt, abrasive substances	-	-	Relative value	⑦
UV rays resistance	-	-	Relative value	⑨
Suitable for outdoor use	-	-	Relative value	⑦
Resistance to chemicals	-	-	Relative value	⑦
FDA compliant	-	-	-	-
Suitable for vacuum	-	-	-	✓
Rate of desorption	a_{1h}	mbar*l/(s/cm²)	-	-
ROHS / WEEE	-	-	-	-
Free from silicone	-	-	-	✓
Free from PTFE	-	-	-	×
Sterilization				
Resistant against disinfectant	-	-	-	✓
Moist heat sterilization	-	-	Relative value	⑩
Gamma-rays radiation sterilization	-	-	Relative value	⑩
Chemical sterilization	-	-	Relative value	⑦
UV-sterilization	-	-	Relative value	⑦

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All the tests have been conducted with a standard conditioning atmosphere of 23°C (at the moment no other temperature is available). All the test specimens were made through extrusion process. 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, BIEGLO does not ensure specific properties, or the suitability for certain application, therefore BIEGLO does not assume any legal responsibility for an improper usage.
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.
Status: MAY 2021.

Legend

①	Low
⑩	High
✓	Applicable
×	Not applicable
(✓)	Limited
k.Br.	No break
n.d.	Not feasible
n.v.	Non-existent
-	Not determined