Technical Specification Sheets

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Registered Office Address: 124 City Road, London, England, EC1V 2NX. Registered in England, Company Number: 16267073

Chemical Designation
PEI (Polyetherimide)

Colour
beige opaque

Density
1.34 g/cm^3 (*2)

Main features
- inherent flame retardant
- high dimensional stability
- high thermal and mechanical capacity
- resistance against high energy radiation

Target Industries
- electronics
- automotive industry
- mechanical engineering
- aircraft and aerospace interiors
- aircraft and aerospace technology

General material information	parameter	value	unit	norm		comment
Diameter		1,75 +/- 0,05	mm	-		(1) standard spool body (2) do not dry spool >120°C (3) Ø 1,75mm
Spool measurements	holder	Ø 52	mm	-		
Spool measurements	width	55	mm	-		
Spool measurements	outer diameter	Ø 200	mm	-	1)	
Spool Material		Polycarbonate		-	2)	
Filament Load per Spool		500	g	-		
Filament Length per Spool		147	m	-	3)	

Mechanical properties	parameter	value	unit	norm		comment
Tensile strength	5mm/min, Orientation XY	83,7	MPa	DIN EN ISO 527-2	1)	(1) (*5) , (*6) (2) (*5) , (*6) (3) (*5) , (*6) (4) (*5) , (*6) (5) (*5) , (*6) (6) (*5) , (*6) (7) (*5) , (*6) (8) (*5) , (*6) (9) (*5) , (*6) (10) (*5) , (*6) (11) (*5) , (*6) (12) (*5) , (*6) (13) (*5) , (*6) (14) (*5) , (*6) (15) (*5) , (*6) (16) (*5) , (*6) (17) (*5) , (*6) (18) (*5) , (*6)
Tensile strength	5mm/min, Orientation XZ	88,1	MPa	DIN EN ISO 527-2	2)	
Tensile strength	5mm/min, Orientation ZX	49,3	MPa	DIN EN ISO 527-2	3)	
Modulus of elasticity (tensile test)	5mm/min, Orientation XY	2512,0	MPa	DIN EN ISO 527-2	4)	
Modulus of elasticity (tensile test)	5mm/min, Orientation XZ	2568,0	MPa	DIN EN ISO 527-2	5)	
Modulus of elasticity (tensile test)	5mm/min, Orientation ZX	2452,0	MPa	DIN EN ISO 527-2	6)	
Elongation at yield (tensile test)	5mm/min, Orientation XY	6,5	%	DIN EN ISO 527-2	7)	
Elongation at yield (tensile test)	5mm/min, Orientation XZ	6,9	%	DIN EN ISO 527-2	8)	
Elongation at yield (tensile test)	5mm/min, Orientation ZX	2,6	%	DIN EN ISO 527-2	9)	
Elongation at break (tensile test)	5mm/min, Orientation XY	9,7	%	DIN EN ISO 527-2	10)	
Elongation at break (tensile test)	5mm/min, Orientation XZ	20,8	%	DIN EN ISO 527-2	11)	
Elongation at break (tensile test)	5mm/min, Orientation ZX	2,6	%	DIN EN ISO 527-2	12)	
Flexural strength	2mm/min, Orientation XY	91,0	MPa	DIN EN ISO 178	13)	
Flexural strength	2mm/min, Orientation ZX	93,0	MPa	DIN EN ISO 178	14)	
Modulus of elasticity (flexural test)	2mm/min, Orientation XY	2120,0	MPa	DIN EN ISO 178	15)	
Modulus of elasticity (flexural test)	2mm/min, Orientation ZX	2500,0	MPa	DIN EN ISO 178	16)	
Elongation at break (flexural test)	2mm/min, Orientation XY	no break	%	DIN EN ISO 178	17)	
Elongation at break (flexural test)	2mm/min, Orientation ZX	4,1	%	DIN EN ISO 178	18)	

Thermal properties	parameter	value	unit	norm		comment
Glass transition temperature		180	°C	ASTM D 3418	1)	(1) (*2) (2) (*2) (3) (*2) (4) (*2) (5) (*2) (6) (*2)
Melting temperature		-	°C	DIN EN ISO 11357	2)	
Deflection temperature	HDT-A	153	°C	ISO-R 75 Method A	3)	
Service temperature	short term	170	°C	-	4)	
Service temperature	long term	150	°C	-	5)	
Thermal expansion (CLTE)		-	10^{-5} K $^{-1}$	DIN EN ISO 11359-1;2	6)	

Other properties	parameter	value	unit	norm		comment
Moisture absorption		0,39	%	DIN EN ISO 62	1)	(1) (*2) (2) (*2) (3) (*5) , (*6) (4) (*5) , (*6) (5) (*5) , (6*) (6) (*5) , (6*) (7) (*5) , (*6) (8) (*5) , (*6) (9) (*2)
Flammability (UL94)	125x13x1,5mm	V0		DIN IEC 60695-11-10;	2)	
Flammability	60 sec. Vertical Bunsen Burner test, FAR §25.853 (a) and Appendix F, Part I, para. (a)(1)(i)	1,5	mm	FAR 25.853	3)	
Flammability	12 sec. Vertical Bunsen Burner test, FAR §25.853 (a) and Appendix F, Part I, para. (a)(1)(ii)	1,5	mm	FAR 25.853	4)	
Flammability	15 sec. Horizontal Bunsen Burner test, FAR §25.853 (a) and Appendix F, Part I, para. (a)(1)(iv)	1,5	mm	FAR 25.853	5)	
Flammability	Heat Release, as per FAR §25.853 (d) and Appendix F, Part IV	1,5	mm	FAR 25.853	6)	
Flammability	Smoke density, as per FAR §25.853 (d) and Appendix F, Part V	1,5	mm	FAR 25.853	7)	
Flammability	Gas Toxicity, as per Boeing BSS 7239	1,5	mm	-	8)	
Melt flow index (MFI)	295°C / 6,6kg	8,9	g/10 min	DIN EN ISO 1133	9)	

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Processing parameter	*parameter*	*value*	*unit*	*norm*		*comment*
Nozzle temperature		360 - 390	°C	-		(1) required
Max. melt temperature		410	°C	-		
Print bed temperature		160 - 190	°C	-		
Build chamber temperature		150 - 170	°C	-	1)	
Nozzle diameter		0,4	mm	-		
Print speed		30 - 40	mm/s	-		
Fan speed		0	%	-		

Predrying	*parameter*	*value*	*unit*	*norm*		*comment*
Drying temperature		120	°C	-	1)	(1) (*4)
Drying time		8	h	-		

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