G-Etronax PI - Sheet

Components: Glass fabric - Polyimide
Colour*: Brown
Serial no.: 770
Version no.: V1.0-17/06/15

Closest relevant standards
IEC 60893: PI GC 301
DIN 7735: -
NEMA LI 1: -

Mechanical properties	Test method	Thickness	Value	Unit	
Bending strength at RT	ISO 178	≥ 1,5 mm	450	MPa	*1
Bending strength at a high temperature	ISO 178	≥ 1,5 mm	360	MPa	*E
Modulus of elasticity	ISO 178	≥ 1,5 mm	25000	MPa	*1
Compressive strength	ISO 604	≥ 5 mm	650	MPa	*1
Izod impact strength, parallel with layers	ISO 180/2A	≥ 5 mm	55	Kj/m^2	*1
Shearing strength, parallel	ISO 60893-2	≥ 5 mm	55	MPa	*1
Tensile strength	ISO 527	≥ 1,6 mm	300	MPa	*1

Electrical properties	Test method	Thickness	Value	Unit	
Electrical strength in oil at 90°C, perpendicular	IEC 60243-1	3 mm	20	kV/mm	*2
Electrical strength in oil at 90°C, parallel	IEC 60243-1	≥ 3 mm	60	kV/25mm	*2
Permitivity 50 MHz	IEC 62631-2-1	≤ 3 mm	4		*3
Permitivity 1 MHz	IEC 62631-2-1	≤ 3 mm	-		-
Dissipation factor 50 MHz	IEC 62631-2-1	≤ 3 mm	0.01		*3
Dissipation factor 1 MHz	IEC 62631-2-1	≤ 3 mm	-		-
Insulation resistance after submersion in water	IEC 62631-3-3	All	500000	MΩ	*4
Comparative tracking index	IEC 60112	≥ 3 mm	250	CTI	*1

Conditioning

1	24h/23°C/50%RH
2	24h/23°C/50%RH + 1h/ in oil at 90°C
3	96h/105°C + 1h/23°C/20%RH
4	24h/50°C/<20% RH + 24h in water at 23°C
5	96h/105°C + 1h/ in oil at 90°C

Notes

A	1h/130°C / measured at 130°C
B	1h/150°C / measured at 150°C
C	Halogen free
D	1h/180°C / measured at 180°C
E	1h/200°C / measured at 200°C

The above values are average values resulting from extensive tests in our laboratories. ELEKTRO-ISOLA A/S disclaims any and all liability for the performance of our materials in applications outside our control. Elektro-Isola A/S reserves the right to modify the above data without notice or further information. Furthermore, we refer to our general disclaimer.

* Note that color and surface are indicative. As this is a technical product, colour and expression may vary according to dimensions, batches and machining. If you want further information or have special decorative needs, please feel free to contact us.

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Closest relevant standards
IEC 60893: PI GC 301
DIN 7735: -
NEMA LI 1: -

Physical and thermal properties	Test method	Thickness	Value	Unit	
Temperature index 20,000 h (T.I.)	IEC 60216	≥ 3 mm	190	°C	-
Fire class	≥ 4 mm	≥ 4 mm	V-0	-	-
Density	ISO 1183-A	All	1.95	g/cm³	-
Water absorption	ISO 62-1	50x50x3 mm	25	mg	-
Smoke emission & toxicity	-	-	-	-	-
Oxygen Index (OI)	EN ISO 4589-2	-			
Smoke density (Ds max.)	-	-	-	-	-
Smoke density (Ds max.)	-	-	-	-	-
Toxicity (CIT_{NLP})	NF X 70-100-1/-2	-	-	-	-
Toxicity ($CIT_{G, 8\ min}$)	EN 17084	-	-	-	-

Characteristics and applications

The most thermally stable material of all the types, it retains its outstanding mechanical properties even at very high application temperatures. Used as thermal insulation plates in moulding tools, presses and similar with strict requirements to compression strength and thermal stability. See the curve.

Conditioning

1	24h/23°C/50%RH
2	24h/23°C/50%RH + 1h/ in oil at 90°C
3	96h/105°C + 1h/23°C/20%RH
4	24h/50°C/<20% RH + 24h in water at 23°C
5	96h/105°C + 1h/ in oil at 90°C

Notes

A	1h/130°C / measured at 130°C
B	1h/150°C / measured at 150°C
C	Halogen free
D	1h/180°C / measured at 180°C
E	1h/200°C / measured at 200°C

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ELEKTRO-ISOLA

G-Etronax PI - Tubes

Components: Glass fabric - Polyimide
Colour*: Brown
Serial no.: 870
Version no.: V1.0-17/06/15

Closest relevant standards
IEC/EN 61212-3-1: -
DIN 7735: -
NEMA LI 1: -

Mechanical properties	Test method	Dimension	Value	Unit	
Bending strength	ISO 178	id>100 mm	380	MPa	*1
Compressive strength, axial	ISO 604		300	MPa	*1
Cohesion between layers	IEC 61212-2	id<100 mm	460	MPa	*1

Electrical properties	Test method	Thickness	Value	Unit	
Electrical strength in oil at 90°C, perpendicular	IEC 60243-1	B) 3 mm	10	kV/mm	*2
Electrical strength in oil at 90°C, parallel	IEC 60243-1	B) ≥ 3 mm	70	kV/25mm	*2
Permitivity 50 MHz	IEC 62631-2-1		4		*3
Permitivity 1 MHz	IEC 62631-2-1		-		-
Dissipation factor 50 MHz	IEC 62631-2-1		0.01		*3
Dissipation factor 1 MHz	IEC 62631-2-1		-		-
Insulation resistance after submersion in water	IEC 62631-3-3		1000	MΩ	*4
Comparative tracking index	IEC 60112	≥ 3 mm	250	CTI	*F

Physical and thermal properties	Test method	Thickness	Value	Unit	
Temperature index 20,000 h (T.I.)	IEC 60216	≥ 3 mm	190	°C	*F
Fire class	IEC 60695-11-10	≥ 4 mm	V-0	-	*F
Density	ISO 1183-A	All	1.9	g/cm³	-
Water absorption	ISO 62-1		0.4	mg/cm²	-
Smoke emission & toxicity	EN 45545-2; R22, R23 & R24	-	-	-	-
Oxygen Index (OI)	EN ISO 4589-2	-	-	%	-
Smoke density (Ds max.)	EN ISO 5659-2	-	-	-	-
Smoke density (Ds max.)	EN ISO 5659-2	-	-	-	-
Toxicity (CIT_{NLP})	NF X 70-100-1/-2	-	-	-	-
Toxicity ($CIT_{G, 8\ min}$)	EN 17084	-	-	-	-

Characteristics and applications

Extremely good mechanical properties, most of all at high temperatures. Construction material for the aviation and space industry. Low thermal conductivity.

Conditioning

1	24h/23°C/50%RH
2	24h/23°C/50%RH + 1h/ in oil at 90°C
3	96h/105°C + 1h/23°C/20%RH
4	24h/50°C/<20% RH + 24h in water at 23°C
5	96h/105°C + 1h/ in oil at 90°C

Notes

A	ID > 8 mm and/or OD > 10 mm
B	Wall thickness
C	Halogen free
D	230 MPa measured at 150°C
E	Wall thickness ≥ 4,0 mm
F	Tested on sheet material

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