ELEKTRO-ISOLA

**Material overview for sheets**
Grønlandsvej 197 +45 7642 8200
DK-7100, Vejle - Denmark ei@elektro-isola.dk
VAT no.: DK20429488 www.elektro-isola.com

Test method: IEC/EN 60893-2
Norm
Thickness of sample
Conditioning: IEC 60212

**Closest relevant standards**

| Material designation | IEC 60893-3-1 | NEMA | Reinforcement | Resin | Colour** | Mechanical properties: Bending strength, Room temperature | Bending strength, Elevated temperature | Modulus of elasticity | Compressive strength | Izod impact strength, parallel with layers | Shearing strength, parallel | Tensile strength |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 6.1 | 6.1 | 6.2 | 6.3 | 6.4 | 6.5 | 6.6 |
| | | | | | | ISO 178 | ISO 178 | ISO 178 | ISO 604 | ISO180/2A | IEC 60893-2 | ISO 527-4 |
| | | | | | | ≥ 1,5 mm | ≥ 1,5 mm | ≥ 1,5 mm | ≥ 5 mm | ≥ 5 mm | ≥ 5 mm | ≥ 1,5 mm |
| | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| | | | | | | MPa | MPa | MPa | MPa | kJ/m² | MPa | MPa |
| Etronit I | PF CP 202 | XX | Paper | Phenol | | 150 | | 8000 | 300 | 3.5 | 35 | 110 |
| Etronit II | PF CP 203 | XX | Paper | Phenol | | 160 | | 8000 | 300 | 3.3 | 35 | 110 |
| Etronit IIQ | PF CP 203 | XX | Paper | Phenol | | 170 | | 8000 | 320 | 3.5 | 35 | 140 |
| Etronit IIQ S | PF CP 203 | XX | Paper | Phenol | | 170 | | 8000 | 320 | 3.5 | 35 | 140 |
| Etronit IIQ S AL | PF CP 203 | XX | Paper | Phenol | | 170 | | 8000 | 320 | 3.5 | 35 | 140 |
| Etronit IIQR | PF CP 203 | XX | Paper | Phenol | | 160 | | 8000 | 300 | 3.3 | 35 | 110 |
| Etronit IS | PF CP 202 | XXX | Paper | Phenol | | 140 | | 8000 | 300 | 3.5 | 35 | 110 |
| Etronit MBM | | - | Paper | Phenol/Melamine | | 120 | | 10000 | 300 | 3.3 | 35 | 90 |
| Etronax MF | PF CC 201 | C | Cotton fabric | Phenol | | 115 | | 7000 | 320 | 10 | 40 | 80 |
| Etronax MMF | PF CC 203 | L | Cotton fabric | Phenol | | 130 | | 7000 | 280 | 10 | 50 | 100 |
| Etronax MMMF | PF CC 305 | - | Cotton fabric | Phenol | | 140 | | 8000 | 280 | 6 | 50 | 90 |
| Etronax MFP G | | - | Cotton/synthetic fabric | Phenol | | 140 | | 5000 | 320 | 10 | 50 | 85 |
| Etronax P EP | EP PC 301 | - | Polyester fabric | Epoxy | | 150 | | 4500 | 450 | 50 | 35 | 135 |
| G-Etronax B * | PF GC 201 | G-3 | Glass fabric | Phenol | | 350 | | 19000 | 500 | 55 | 50 | 250 |
| G-Etronax EP 10 | EP GC 201 | G-10 | Glass fabric | Epoxy | | 450 | 250 (A) | 22000 | 550 | 65 | 50 | 320 |
| G-Etronax EP 11 | EP GC 308 | G-11 | Glass fabric | Epoxy | | 450 | 300 (B) | 22000 | 550 | 65 | 55 | 320 |
| G-Etronax EP 203 | EP GC 203 | G-11 | Glass fabric | Epoxy | | 450 | 280 (B) | 22000 | 550 | 65 | 50 | 320 |
| G-Etronax EP 215 S | EP GC 308 | G-11 | Glass fabric | Epoxy | | 430 | 300 (B) | 22000 | 550 | 60 | 55 | 320 |
| G-Etronax EP 311 HC | EP GC 311 | FR-5 | Glass fabric | Epoxy | | 375 | 280 (B) | 20000 | 500 | 60 | 45 | 300 |
| G-Etronax EP FR4 | EP GC 204 | FR 4 | Glass fabric | Epoxy | | 450 | 170 (B) | 22000 | 550 | 65 | 55 | 320 |
| G-Etronax PI | PI GC 301 | - | Glass fabric | Polyimide | | 450 | 360 (E) | 25000 | 650 | 55 | 55 | 300 |
| G-Etronax PM 953 | UP GM 203 | GPO 3 | Glass mat | Polyester | | 180 | 80 (A) | 16000 | 300 | 50 | 20 | 140 |
| G-Etronax PM GPO 3 | UP GM 203 | GPO 3 | Glass mat | Polyester | | 160 | 70 (A) | 10000 | 240 | 50 | 20 | 100 |
| G-Etronax PM GPO 3 | UP GM 203 | GPO 3 | Glass mat | Polyester | | 160 | 70 (A) | 10000 | 240 | 50 | 20 | 100 |
| G-Etronax PM H | UP GM 204 | GPO 1 | Glass mat | Polyester | | 250 | 100 (A) | 11000 | 350 | 60 | 35 | 150 |
| G-Etronax SI | SI GC 202 | G-7 | Glass fabric | Silicone | | 135 | | 13000 | 330 | 45 | 15 | 160 |

The above data are average values based on the results of comprehensive tests in our laboratories. Elektro-Isola A/S does not assume responsibility for the performance of our products in applications over which we have no control. For updated technical values, we refer to our website: www.elektro-isola.com

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** 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.

09/11/2026

**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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Test method: IEC/EN 60893-2
Norm
Thickness of sample
Conditioning: IEC 60212

**Closest relevant standards**

| Material designation | IEC 60893-3-1 | NEMA | Reinforcement | Resin | Colour** | Electrical strength in 90°C oil Perpendicular | Electrical strength in 90°C oil Parallel | Permitivity 50HZ | Permitivity 1MHz | Dissipation factor 50HZ | Dissipation factor 1MHz | Insulation resistance after submersion in water | Comparative tracking index [CTI] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 7.1.3.2 | 7.1.3.3 | 7.2 | | 7.2 | | 7.3 | 7.4 |
| | | | | | | IEC 60243-1 | | IEC 62631-2-1 | | IEC 62631-2-1 | | IEC 62631-3-3 | IEC 60112 |
| | | | | | | 3 mm | ≥ 3 mm | ≤ 3 mm | ≤ 3 mm | ≤ 3 mm | ≤ 3 mm | All | ≥ 3 mm |
| | | | | | | 2 | 2 | 3 | 3 | 3 | 3 | 4 | 1 |
| | | | | | | kV/mm | kV/25 mm | | | | | MΩ | V |
| Etronit I | PF CP 202 | XX | Paper | Phenol | | 13.3 | 60 | 5 | | 0.03 | | 50 | 100 |
| Etronit II | PF CP 203 | XX | Paper | Phenol | | 10 | 30 | 5 | | 0.04 | | 50 | 100 |
| Etronit IIQ | PF CP 203 | XX | Paper | Phenol | | 5 | 20 | 5 | | 0.05 | | 50 | 100 |
| Etronit IIQ S | PF CP 203 | XX | Paper | Phenol | | 4 | 15 | 5 | | 0.05 | | 100 | 100 |
| Etronit IIQ S AL | PF CP 203 | XX | Paper | Phenol | | 4 | 15 | 5 | | 0.05 | | 100 | 100 |
| Etronit IIQR | PF CP 203 | XX | Paper | Phenol | | 7 | 25 | 5 | | 0.04 | | 50 | 100 |
| Etronit IS | PF CP 202 | XXX | Paper | Phenol | | 14 (5) | 80 (5) | 5 | | 0.02 | | 50 | 100 |
| Etronit MBM | | - | Paper | Phenol/Melamine | | 5 | 15 | 6 | | 0.04 | | 100 | 500 |
| Etronax MF | PF CC 201 | C | Cotton fabric | Phenol | | 1 | 5 | | | | | 1 | 100 |
| Etronax MMF | PF CC 203 | L | Cotton fabric | Phenol | | 2 | 12 | | | | | 1 | 100 |
| Etronax MMMF | PF CC 305 | - | Cotton fabric | Phenol | | 2 | 12 | | | | | 1 | 100 |
| Etronax MFP G | | - | Cotton/synthetic fabric | Phenol | | | | | | | | | |
| Etronax P EP | EP PC 301 | - | Polyester fabric | Epoxy | | 20 | 70 | 4 | | 0.01 | | 100000 | 200 |
| G-Etronax B | PF GC 201 | G-3 | Glass fabric | Phenol | | 10 | 30 | 5 | | 0.03 | | 1000 | 100 |
| G-Etronax EP 10 | EP GC 201 | G-10 | Glass fabric | Epoxy | | 16 | 60 | 4.5 | 4.5 | 0.008 | 0.01 | 500000 | 200 |
| G-Etronax EP 11 | EP GC 308 | G-11 | Glass fabric | Epoxy | | 18 | 70 | 5 | 5 | 0.008 | 0.01 | 500000 | 200 |
| G-Etronax EP 203 | EP GC 203 | G-11 | Glass fabric | Epoxy | | 16 | 60 | 4.5 | 4.5 | 0.008 | 0.01 | 500000 | 200 |
| G-Etronax EP 215 S | EP GC 308 | G-11 | Glass fabric | Epoxy | | 18 | 70 | 5 | 5 | 0.008 | 0.01 | 500000 | 200 |
| G-Etronax EP 311 HC | EP GC 311 | FR-5 | Glass fabric | Epoxy | | 15 | 70 | 4.5 | 4.5 | 0.005 | 0.008 | 500000 | 600 |
| G-Etronax EP FR4 | EP GC 204 | FR 4 | Glass fabric | Epoxy | | 15 | 70 | 4.5 | 4.5 | 0.005 | 0.008 | 500000 | 200 |
| G-Etronax PI | PI GC 301 | - | Glass fabric | Polyimide | | 20 | 60 | 4 | | 0.01 | | 500000 | 250 |
| G-Etronax PM 953 | UP GM 203 | GPO 3 | Glass mat | Polyester | | 11.5 | 60 | 4 | 4 | 0.04 | 0.04 | 1000 | 600 |
| G-Etronax PM GPO 3 | UP GM 203 | GPO 3 | Glass mat | Polyester | | 12 | 60 | 4 | 4 | 0.04 | 0.04 | 1000 | 600 |
| G-Etronax PM GPO 3 | UP GM 203 | GPO 3 | Glass mat | Polyester | | 12 | 60 | 4 | 4 | 0.04 | 0.04 | 1000 | 600 |
| G-Etronax PM H | UP GM 204 | GPO 1 | Glass mat | Polyester | | 10 | 60 | 4 | 4 | 0.01 | 0.01 | 1000 | 600 |
| G-Etronax SI | SI GC 202 | G-7 | Glass fabric | Silicone | | 7 | 50 | 4 | 4 | 0.003 | 0.003 | 100000 | 400 |

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**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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## Closest relevant standards

Test method: IEC/EN 60893-2

Norm

Thickness of sample

Conditioning: IEC 60212

| Material designation | IEC 60893-3-1 | NEMA | Reinforcement | Resin | Colour** | Physical and thermal properties | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Temperature index 20,000 h (T.I.) | Fire class | Density | Water absorption | Smoke emission & toxicity | Oxygen Index (OI) | Smoke density (Ds max.) | Smoke density (Ds max.) | Toxicity ($CIT_{NLP}$) |
| | | | | | | 8.1 | 8.2 | 9.1 | 9.2 | - | - | - | - | - |
| | | | | | | ISO 60216 | IEC 60695-11-10 | ISO 1183-A | ISO 62-1 | EN 45545-2; R22, R23 & R24 | EN ISO 4589-2 | EN ISO 5659-2 | EN ISO 5659-2 | NF X 70-100-1/-2 |
| | | | | | | ≥ 3 mm | - | All | 50x50x3 mm | - | - | - | - | - |
| | | | | | | - | - | 1 | 4 | - | - | - | - | - |
| | | | | | | °C | Thickness in mm /Category | g/cm³ | mg | Thickness in mm /Classification | Thickness in mm /% | Thickness in mm /Value | Thickness in mm /Value | - |
| Etronit I | PF CP 202 | XX | Paper | Phenol | | 120 | | 1.35 | 120 | | | | | |
| Etronit II | PF CP 203 | XX | Paper | Phenol | | 120 | | 1.35 | 110 | | | | | |
| Etronit IIQ | PF CP 203 | XX | Paper | Phenol | | 120 | | 1.35 | 200 | | | | | |
| Etronit IIQ S | PF CP 203 | XX | Paper | Phenol | | 120 | | 1.35 | 200 | | | | | |
| Etronit IIQ S AL | PF CP 203 | XX | Paper | Phenol | | 120 | | 1.35 | 200 | | | | | |
| Etronit IIQR | PF CP 203 | XX | Paper | Phenol | | 120 | | 1.35 | 110 | | | | | |
| Etronit IS | PF CP 202 | XXX | Paper | Phenol | | 120 | | 1.35 | 100 | | | | | |
| Etronit MBM | | - | Paper | Phenol/Melamine | | 120 | ≥ 8 / V-0 | 1.4 | 100 | | | | | |
| Etronax MF | PF CC 201 | C | Cotton fabric | Phenol | | 100 | | 1.35 | 120 | | | | | |
| Etronax MMF | PF CC 203 | L | Cotton fabric | Phenol | | 100 | | 1.35 | 100 | | | | | |
| Etronax MMMF | PF CC 305 | - | Cotton fabric | Phenol | | 100 | | 1.4 | 60 | | | | | |
| Etronax MFP G | | - | Cotton/synthetic fabric | Phenol | | 100 | | 1.35 | 450 | | | | | |
| Etronax P EP | EP PC 301 | - | Polyester fabric | Epoxy | | 130 | | 1.35 | 20 | | | | | |
| G-Etronax B | PF GC 201 | G-3 | Glass fabric | Phenol | | 155 | ≥ 3 / V-0 | 1.95 | 40 | | | | | |
| G-Etronax EP 10 | EP GC 201 | G-10 | Glass fabric | Epoxy | | 140 | | 1.85 | 15 | | | | | |
| G-Etronax EP 11 | EP GC 308 | G-11 | Glass fabric | Epoxy | | 180 | | 1.85 | 15 | | | | | |
| G-Etronax EP 203 | EP GC 203 | G-11 | Glass fabric | Epoxy | | 160 | | 1.85 | 15 | | | | | |
| G-Etronax EP 215 S | EP GC 308 | G-11 | Glass fabric | Epoxy | | 180 | | 1.85 | 15 | | | | | |
| G-Etronax EP 311 HC | EP GC 311 | FR-5 | Glass fabric | Epoxy | | 180 | ≥ 3 / V-0 [c] | 1.9 | 20 | ≥ 3 / HL1, HL2, HL3 | 3 / ≥ 32 | 25 / 3 | 1 / 75 | |
| G-Etronax EP FR4 | EP GC 204 | FR 4 | Glass fabric | Epoxy | | 145 | ≥ 0.2 / V-0 | 1.9 | 10 | | | | | |
| G-Etronax PI | PI GC 301 | - | Glass fabric | Polyimide | | 190 | ≥ 4 / V-0 | 1.95 | 25 | | | | | |
| G-Etronax PM 953 | UP GM 203 | GPO 3 | Glass mat | Polyester | | 145 | ≥ 3 / V-0 | 1.9 | 30 | ≥ 3 / HL1, HL2, HL3 | 3 / ≥ 32 | 25 / 5 | 3 / 78 | |
| G-Etronax PM GPO 3 | UP GM 203 | GPO 3 | Glass mat | Polyester | | 155 | ≥ 3 / V-0 | 1.85 | 30 | | | | | |
| G-Etronax PM GPO 3 | UP GM 203 | GPO 3 | Glass mat | Polyester | | 155 | ≥ 3 / V-0 | 1.85 | 30 | | | | | |
| G-Etronax PM H | UP GM 204 | GPO 1 | Glass mat | Polyester | | 180 | | 1.6 | 25 | | | | | |
| G-Etronax SI | SI GC 202 | G-7 | Glass fabric | Silicone | | 220 | ≥ 3 / V-0 | 1.9 | 12 | | | | | |

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