


## Etronax MMF - Sheet

**Components:** Cotton fabric - Phenol  
**Colour\*:**   
**Serial no.:** 230  
**Version no.:** V1.0-17/06/15

### Closest relevant standards

**IEC 60893:** PF CC 203  
**DIN 7735:** Hgw 2083  
**NEMA LI 1:** L

Mechanical properties	Test method	Thickness	Value	Unit	
Bending strength at RT	ISO 178	≥ 1,5 mm	130	MPa	*1
Bending strength at a high temperature	ISO 178	≥ 1,5 mm	-	MPa	-
Modulus of elasticity	ISO 178	≥ 1,5 mm	7000	MPa	*1
Compressive strength	ISO 604	≥ 5 mm	280	MPa	*1
Izod impact strength, parallel with layers	ISO 180/2A	≥ 5 mm	10	Kj/m <sup>2</sup>	*1
Shearing strength, parallel	ISO 60893-2	≥ 5 mm	50	MPa	*1
Tensile strength	ISO 527	≥ 1,6 mm	100	MPa	*1

Electrical properties	Test method	Thickness	Value	Unit	
Electrical strength in oil at 90°C, perpendicular	IEC 60243-1	3 mm	2	kV/mm	*2
Electrical strength in oil at 90°C, parallel	IEC 60243-1	≥ 3 mm	12	kV/25mm	*2
Permittivity 50 MHz	IEC 62631-2-1	≤ 3 mm	-		-
Permittivity 1 MHz	IEC 62631-2-1	≤ 3 mm	-		-
Dissipation factor 50 MHz	IEC 62631-2-1	≤ 3 mm	-		-
Dissipation factor 1 MHz	IEC 62631-2-1	≤ 3 mm	-		-
Insulation resistance after submersion in water	IEC 62631-3-3	All	1	MΩ	*4
Comparative tracking index	IEC 60112	≥ 3 mm	100	CTI	*1

### Conditioning

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


### Notes

- 1h/130°C / measured at 130°C
- 1h/150°C / measured at 150°C
- Halogen free
- 1h/180°C / measured at 180°C
- 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.

## Etronax MMF - Sheet

<b>Components:</b>	Cotton fabric - Phenol
<b>Colour:</b>	 Light brown
<b>Serial no.:</b>	230
<b>Version no.:</b>	V1.0-17/06/15

### Closest relevant standards

<b>IEC 60893:</b>	PF CC 203
<b>DIN 7735:</b>	Hgw 2083
<b>NEMA LI 1:</b>	L

Physical and thermal properties	Test method	Thickness	Value	Unit	
Temperature index 20,000 h (T.I.)	IEC 60216	≥ 3 mm	100	°C	-
Fire class	IEC 60695-11-10	-	-	-	-
Density	ISO 1183-A	All	1.35	g/cm <sup>3</sup>	-
Water absorption	ISO 62-1	50x50x3 mm	100	mg	-
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 <sub>NLP</sub> )	NF X70-100-1/-2	-	-	-	-

### Characteristics and applications

Strengthened with a finer cotton tissue than Etronax MF. Also notably suitable for smaller construction materials where high mechanical loads and strong wear occur. Can be machined to finer tolerances and less surface coarseness than Etronax MF.

### 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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