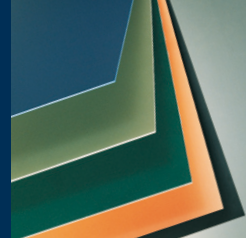


MICAM's EM42 is a filled epoxide resin composite with woven and non-woven glass reinforcement. EM42 exhibits both excellent reaction to fire and fire resistance. It is a flame retardant, low smoke and low toxic fume, (halogen and phosphorus free) material when exposed to fire and it will act as a barrier to the passage of fire. It also has exceptional resistance to penetration when exposed to high power DC arcing and will therefore act as an arc barrier. It has good mechanical and electrical insulation properties, exhibiting a high Comparative Tracking Index and is specifically formulated to ensure excellent machining characteristics

Colours	Cream
Thickness	0.8mm to 100mm available on request
Sheet Size	1220mm x 914mm, 1220mm x 1220mm and 1220mm x 2440mm (panel sizes cut on request)

		<i>units</i>	<i>test method</i>
<b>GENERAL PROPERTIES</b>			
Relative Density	2.0	-	ISO 1183-A
Water Absorption	12	mg/50x50x3 mm	IEC 62-1
Temperature Rating	B (130°C)	Class	IEC 60085
Coefficient of Thermal Expansion	$1.2 \times 10^{-5}$	K <sup>-1</sup>	ASTM D696
<b>MECHANICAL PROPERTIES</b>			
Flexural Strength (X,Y)	180	MPa	ISO 178
Tensile Strength (X,Y)	120	MPa	ISO 527
Impact Strength	40	kJ/m <sup>2</sup>	ISO 180/2A
Shear Strength (X,Y)	40	MPa	EN60893-2
Compressive Strength (X,Y)	250	MPa	ISO 604
Compressive Strength (Z)	100	MPa	ISO 604
<b>ELECTRICAL PROPERTIES</b>			
Insulation Resistance	$> 10^4$	MΩ	IEC 60167
Insulation Resistance	$> 10^{10}$	Ω	IEC 60167
Volume Resistivity	$> 10^{11}$	Ωcm	IEC 60093
Surface Resistivity	$> 10^{11}$	Ω	IEC 60093
Dissipation Factor (Loss Tangent) at 1 MHz	0.022	-	IEC 250
Permittivity (Dielectric Constant) at 1 MHz	4.2	-	IEC 250
Dielectric Strength Flatwise	9.5	MVm <sup>-1</sup> (3 mm)	IEC 60243-1
Comparative Tracking Index	$> 600$	V	IEC 112



		units	test method
<b>FIRE PERFORMANCE</b>			
Limiting Oxygen Index	LOI 76.1	%	EN ISO 4589 (SNPE 12873-06A)
Ignitability	No ignition at 960C	s	NF EN 60695 (SNPE 12873-06B)
Spread of Flame	Class 1 (0mm spread)	Class	BS 476-7 (WARRES 55743)
Fire Propagation	i1 0.0, I 5.6	°C/minute	BS 476-6 (WARRES 55744)
Rate of Heat Emission	MARHE50 27.7	kWm <sup>-2</sup>	BS 6853 C.2 (Interscience C043211)
Smoke Emission	Ao 0.002	m <sup>2</sup> g <sup>-1</sup>	BS 6853 D.8.3 (LUL C2968)
Smoke Emission	Ao(ON) 4.0, Ao(OFF) 4.8	m <sup>2</sup> /"burn area"	BS 6853 D.8.4 (LUL C3007)
Smoke Emission	Dm 227.6, VOF4 13.7	m <sup>2</sup> m <sup>-2</sup> , m <sup>2</sup> m <sup>-2</sup> minute	NF X 10-702 (SNPE 13011-06B)
Toxic Fume Emission	ITC 8.26	Index	NF X 70-100 (SNPE 13011-06A)

On the basis of the results achieved EM42 complies with the following standards, (amongst others):

- Class O Building Regulations - England and Wales
- Category Ib BS 6853 Table 3
- Category Ia BS 6853 Table 6
- Category Ia BS 6853 Table 7
- I0/F1 NF F 16-101; -102

### FIRE RESISTANCE

Fire resistance is a design/system property and not solely a material property. EM42 exhibits fire resistance both perpendicular to and parallel to, the laminate plane. At 12mm it has achieved in excess of 30 minutes integrity and 15 minutes insulation in an electrical busbar penetration of a fire partition (Prometheus 7/9/99) and at 100mm it has achieved over 60 minutes integrity and 60 minutes insulation (LPC TE 89432). In LPC TE 89432 the test was terminated without failure of the material. The projected integrity period was too large to estimate but the projected insulation period was in excess of 120 minutes.

### DC POWER ARC RESISTANCE

DC power arc resistance is a design/system property and not solely a material property. EM42 exhibits high power arc resistance and has found application on several DC traction railway systems. It is a material selected by London Underground Ltd for arc resisting applications. A specific information sheet, available from MICAM, exists for this specialised area of use.

### GENERAL APPLICATIONS

EM42 is suitable for use for electrical/mechanical applications specifically where there is a need for fire or arc performance. It is therefore ideally suited to passenger transport applications and use in enclosed or underground areas. When exposed to fire EM42 leads to low levels of corrosion, (compared to standard flame retardant epoxide systems). The machinability of EM42 is exceptional and it is often used purely for this reason even where there is no fire or arc dimension to the application.

### ENVIRONMENTAL COMPLIANCE

RoHS compliant; REACH compliant

### QUALITY SYSTEM APPROVAL

Certified by NSAI to I.S. EN ISO 9001:2008