

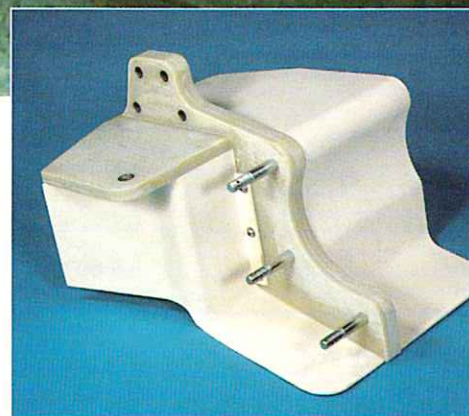
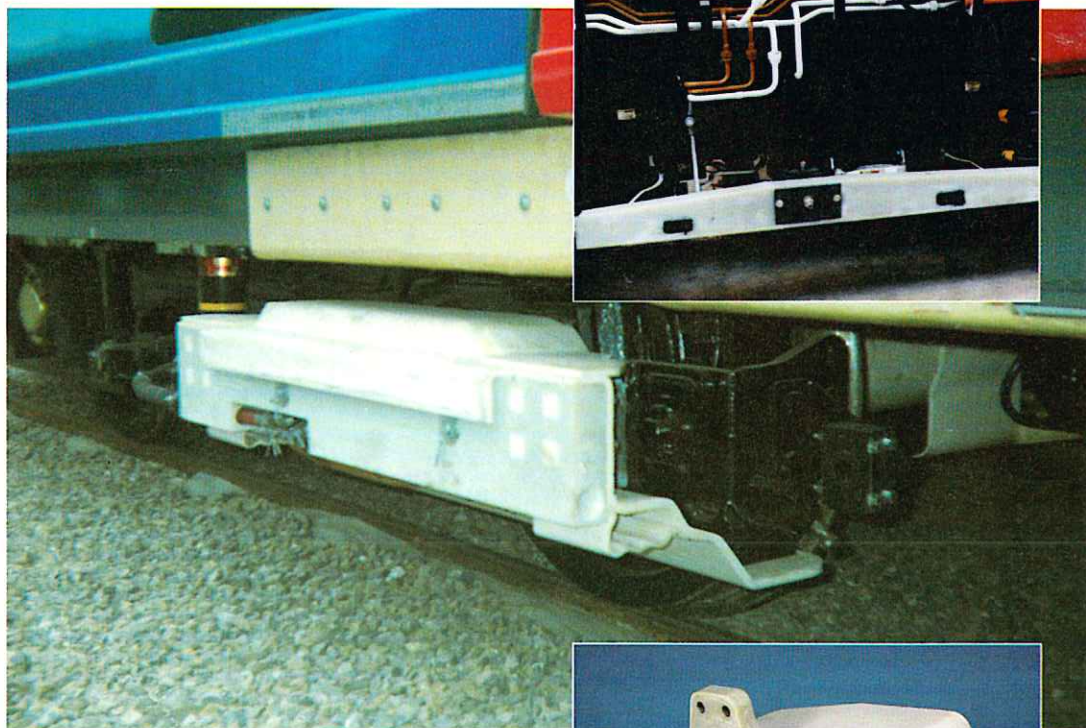
Permal
Gloucester

PRODUCT BULLETIN

Materials for:

Current Collection Equipment

Glass epoxide laminate MER20, MER35



Benefits

- Halogen Free
- Meets UL94 V-O FR requirements
- Low Smoke Emission
- High Comparative Tracking Index
- Easily Machined

MER 35 is also fully compliant with London Underground Ltd Spec. RSE/STD/014 Part 1: Issue A, Fire and Src Protection Standard.

Problem

Modern high speed, high traffic density rail stock require materials with exceptional anti tracking properties combined with excellent insulation properties and high mechanical strength.

Solution

Permal Gloucester Ltd. have developed a range of glass reinforced materials fully impregnated with epoxide resin.

These materials, known as Permaglass MER20 and MER35, are constructed from a combination of woven and non woven cloths, providing the necessary properties for a highly stressed material.

Permal Gloucester Ltd are one of the UK's leading manufacturers of composite materials. Approved to ISO9001, the company's composite fabrications laminates, structural foams and sandwich panels are widely used in all types of transportation applications.

For further details of Permal's products please contact the sales department.

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PROPERTIES	TEST METHOD	RESULTS	
PHYSICAL			
		MER20	MER35
Specific Gravity	BS 2782 Part 6 (620A)	1.9	1.9
Water Absorption	BS 2782 Part 4 (430A)	0.025%	0.025%
MECHANICAL			
Flexural Strength	BS 2782 Part 10 (1005)	160 MPa	160 MPa
Flexural Modulus	BS 2782 Part 10 (1005)	16 GPa	16 GPa
Tensile Strength	BS 2782 Part 10 (1003)	90 MPa	90 MPa
Tensile Modulus	BS 2782 Part 10 (1003)	12 GPa	12 GPa
Shear Strength	BS 2782 Part 3 (340B)	90 MPa	90 MPa
Compressive Strength	BS 2782 Part 3 (345A)	260 MPa	260 MPa
Charpy Impact	BS 2782 Part 3 (359)	45 KJ/M ²	45 KJ/M ²
ELECTRICAL			
Electrical Strength	BS 2782 Part 2 (221G)	9 KV/mm	9 KV/mm
Insulation Resistance	BS 2782 Part 2 (232)	>10 ¹⁰ ohms	>10 ¹⁰ ohms
Volume Resistivity	BS 2782 Part 2 (230A)	>10 ¹⁴ ohms cm	>10 ¹⁴ ohmscm
Surface Resistivity	BS 2782 Part 2 (231A)	>10 ¹⁴ ohms	>10 ¹⁴ ohms
Comparative Tracking Index	BS 5901	>600V	>600V
FLAMMABILITY			
Fire Propagation	BS 476 Part 6	Sub-Index 1=1.1 Index 1=12.5	0.4 9.9
Surface Spread of Flame	BS 476 Part 7	Class 1	Class 1
Three Metre Cube	BS 6853 App B	Ao (on max) 3.93	2.35
Smoke Emission Test	Clause B.5.2.	Ao (on end) 3.81 Ao (off) 4.21	2.11 2.52
Flammability Temperature	BS 6853 App A		
Index Test	Clause A.9	>350°C	>350°C
Underwriters Laboratory	UL94 Vertical Burning	V-0	V-0
Flammability Classification	NF F 16-101 (102)	M=2	
Smoke and Toxicity Classification	NF F 16-101 (102)	F=0	

All values are based on limited test results and should not be taken as indicative of maximum or minimum values.

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