

TECHNICAL DATA SHEET

**Permal
Gloucester**

08/11/01 Issue 05

PERMAGLASS CARGO LINING WFT/23

BENEFITS

- ◆ Excellent durability in service
- ◆ Excellent fire resistance
- ◆ Low smoke and toxic fume emissions
- ◆ Low heat release rate

Permaglass WFT/23 is a woven glass/phenolic cargo liner designed for short haul, bulk loaded aircraft and offering a combination of excellent durability and good impact resistance. Performance under fire conditions is also excellent as this material is instantly self-extinguishing, with low smoke and toxic gas emissions. A low heat release rating permits the use of this material in passenger cabins in addition to cargo bays.

Thickness, Weight and Impact Strength.

<u>Type</u>	<u>Thickness (inches)</u>		<u>Impact to BSS7326</u> ft.lbs	<u>Weight (lbs/ft²)</u>	
	Nominal	Actual		Actual	Specification Limit
13	0.01	0.01	4	0.11	0.13
20	0.02	0.019	7	0.18	0.2
30	0.03	0.028	8.5	0.28	0.3
40	0.04	0.037	11.5	0.37	0.42
50	0.05	0.046	16	0.46	0.52
60	0.06	0.056	18	0.54	0.6
70	0.07	0.064	21	0.64	0.7

Edge Bearing (To BMS 8-223J)

	<u>Type 13</u>	<u>Type 20</u>	<u>Type 30</u>	<u>Type 40</u>	<u>Type 50</u>	<u>Type 60</u>	<u>Type 70</u>
Actual (psi)	30,000	40,000	45,000	50,000	52,000	52,000	54,000
Requirement (psi)	24,000	30,000	33,000	35,000	35,000	35,000	35,000

Flexural Strength And Modulus

	<u>Type 40</u>	<u>Type 50</u>	<u>Type 60</u>	<u>Type 70</u>
Warp (strength psi)	85,000	90,000	100,000	97,000
Fill (strength psi)	68,000	82,000	84,000	89,000
Warp (modulus psi x 10 ⁶)	3	3	3.7	2.9
Fill (modulus psi x 10 ⁶)	2.9	3.1	2.9	2.8

Permal Gloucester Limited
Bristol Road
Gloucester GL1 5TT
United Kingdom

Telephone +44 (0) 1452 528282
Fax: +44 (0) 1452 507409
Internet: <http://www.permali-gloucester.co.uk>

Flammability (To Boeing BSS 7230)

	Typical	BMS8-223 (FAR25.853a)
(A) 60 secs vertical		
Self extinction time	0 secs	5 secs (max)
Burn length	2.25-2.5 ins	5 in (max)
Drip time	0 secs	0 secs (max)
(B) Fire resistance, 30 secs @ 45°		
Self extinction time	0 secs	5 secs (max)
Afterglow	0 secs	5 secs (max)
Flame Penetration	None	None
(C) Flame Spread index	Pass	25 (max)

Flammability to FAR 25.855 App.F Part 111 Amendment 25-60 (Ceiling Test) - Conforms at all thicknesses from Type 13 to Type 70.

Smoke Density and Toxicity

Figures quoted are for thinnest (Type 13) and thickest (Type 70)

Maximum Smoke Density (Dm) versus Time. (To Boeing BSS 7238)

Time Mins	Boeing Design Large Area (Dm)	Results	Anticipated F.A.A. Requirements Large Area (Dm)
4.0	50	2-8	200

Toxicity (To Boeing BSS 2739)

Time in Minutes	4	4	4	4
Toxicant	HCN	HF	HCL	NO
Concentration p.p.m.	<2 to 2	13 to 5	20 to 13	2 to 0
Boeing maximum p.p.m.	20	50	150	20

Heat Release to JAR 25.853 App F Part IV

Type	Total Heat Release In 2 min (kw min / sqm)	Peak Heat Release In 5 min (kw / sqm)
30	36	34
50	50	45
Spec	65	65

All test figures quoted are typical.

Standard Sheet Sizes:

96" x 48" (2440 x 1220 mm)

144" x 48" (3658 x 1220 mm)

124" x 65" (3150 x 1651 mm)

144" x 60" (3658 x 1524 mm)

Other sizes may be available on request.