

**Gillfab™ 4422 Panel****June 2002****Description**

Gillfab 4422 is a high impact resistant sandwich panel with facings of woven fiberglass reinforced phenolic laminate with 1 mil Tedlar® overlay bonded to Nomex® honeycomb core.

Applications

Cargo compartment lining for use in sidewall, ceiling, partition wall and decompression panels for all Airbus Industrie aircraft.

Features

- Superior impact strength – 20 to 30 times greater than Airbus specification requirements.
- Incorporates 1367A facings, having a proven history of in-service durability.
- High mechanical strength and corrosion resistance.
- All phenolic resin - low smoke and toxic emissions in a fire.
- Service temperature range: to 158°F (70C°)

Specifications

- Airbus Industrie Technical Specification No. 2550 M1M 0008 00.
- FAR Part 25, Appendix F, Parts I and III (burn through).
- ABD 0031.
- M.C. Gill Report No. AIM-2001 - Airline Instruction Manual for Cargo Liner Laminates and Panels.

Construction

Adhesive:	Modified phenolic.
Core:	Nomex honeycomb - 1/8" cell, 4.0 pcf density. (3.2 mm cell – 64 kg/m ³)
Facings:	Gillfab 1367A, .013"/.013" (.33/.33) or .020"/.020" (.51/.51) per Airbus Industrie Specification.

Availability

Thickness: Inches (mm)	.295 (7.5), .307 (7.8), .315 (8.0), .366 (9.3), .386 (9.8), .413 (10.5), .508 (12.9), .610 (15.5), and .630 (16.0).
Length & Width:	Per customer requirement, up to 72" x 168" (1828 x 4267 mm) Gillfab 3072 h-Profiles for installation of decompression panels.



Standard Tolerances

Thickness:	± 3%, or per specification
Length & Width:	-0, +.5" (12.7 mm)
Warpage:	≤ 0.23 in./ft. (3mm/m)

Cargo Liner Sandwich Panel Application and Identification

Airbus Type	M.C. Gill Designation	Panel Thickness, Nominal, in (mm)	Sandwich Panel Areal Weight, psf (kg/m ²)	Aircraft Application
A	Gillfab 4422-295	0.295 (7.5)	0.403 – 0.445 (1.97 – 2.17)	A300 B2/B4: Sidewall AFT; Ceiling AFT; Partition Wall C54; Decompression Panel AFT A310/A300-600: Sidewall AFT; Ceiling FWD; Ceiling AFT; Partition Wall C54; Decompression Panel AFT A320/A321 Container: Ceiling FWD; Ceiling AFT; Decompression Panel Ceiling A319/A320/A321 Bulk: Decompression Panel Ceiling A330/A340: Ceiling FWD; Ceiling AFT
B	Gillfab 4422-307	0.307 (7.8)	0.529 – 0.579 (2.58 - 2.83)	A320/A321 Container: Ceiling Bulk A319/A320/A321 Bulk: Ceiling FWD; Ceiling AFT; Ceiling Bulk A330/A340: Ceiling Bulk
C	Gillfab 4422-315	0.315 (8.0)	0.531 – 0.582 (2.59 – 2.84)	A300 B2/B4: Ceiling Bulk; Partition Wall C64; Decompression Panel Wall C64 A310/A300-600: Sidewall Bulk; Ceiling Bulk; Partition Wall C70; Decompression Panel Wall C70
D	Gillfab 4422-366	0.366 (9.3)	0.424 – 0.472 (2.07 – 2.31)	A300 B2/B4: Sidewall FWD; Decompression Panel FWD A310/A300-600: Sidewall FWD; Partition Wall C38.2; Decompression Panel FWD A320/A321 Container: Sidewall FWD; Sidewall AFT; Partition Wall C34; Partition Wall C47 A330/A340: Sidewall FWD; Sidewall AFT; Partition Wall C39.1; Partition Wall C53.2; Decompression Panel Sidewall FWD; Decompression Panel Sidewall AFT; Decompression Panel Wall C39.1; Decompression Wall C53.2



Airbus Type	M.C. Gill Designation	Panel Thickness, Nominal, in (mm)	Sandwich Panel Areal Weight, psf (kg/m²)	Aircraft Application
E	Gillfab 4422-386	0.386 (9.8)	0.552 – 0.608 (2.45 – 2.97)	A320/A321 Container: Sidewall Bulk; Partition Wall C65; Decompression Panel Wall C28; Decompression Panel Wall C52.A; Decompression Panel Wall C56 A319/A320/A321 Bulk: Sidewall FWD; Sidewall AFT; Sidewall Bulk; Partition Wall C34; Partition Wall C47; Partition Wall C65; Decompression Panel Wall C28; Decompression Panel Wall C52.A; Decompression Panel Wall C56 A319 Bulk: Decompression Panel Wall C55.A A330/A340: Sidewall Bulk; Decompression Panel Sidewall Bulk
F	Gillfab 4422-413	0.413 (10.5)	0.438 – 0.489 (2.14 – 2.39)	A300/B2/B4: Partition Wall C38.2
G	Gillfab 4422-508	0.508 (12.9)	0.467 – 0.524 (2.28 – 2.56)	A320/A321 Container: Partition Wall C24.A; Decompression Panel Wall C24.A A319/A320/A321 Bulk: Partition Wall C24.A; Decompression Panel Wall C24.A
H	Gillfab 4422-610	0.610 (15.5)	0.498 – 0.561 (2.43 – 2.74)	A300 B2/B4: Partition Wall C20; Decompression Panel Wall C20 A310/A300-600: Partition Wall C20; Decompression Panel Wall C20 A330/A340: Partition Wall C20; Door Panel C59.A; Decompression Panel Wall C20
K	Gillfab 4422-630	0.630 (16.0)	0.504 – 0.567 (2.46 – 2.77)	A330/A340: Partition Wall C73; Decompression Panel Wall C73



Typical Properties of Gillfab 4422

Property	Test Method	4422-295	4422-307	4422-315
Weight, psf (kg/m ²)		0.430 (2.10)	0.554 (2.70)	0.555 (2.71)
Thickness, inches (mm)		0.300 (7.61)	0.308 (7.82)	0.316 (8.01)
Warpage, max., in/ft (mm/m)	AI 2550 M1M 000800 ¶ 2.2.3	0.00	0.00	0.00
*Bending under static load, max., lbs (N)	AI 2550 M1M 000800 ¶ 2.3.7	481.8 (2143)	661.8 (2943.7)	613.5 (2728.7)
Long beam flexural, lbs (N)	ASTM C 393	94.22 (418.1)	117.92 (524.51)	124.34 (557.51)
Core Shear: Core Shear Stress, psi (N/cm ²) @ room temperature @ -40°C @ 80°C Facing Stress, ksi (N/cm ²) @ room temperature @ -40°C @ 80°C	ASTM C 393 ASTM C 393	187.27 (129.11) 274.47 (189.22) 144.63 (99.71) 28.82 (19.87) 42.23 (29.11) 22.25 (15.34)	217.8 (150.16) 276.25 (190.45) 169.78 (117.05) 21.8 (15.03) 27.6 (19.03) 16.95 (11.69)	227.3 (156.71) 296.2 (204.21) 168.5 (116.17) 22.8 (15.72) 29.6 (20.41) 16.9 (11.65)
Stabilized Core Compression, psi (N/cm ²)	ASTM C 365 Method A	601 (414.3)	574.8 (396.4)	591.7 (407.9)
*Climbing Drum Peel, lbs (N) Top Skin Bottom Skin	ASTM D 1781	50.98 (226.8) 50.42 (224.3)	62.25 (276.9) 61.01 (271.4)	57.87 (257.4) 57.06 (253.8)
Impact Strength, min., ft-lbs (Nm)	AI 2550 M1M 000800 ¶ 2.3.4.3	32 (44)	45 (62)	38 (52)
*Flammability 60 Second Vertical Test Exting. Time, max., secs Burn Length, max., in (mm) Drip Exting. Time, max., secs	FAR 25, Appendix F, Part I	7.3 2.1 (53.34) 0	10.7 1.7 (42.10) 0	8.5 1.7 (43.18) 0
*Flammability 30 Seconds. 45 Degree Exting. Time, max., secs Burn Length, max., in (mm) After Glow Time, max.	FAR 25, Appendix F, Part I	0.6 None 0	5.5 None 0	0.4 None 0
Flame Penetration Temperature Rise, max., °F (°C) Flame Penetration	FAR 25, Appendix F, Part III	Pass	Pass	Pass
*Test data from L658, MCG QTR 9402A				



Property	Test Method	4422-366		4422-386		4422-413	
Weight, psf (kg/m ²)		0.439 (2.14)		0.569 (2.78)		0.475 (2.32)	
Thickness, inches (mm)		0.366 (9.30)		0.381 (9.66)		0.415 (10.54)	
Warpage, max., in/ft (mm/m)	AI 2550 M1M 000800 ¶ 2.2.3	0.007 (0.583)		0.015 (1.250)		0.00	
*Bending under static load, max., lbs (N)	AI 2550 M1M 000800 ¶ 2.3.7	553.5 (2461.8)		805.1 (3581.2)		568.5 (2528.5)	
Long beam flexural, lbs (N)	ASTM C 393	117 (524.51)		155.78 (692.91)		140.19 (623.50)	
Core Shear: Core Shear Stress, psi (N/cm ²) @ room temperature @ -40°C @ 80°C Facing Stress, ksi (N/cm ²) @ room temperature @ -40°C @ 80°C	ASTM C 393 ASTM C 393	177.1 (122.1) 265.7 (183.2) 134.8 (92.94)		214.9 (148.2) 277.7 (191.44) 165.3 (113.95)		179.6 (123.8) 250.9 (173.0) 130.0 (89.6)	
Stabilized Core Compression, psi (N/cm ²)	ASTM C 365 Method A	596.83 (411.47)		595.83 (410.78)		581.33 (400.8)	
*Climbing Drum Peel, lbs (N) Top Skin Bottom Skin	ASTM D 1781	55.03 (235.9) 51.88 (230.7)		58.15 (258.6) 62.84 (279.5)		49.16 (218.6) 51.30 (228.2)	
Impact Strength, min., ft-lbs (Nm)	AI 2550 M1M 000800 ¶ 2.3.4.3	40 (54)		46 (63)		40 (55)	
*Flammability 60 Second Vertical Test Exting. Time, max., secs Burn Length, max., in (mm) Drip Exting. Time, max., secs	FAR 25, Appendix F, Part I	5.9 2.0 (50.8) 0		8.5 1.7 (43.18) 0		4.5 1.7 (43.18) 0	
*Flammability 30 Seconds. 45 Degree Exting. Time, max., secs Burn Length, max., in (mm) After Glow Time, max.	FAR 25, Appendix F, Part I	0.5 None 0		0.6 None 0		0.3 None 0	
Flame Penetration Temperature Rise, max., °F (°C) Flame Penetration	FAR 25, Appendix F, Part III	Pass		Pass		Pass	
*Test data from L658, MCG QTR 9402A - 1. New type, introduced since 1994 report.							



Property	Test Method	4422-508		4422-610		4422-630 ¹	
Weight, psf (kg/m ²)		0.500 (2.44)		0.545 (2.66)		0.546 (2.66)	
Thickness, inches (mm)		0.506 (12.85)		0.611 (15.53)		0.63 (16.00)	
Warpage, max., in/ft (mm/m)	AI 2550 M1M 000800 ¶ 2.2.3	0.00		0.001 (0.06)		0.00	
*Bending under static load, max., lbs (N)	AI 2550 M1M 000800 ¶ 2.3.7	663.5 (2951.1)		863.5 (3840.3)		861.3 (3831.1)	
Long beam flexural, lbs (N)	ASTM C 393	169.63 (754.52)		208.95 (929.4)		218.77 (973.08)	
Core Shear: Core Shear Stress, psi (N/cm ²) @ room temperature @ -40°C @ 80°C Facing Stress, ksi (N/cm ²) @ room temperature @ -40°C @ 80°C	ASTM C 393 ASTM C 393	187.7 (129.4) 254.2 (175.3) 136.1 (93.8)		179.0 (123.4) 243.0 (167.5) 128.5 (88.6)		178.5 (123) 235.0 (162) 134.1 (92.5)	
		28.9 (19.9) 39.1 (27.0) 20.9 (14.4)		27.5 (19.0) 37.4 (25.76) 19.8 (13.64)		27.45 (18.92) 36.20 (24.93) 20.6 (14.23)	
Stabilized Core Compression, psi (N/cm ²)	ASTM C 365 Method A	594.17 (409.64)		577.33 (398.03)		554.33 (382.18)	
*Climbing Drum Peel, lbs (N) Top Skin Bottom Skin	ASTM D 1781	49.16 (218.6) 51.30 (228.2)		49.56 (220.4) 53.80 (239.2)		60.0 (267) 79.8 (355)	
Impact Strength, min., ft-lbs (Nm)	AI 2550 M1M 000800 2.3.4.3	35 (47)		40 (54)		39 (52)	
*Flammability 60 Second Vertical Test Exting. Time, max., secs Burn Length, max., in (mm) Drip Exting. Time, max., secs	FAR 25, Appendix F, Part I	5.7 1.6 (40.64) 0		5.1 1.8 (45.72) 0		7.2 2.1 (53.34) 0	
*Flammability 30 Seconds. 45 Degree Exting. Time, max., secs Burn Length, max., in (mm) After Glow Time, max.	FAR 25, Appendix F, Part I	0.3 None 0		1.0 None 0		0.63 None 0	
Flame Penetration Temperature Rise, max., °F (°C) Flame Penetration	FAR 25, Appendix F, Part III	Pass		Pass		Pass	
*Test data from L658, MCG QTR 9402A							

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