

## for Aerospace Bonding and Grounding Applications

### ARMORLITE MATERIAL COMPARISON MATRIX

Glenair ArmorLite™ is an innovative microfilament braid material that offers outstanding flexibility, durability, corrosion resistance, and virtually zero windowing. Four different materials are available with 100% ArmorLite offering best weight reduction performance. For ground strap and ESD bond applications, all configurations of ArmorLite offer good to moderate current-carrying capacity and moderate low-resistance, low-voltage drop performance compared to conventional copper wire braided ground straps. For most grounding and bonding applications, Glenair recommends short, wide strap configurations for best low-resistance performance.

ArmorLite™ Ground Strap / ESD Bond Comparison Matrix				
Performance Feature	ArmorLite 100%	ArmorLite 75%/25%	ArmorLite 50%/50%	ArmorLite CF
Weight reduction	Best	Good	Moderate	Good
Low Resistance	Moderate	Good	Best	Good
Current-Carrying Capacity	Moderate	Good	Best	Good
Corrosion Resistance	Good	Good	Good	Best

ArmorLite™ Material Performance Test Matrix			
DESCRIPTION	REQUIREMENT	PROCEDURE	REPORT
Altitude test 27,000 ft (5 PSIA nom.)	2.5% min.	RTCA DO-160F, Table 4-1, 4-2 Cat/ C temp. spec	ARM-103
Operating Temperature	-80°C to +260°C	(Shielding effectiveness 1000 hours)	ARM-103
Braid Resistivity test, Pre and Post	Test pre/post-5 cycles-minimal disparity per spec.	EIA-364-32D IAW AS85049	ARM-110/1
Surface Transfer Impedance	Transfer Impedance (10.0 kHz ~ 1.0 GHz)	IEC 62153-4-3 min. 90% optical coverage	GT-17-263
Shield Effectiveness test, Pre and Post	Screening Attenuation (0 ~ 4.00 GHz)	IEC 62153-4-4 min. 90% optical coverage	GT-17-263
Tensile/ Pull Strength	220 lbs. (min.). No anomalies within 8% - 10% of pre test for variable sizes	Glenair ATP- 183. 0 lbs. to 90 lbs, to 150 lbs, to 220lbs @ speed of 0.25 inches/min	ARM-105
Lightning Current Test	Glenair Qual. Test Plan 191/ DC resistance/voltage criteria per DO-160F Level for 3 sizes up to 30Ka.	ANSI/EIA-364-75-1977 Wave Form 5B SAE/ARP5416 Section 6.3 Waveform 1, 3 (1, 10MHz) and 5A	ARM-110 ARM-112
Salt Spray Test	DC Resistance IAW AS85049 .5 milliohm. No evidence of base metal on braid	ASTM B117-09 Sodium Chloride 5% 500 hrs.	ARM-100
Vibration Resistance	EAI Test Report 33247. DO160 section 8 Cat. R Vib. Curves E1	DO-160F RTCA/DO-160F, Section 9, Fig. 8-4. Curve E1. - 3 sizes - 3 hours on each axis.	ARM-111
Thermal Shock Cycling test and Resistivity	No adverse effects in visual inspection or resistance after 50 cycles	EIA-364-32D, Table 3 Test condition V -65°C to +175°C	ARM-113
Abrasion and Plating test	DC Resistance IAW AS 85049. Glenair internal QTR-003	ATP 180 20 continuous @ 6 cycles/min. over 3 arms with .030 radiused edges	ARM-107
Fluid Immersion Test	Material compatibility – see table below	Customer/AS4373D method 601 Mod	ARM-106
Flex Test	2 Cycles: starting 0° over vertical ctr. line across to 180° cycle. Total cycles of 25633	Glenair ATP 179	ARM-112

ArmorLite™ Material Fluid Resistance Testing						
Test Fluid	Test Temp °C	Test Temp °F	Immersion Time(h)	Requirement	Procedure	
MIL-L-23699, Lubricating Oil, Aircraft Turbine Engine, Synthetic Base	48-50	118-122	20	No fraying, DC resistance within limits (AS85049 paragraph 4.6.3)	SAE AS1241 Table 15/Mil-Std 810F Method 504 (modified), for all Substances. Additional conformance to Test Criteria AS4373D method 601 Mod	
MIL-H-5606, Hydraulic Fluid, Petroleum Base, Aircraft Missile, and Ordnance	48-50	118-122	20			
TTI-H-735, Solvent, Isopropyl Alcohol	20-25	68-77	168			
ASTM D 1153, Methyl Isobutyl Ketone (For use in organic coatings)	20-25	68-77	168			
MIL-DTL-5624 , Turbine Fuel, Aviation, Grade JP-4 either or MIL-T-83133, JP-8	20-25	68-77	168			
SAE AMS1424, Anti-Icing and Deicing-Defrosting Fluid, undiluted	48-50	118-122	20			
SAE AMS1424, Anti-Icing and Deicing-Defrosting Fluid, diluted 60/40 (fluid/water) ratio. Supersedes Coolanol 25 Item Q	48-50	118-122	20			
MIL-C-43616, Cleaning Compound, Aircraft Surface	48-50	118-122	20			
SAE AS 1241 , Fire Resistant Hydraulic Fluid for Aircraft	48-50	118-122	20			
MIL-L-7808, Lubricating Oil, Aircraft Turbine Engine, Synthetic Base	118-121	244-250	30			
MIL-C-87937, Cleaning Compound, Aircraft Surface, Alkaline, undiluted	63-68	145-154	20			
MIL-C-87937, Cleaning Compound, Aircraft Surface, Alkaline Waterbase, diluted 25/75 (fluid/water) ratio	63-68	145-154	20			
TT-S-735, Standard Test Fluids; Hydrocarbon, Type I, II, III, VII	20-25	68-77	168			
MIL-PRF-87252, Coolant Fluid, Hydrolytically Stable, Dielectric	20-25	68-77	168			