



ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

LAMINATE, NON-WOVEN GLASS FIBER PAPER/
ALUMINUM FOIL, HEAT SHIELD

ESA-M12G80-A

1. SCOPE

The material defined by this specification is a non-woven glass fiber paper with aluminum foil laminated to one or both sides as required by the end use.

2. APPLICATION

This specification was released originally for material used as a heat shield for chassis components such as power steering gear and powertrain isolation hydromount.

3. REQUIREMENTS

3.1 STATISTICAL PROCESS

Suppliers must conform to the requirements of Ford Quality System Standard Q-101. A mutually acceptable Control Plan as described therein is required for material/source approval. Appropriate statistical tools must be used to analyze process/product data so that variation in the final product is continuously reduced.

3.2 CONDITIONING AND TEST CONDITIONS

All test values indicated herein are based on material conditioned in a controlled atmosphere of 23 +/- 2 C and 50 +/- 5 % relative humidity for not less than 24 h prior to testing and tested under the same conditions unless otherwise specified.

3.3 CONSTRUCTION

3.3.1	Fabric Content	Min of 93 % inorganic, electrical grade, glass fiber
3.3.2	Fabric Construction	Non-woven
3.3.3	Fabric Weight	263 g/sq m +/- 10 %
3.3.4	Fabric Thickness	1.5 +/- 0.13 mm
3.3.5	Aluminum Type	1100 or 1145 alloy, dead soft, oil free
3.3.6	Foil Thickness	0.076 +/- 0.013 mm
3.3.7	Laminating Adhesive Type	Acrylic
3.3.8	Adhesive Thickness, min	0.025 mm

Date	Release No.	Release/Revision
910325	NC00-E-10079774-005 (RD)	Updated & Revised 3.3.1, 3.3.6 & 3.3.8 LM
1987 03 11	SY-165979-CX	Released <i>[Signature]</i> <i>[Signature]</i> 2-19-91

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3.4 PHYSICAL PROPERTIES (of the fabric alone)

3.4.1 Tensile Strength, min
(ASTM D 828-67)

MD	7.0 kN/m
CD	2.6 kN/m

3.4.2 Mullen Burst, min
(ASTM D 774-67) 400 kPa3.4.3 Tear Strength, min
(ASTM D 689-79) 350 g3.4.4 Thermal Conductivity, target
(ASTM D 2214-70, modified method) 0.04 W(m. C)

3.4.5 Adhesive Strength

When the material is forcefully delaminated, the bond of the glass fiber to the adhesive shall be greater than the internal strength of the paper.

3.5 SUPPLIER'S RESPONSIBILITY

All materials supplied to this specification must be equivalent in all characteristics to the material upon which approval was originally granted.

Prior to making any change in the properties, composition, construction, color, processing or labeling of the material originally approved under this specification, whether or not such changes affect the material's ability to meet the specification requirements, the Supplier shall notify Purchasing, Toxicology and the affected Materials Engineering activity of the proposed changes and obtain the written approval of the Materials Engineering activity. Test data, test samples and a new code identification are to be submitted with the request.

Substance restrictions imposed by law, regulations or Ford, apply to the materials addressed by this document. The restrictions are defined in Engineering Material Specification WSS-M99P9999-A1, unless a different suffix (e.g., A2 or A3) is specified on the engineering document for the application.