Ford Motor Company

ENGINEERING MATERIAL SPECIFICATION

Material Name	Specification Number
FIBERBOARD (PANEL), LAMINATED - POLYETHYLENE LINED COATED	**ESB-M3E4-A** **▽ ESB-M3E4-C**

1. SCOPE

The material defined by these specifications is a laminated, polyethylene interlined, kraft paper liner, panelboard (ESB-M2E4) that has a vinyl, pyroxylin or equivalent surface appearance coating.

2. APPLICATION

These specifications were released originally for material used for headlinings, door panels, and package tray applications.

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.2 APPEARANCE
(FLTM BI 109-01)

The color, pattern, and finish shall match the approved Design Center master sample, or shall be as specified on the engineering drawing.

3.3 CONSTRUCTION

Shall be constructed of a core of kraft and mixed fibers. The core shall be free of residual asphalt and other contaminators, which might cause sew line stains. Laminated to each side of the core shall be a continuous film of polyethylene to which is also laminated a kraft paper liner. The kraft paper liners shall form the outer faces of the base board. The face side of the board shall be pyroxylin or vinyl coated.

3.4 DIMENSIONS
(SAE J 315 b or ASTM D 645)

As specified on engineering drawings and as noted in para 3.4.1 and 3.4.2.

3.4.1 Flat Panels

Thickness variations of any one board shall not exceed +/- 5 % of the thickness specified on the engineering drawings.

Date	Action	Revisions
2003 01 29	Revised	Para 3.0 inserted ; Para 3.1, 3.26, 4 deleted
1978 11 22		Metricated, Renumbered & Retyped CAHI-RD572066-182
1964 05 15		Released ESB-M3E4-A DT1 #677

Documents
Document Sharing Hub
Copyright Ford Motor Company
Provided by IHS Markit under license with FORD
No reproduction or networking permitted without license from IHS
Full document details: FORD ESB-M3E4-C 2003
Copyright © 2002, Ford Global Technologies, Inc.
Licensee=/, User=,
Not for Resale,

3.4.2 Formed Panels

The thickness of the flat areas of formed panels shall be maintained within +/- 10% of the thickness specified on the engineering drawing.

3.5 BURSTING STRENGTH, min
(SAE J 315 b or ASTM D 774)

4 psi/0.001 in
(1.1 MPa/mm)
of thickness

3.6 STIFFNESS
(ASTM D 747, Tinius Olsen, direct load reading at 5 ° angle, 4 in/lb (0.45 J) load, 1 in (25 mm) span, 1 x 3 in (25 x 75 mm) sample)

	0.100 in (2.54 mm)	0.080 in (2.03 mm)	0.060 in (1.52 mm)	0.040 in (1.02 mm)
WMD	45-55	35-45	25-35	15-25
AMD	25-35	20-30	15-25	10-20

3.7 DIMENSIONAL STABILITY
(SAE J 315 a, Method "B" & "C")

	Expansion, % max	Contraction, % max
WMD	+0.62	-0.62
AMD	+0.62	-0.62

3.8 MOISTURE CONTENT, max
(SAE J 315 B or ASTM D 644)

7 %

3.9 WATER ABSORPTION, max
(SAE J 315 B or SAE J 315, 24 h immersion)

20 %

3.10 WARP, max
(FLTM BS 2-1, 24 h water immersion)

4 %

3.11 TENSILE STRENGTH, min
(ASTM D 828)

WMD

5.6 lb/0.001 in
(100 kgf / mm)
of thickness

AMD

1.8 lb/0.001 in
(32.2 kgf / mm)
of thickness

Documents
Document Sharing Hub

Copyright Ford Motor Company
Provided by IHS Markit under license with FORD
No reproduction or networking permitted without license from IHS
Full document details: FORD ESB-M3E4-C 2003

Copyright © 2002, Ford Global Technologies, Inc.
Licensee=, User=,
Not for Resale,