# Ford Engineering Material Specification

| Material Name | Specification Number |
|---|---|
| **BATT, GLASS FIBER-SOUND ABSORPTION** | **ESB-M12G66-A1, A2, A3, A4**<br>**VESB-M12G66-B1, B2, B3, B4** |

## 1. SCOPE

The materials defined by this specification are fine fibered, flexible, resilient blankets of fibrous glass, bonded with a thermosetting resin.

## 2. APPLICATION

ESB-M12G66-A1, A2, A3, A4 were released originally for materials used as molded sound absorbers and thermal insulators for the 1977 Econoline engine compartment.

VESB-M12G66-B1, B2, B3, B4 were released originally for materials used as molded roof side sound and thermal insulators for the 1982 Versailles.

## 3. REQUIREMENTS

### 3.1 CONDITIONING

All test values indicated herein are based on materials conditioned in a controlled atmosphere of 23 ± 2°C and 50 ± 5% relative humidity for 24 h prior to testing and tested under the same controlled conditions.

### 3.2 COLOR

Black or neutral

### 3.3 THICKNESS
(FLTM BN 23-2)

As specified on engineering drawings with the following tolerances:

- Under 25 mm + 3.2 mm - 1.6 mm
- 25 mm and over: + 6.4 mm - 3.2 mm

### 3.4 CONSTRUCTION

| | |
|---|---|
| Fiber Diameter: | 3.8 - 5.1 um |
| Alternate: | 7.1 - 13.0 um |
| Binder Content: | Phenol formaldehyde 13 ± 3% |

Test Method:

Cut 1-2 g of sample* into a previously ignited porcelain crucible. Condition in a drying oven at 100 ± 2°C to a constant weight and record. Heat in a muffle furnace at 535 ± 10°C until binder is burned off. Cool, weigh, and calculate % binder on basis of conditioned weight (Step 2).

*or 10-20 g sample on a previously ignited wire screen.

| Date | Para. No. | Revisions |
|---|---|---|
| 1984 06 08 | 3.5 3.6 | Revised, Retyped CUØ1-PA525112 T. J. WALLACE/BCF |
| 1980 08 20 | 3.12,13,14 | Released B-series, Added Flammability ALI-6000-61 |
| 1977 02 24 | | Released A-series AGI-6000-199 |



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3.5 PHYSICAL PROPERTIES

| ESB-M12G66- | Density (+20% -10%) kg/m³ | Specific Strength min Most Adverse Direction kPa | Compression % max | Recovery % min Dry | Recovery % min Wet | Firmness min |
|---|---|---|---|---|---|---|
| A1/VB1 | 16.00 | 28 | 80 | 70 | 60 | 27 |
| A2/VB2 | 24.0 | 48 | 75 | 70 | 70 | 52 |
| A3/VB3 | 32.0 | 104 | 70 | 80 | 80 | 73 |
| A4/VB4 | 40.0 | 152 | 65 | 85 | 80 | 73 |

Test Methods:

Density - ASTM C 167 using the thickness test specified below
Thickness - FLTM BN 23-2
Specific Strength - ASTM D 461
Dry Compression - FLTM 15-2
Dry Recovery - FLTM BN 15-2
Wet Recovery - FLTM BN 15-1
Firmness - FLTM BN 23-1

3.6 ACOUSTICAL Properties, Initial approval only

| ESB-M12G66- | Thickness mm | Min Sound Absorption Percent (ASTM C 384) Frequency in Hz 250 | 500 | 1000 | 2000 |
|---|---|---|---|---|---|
| A1/VB1 | 38 | 9 | 20 | 45 | 70 |
| | 25 | 5 | 10 | 20 | 40 |
| | 13 | 3 | 7 | 10 | 25 |
| A2/VB2 | 38 | 9 | 25 | 50 | 73 |
| | 25 | 5 | 10 | 25 | 60 |
| | 13 | 3 | 7 | 10 | 28 |
| A3/VB3 | 38 | 10 | 30 | 60 | 75 |
| | 25 | 6 | 10 | 30 | 70 |
| | 13 | 3 | 7 | 12 | 30 |
| A4/VB4 | 38 | 11 | 40 | 65 | 80 |
| | 25 | 7 | 15 | 45 | 75 |
| | 13 | 3 | 7 | 12 | 35 |



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