



ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

BATT, CERAMIC FIBER - THERMAL INSULATOR

WSE-M12G77-A

1. SCOPE

The material defined by this specification is a flexible insulating batt composed of a blend of alumina-silica ceramic fibers with an acrylic binder suitable for high temperature insulation up to 1260 C.

2. APPLICATION

This specification was released originally for a material used for a thermal insulator in the catalytic converter.

3. REQUIREMENTS

3.1 STATISTICAL PROCESS

Suppliers must conform to the requirements of Ford Quality System Standard Q-101, with control charts and process data analyzed according to Ford Continuing Process Control and Process Capability Improvement Manual. Additionally, a Control Plan is required for initial material/source approval.

3.2 CONDITIONING

All test values indicated herein are based on material 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.

3.3 CONSTRUCTION

This batt is composed of mineral fibers formed into a continuous web by a paper making process (Fourdrinier) to provide a uniform insulating surface.

3.4 COMPOSITION

Ceramic Fibers and other Oxides
Acrylic Binder

88 - 94 %
6 - 12 %

Test Method: Cut 10 g of sample into a previously ignited porcelain crucible. Condition at 102 +/- 3 C for 3 h. Record the weight. Heat in a muffle furnace at 980 +/- 28 C for 4 h. Cool, weight, and calculate % binder on basis of weight loss. Calculate % mineral fiber on basis of retained weight.

Date	Release No.	Release/Revision
88-03-21	NE01-E 10000474-007	Added Footnote Para 3.5 & 3.6 <i>for Webster</i>
1988 02 08	NE01-E 10000474-002	Revised & Retyped
1985 11 12	CE3P-RD863100-E179	Released

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3.5 BASIS WEIGHT (ASTM D 646/ISO 536)

NOMINAL ** THICKNESS	BASIS WEIGHT g/m ²	BASIS WEIGHT kgm/279 m ²
0,5	96 - 180	27 - 50
1,0	240 - 304	67 - 85
2,0	405 - 610	105 - 170
4,0	851 - 1443	238 - 403

NOTE: Basis weight shall be selected from within the specified range. Specific limits to meet manufacturing and engineering requirements will form part of an agreed control plan for each application and its supplier.

3.6 THICKNESS

NOMINAL ** THICKNESS	TEST METHOD* mm at 0,2 kPa	ISO 534 mm at 50 kPa
0,5	0,74 - 1,4	0,45 - 0,6
1,0	1,40 - 2,03	0,9 - 1,15
2,0	2,67 - 3,56	1,7 - 2,3
4,0	-	3,5 - 4,6

NOTE: THICKNESS TEST METHOD - Cut a 101,6 mm x 101,6 mm sample of material; place on a platen with felt side up; place a 101,6 mm x 101,6 mm x 6,35 mm aluminum plate of such weight to apply 1,82 kg per 0,09 m² pressure; take reading to nearest 0,01 mm.

Thickness shall be determined by either test method as appropriate to source.

** At 55,2 kPa

3.7 HEAT STABILITY, max

Shrinkage at 980 C 1,9 %

Test Method: Cut two strips 305 x 25 mm from the center of the specimen, one in each direction. Measure the strips to the nearest 0.25 mm. Place strips in a muffle furnace for 4 h at 980 +/- 28 C. Cool specimen to 23 +/- 2 C and measure the strips. Calculate the heat shrinkage from the change in length.

3.8 THERMAL CONDUCTIVITY, max (ASTM C 177, plied to 13 mm thick sample)

538 C mean temperature K = 0,66