



ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

BATT, GLASS FIBER, NON-WOVEN, HEAT INSULATING

WSE-M12G88-A

1. SCOPE

The material defined by this specification is a non-woven fiberglass web made from chopped strand electrical grade glass fibers which uses polyvinyl alcohol as a binder.

2. APPLICATION

This specification was released originally as a spark plug heat shield. This material is usable to 535 C in very low or no load applications.

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 INFRARED SPECTROPHOTOMETRY AND/OR THERMAL ANALYSIS

Ford Motor Company, at its option, may conduct infrared and/or thermal analysis of material/parts supplied to this specification. The IR spectra and thermograms established for initial approval shall constitute the reference standard and shall be kept on file at the designated material laboratory. All samples shall produce IR spectra and thermograms that correspond to the reference standard when tested under the same conditions.

3.3 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.

3.4 CONSTRUCTION

Non-woven glass fiber with polyvinyl alcohol binder

3.4.1 Fiber Content, range (TAPPI T 413) 90 - 93 %

3.4.2 Binder, range (TAPPI T 413) 7 - 10 %

Date	Release No.	Release/Revision
1992 0609	NEOI-E-10127076-057	Released E. J. Duda 920601

WP 3948-a

Page 1 of 3

9009160 0011429 296



- 3.4.3 Fiber DE chopped strand glass
- 3.4.3.1 Diameter, range 5.8 - 7.1 micrometre
- 3.4.3.2 Length, nom 6.4 mm
- 3.4.4 Thickness, mm, range
(TAPPI T 411, 50 +/- 2 kPa pressure)
- | | | | | |
|--------|--------|--------|-------|-------|
| 0.120- | 0.195- | 0.430- | 1.29- | 2.59- |
| 0.135 | 0.265 | 0.585 | 1.76 | 3.51 |
- 3.4.5 Weight, g/m², range
(TAPPI T 410)
- | | | | | |
|------------|------------|------------|----------|----------|
| 22.9+/-2.0 | 41.3+/-4.0 | 97.3+/-8.0 | 300+/-15 | 601+/-18 |
|------------|------------|------------|----------|----------|
- 3.4.6 Density, g/cm³, range
(TAPPI T 410)
- | | | | | |
|-------------|-------------|-------------|-------------|-------------|
| 0.18+/- .01 | 0.18+/- .01 | 0.19+/- .02 | 0.19+/- .02 | 0.20+/- .02 |
|-------------|-------------|-------------|-------------|-------------|
- 3.5 PHYSICAL PROPERTIES
- 3.5.1 Dry Tensile, N/cm, min
(ASTM D 828)
- | | | | | | |
|----|------|------|------|------|------|
| MD | 10.4 | 18.2 | 33.0 | 55.6 | 62.5 |
| CD | 4.6 | 11.8 | 26.1 | 45.2 | 52.1 |
- 3.6 THERMAL CONDUCTIVITY, +/- 10 %, range 28 E-5 Joule-cm/s-cm² C
(ASTM C 518)
- 3.7 ADDITIONAL REQUIREMENTS
- Specific requirements for material and/or manufactured parts shall be specified on the Engineering drawing, Engineering parts specification and/or performance specifications. All critical areas with respect to these properties shall be clearly designated on the engineering drawing.
- 3.8 SUPPLIER'S RESPONSIBILITY
- All materials supplied to this specification must be equivalent in all characteristics to the material upon which approval was originally granted.