



ENGINEERING MATERIAL SPECIFICATION

Material Name

Specification Number

ADHESIVE, HEAT CURING, EPOXY/GLASS FIBER
LAMINATE FOR METAL REINFORCEMENT, LOW BAKE

WSK-M2G281-F

1. SCOPE

The material defined by this specification is a low temperature curing, epoxy-fiberglass laminate, supplied in die cut form.

2. APPLICATION

This specification was released originally for material used to reinforce and stiffen sheet metal body panels. This material can be applied to oiled body steel panels. Recommended minimum material bake schedule in 20 minutes at 160 C metal temperature.

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 DIMENSIONS

As specified on the Engineering Drawing

Date	Release No.	Release/Revision
1993 05 03	EP00E10258815000	Revised 2., 3.5.2, 3.5.4, 3.5.7, 3.6.3 W.S.
1992 08 03	EP00E10176303000	Released W.Scholz Conc. J.Schult

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3.5 UNCURED MATERIAL PROPERTIES

3.5.1 Construction

Construction shall consist of a epoxy-fiberglass adhesive laminate with a release liner on one side. There shall be no loose glass fibers after the die cut operation.

3.5.2 Thickness
(ASTM D 461, 85 g load, 25 mm
dia foot)

Fiberglass and adhesive,
without release paper

As specified on the
Engineering drawing

3.5.3 Formability

The material shall not delaminate or crack when folded 180 degrees upon itself.

3.5.4 Specific Gravity, range
(ASTM C 167)

1.76 to 2.31 kg/m²
(based on 1.42 to
1.62 mm thickness)

3.5.5 Tack Adhesion

The material shall not peel at edges or fall off from panel.

Test Method:

- . Apply a 100 x 150 mm adhesive laminate strip to the center of a 300 x 300 mm metal panel of each substrate listed in para 5.2.
- . Pass a 2 kg roller over sample in one forward and one reverse direction.
- . Invert panels immediately after adhesive application and condition at 23 +/- 2 C for 4 h minimum.
- . Save panels for Inverted Bake test, para 3.6.2.

3.5.6 Resistance to Phosphate Wash

No evidence of material wash off or displacement due to precleaning or phosphating process

Test Method:

- . Test panel preparation according to 3.5.5