

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

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

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

3.4 DIMENSIONS

As specified on the
Engineering drawing

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 °upon itself.

Date	Action	Revisions
2003 02 18	Revised	Para 3.0 inserted ; Para 3.1, 3.2, 3.3, 3.8, 3.9, 4 deleted
1993 05 03	EP00E10258815000	Revised 2., 3.5.2, 3.5.4, 3.5.7, 3.6.3 W.S.
1992 08 03	EP00E1076303000	Released W. Scholz Conc. J. Schult

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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 3.5.2.

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
- . After conditioning for 2 h at 23 +/- 2 °C expose test assembly in horizontal position to a water jet of 50 +/- 5 °C using a nozzle No. 1/2 GG-25 Full Jet and a pressure of 200 kN/m². The distance between the nozzle and test material shall be 300 mm. The water jet shall be applied between the beads for 1 minute.

3.5.6.1 Functional Evaluation

Materials being evaluated for initial approval to the specification shall be subjected to a production trial in an area intended for use. This trial will be conducted after all other specification requirements have been met including laboratory evaluation for flow phosphate wash resistance.

3.5.7 Electrocoat Compatibility
(FLTM BV 119-01, oiled panels
according to FLTM BZ 150-11,
"Normal Grade" Shall not contaminate
electrocoat primer bath
or cause electrocoat
film irregularities