

ADHESIVE, TWO-PART, URETHANE, HARDENER

9982246

1 SCOPE. This specification covers the hardener component, one part of a two-part adhesive for primerless bonding of fiber reinforced plastic panels (FRP or SMC) to FRP, primed steel or primed aluminum.

1.1 The adhesive system is comprised of a resin component 9986073 and a hardener component 9982246. The mixture of 9986073 and 9982246 is identified as 9982247.

1.2 This system must be capable of being metered, mixed and dispensed with current production equipment. It shall be compatible with production paint systems and cannot be adversely affected by paint oven temperatures reaching 130°C.

2 REFERENCED STANDARDS.

GM1000M	9986073	SAE J1524
GM9010P	ASTM D1875	SAE J1864
GM9763P	ASTM D4339	
9982247	ASTM E502	

3 REQUIREMENTS.

3.1 RESTRICTED AND REPORTABLE CHEMICALS (GM1000M). All materials supplied to this specification must comply with the requirements listed in GM1000M, "Restricted and Reportable Chemicals."

3.2 TOXICITY. The toxicity shall be disclosed in kind and magnitude, as required, by the GM Material Safety Data Sheet.

In addition, the material must have full approval of the appropriate medical department prior to production use.

3.3 STABILITY (GM9763P). Material conditioned using potential storage conditions must be capable of passing all the requirements of this specification.

3.3.1 Elevated Temperature Stability. As shipped, the adhesive must be capable of withstanding a temperature of 55°C for 72 h, without separation or caking.

3.3.2 Low Temperature Stability. As shipped, the adhesive must be capable of withstanding 3 cycles of the applicable cycle schedule outlined in A2 of GM9763P.

3.3.3 Storage Stability. The shelf life of the adhesive in closed containers shall be 180 days at a temperature not to exceed 35°C. Shelf life of the material commences upon the receipt of the material from the manufacturer.

3.4 PRESSURE STABILITY (SAE J1864). As shipped, the adhesive must not separate or cake.

3.5 COLOR. The two components shall be in contrasting colors. The colors shall be so picked that, in instances of improper mixing, color striations shall be visible in the dispensed bead.

3.6 MATERIAL PROPERTIES. See Table 1.

TABLE 1

Properties	Values	Test Methods
Color	Black	Visual (See 3.5)
Odor	The material shall not have a noxious odor.	ASTM D4339
Solids Content	100%	GM9010P
Viscosity	12.5Pa·s, nominal	SAE J1524, RVT Brookfield Method, 10 rpm, spindle #6) and 23°C
Density	1.24 kg/L	ASTM D1875
Press Flow		SAE J1524, press flow Method C, °C
Initial	71 - 75	138 kPa
Aged 90 days, 35°C	69 - 73	138 kPa
Initial	14 - 18	414 kPa
Aged 90 days, 35°C	15 - 20	414 kPa
Homogeneity	Materials must be homogeneous and free of lumps or air bubbles.	
Infrared Scan	IR scan shall be on file for future reference.	
Flash Point	>200°C	ASTM E502

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9982246**4 OTHER TESTS MAY BE REQUIRED TO VALIDATE THE SPECIFIC APPLICATION.**

5 INITIAL SOURCE APPROVAL. No shipment shall be made by any supplier until a submission of representative initial production samples to the purchaser's laboratory and/or engineering department has been approved as meeting the requirements of this specification.

5.1 Completed copies of the Material Safety Data Sheet meeting GM information requirements must be submitted with any new submissions or whenever a composition change has occurred.

6 INSPECTION AND REJECTION. All shipments of material or parts under contract or purchase order manufactured to this specification shall be equivalent in every respect to the initial samples approved by the purchaser. There shall be

no changes in either formulation or manufacturing processes permitted without prior notification and approval by the purchaser. Lack of notification by the supplier constitutes grounds for rejection of any shipment. While samples may be taken from incoming shipments and checked for conformance to this specification, the supplier shall accept the responsibility for incoming shipments meeting this specification without dependence upon purchaser's inspection.

7 APPROVED SOURCES. Engineering qualification of an approved source is required for this specification. Only sources listed in the GM Corporate Materials File under this specification number have been qualified by engineering as meeting the requirements of this specification. Sources are available through the on-line MATSPC System.

8 GENERAL INFORMATION. This standard was originated by MCD in November 1996.