



Standard Specification for Epoxy Resin System for Composite Skin, Honeycomb Sandwich Panel Repair¹

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1. Scope

1.1 This specification covers the requirements for an epoxy resin system intended for the repair of sandwich panels for durable, rigidwall, relocatable structures. It must be usable in a field environment and shall not require the use of special equipment such as autoclaves or presses. The epoxy system covered by this specification shall be usable for simultaneous impregnation of a wet-layup composite skin and bonding of that skin to a substrate honeycomb core. The material shall withstand exposure to temperatures from –54 to 93°C (–65 to 199°F) and high relative humidity, and also the combination of stress, temperature, and relative humidity that are expected to be encountered in service.

1.2 The values stated in SI units are to be regarded as standard where only SI units are given or where SI units are given first followed by inch-pound units; where inch-pound units are given first followed by SI units, the inch-pound units are to be regarded as the standard.

1.3 The following safety hazards caveat refers only to the test methods described in this specification. *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- C 297 Test Method for Tension Strength of Flat Sandwich Constructions in Flatwise Plane²
- D 792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement³
- D 2344 Test Method for Apparent Interlaminar Shear Strength of Parallel Fiber Composites by Short Beam Method²

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² Annual Book of ASTM Standards, Vol 15.03.

³ Annual Book of ASTM Standards, Vol 08.01.

D 2584 Test Method for Ignition Loss of Cured Reinforced Resins⁴

D 2734 Test Methods for Void Content of Reinforced Plastics⁴

D 3165 Test Method for Strength Properties of Adhesives in Shear by Tension Loading of Single-Lap-Joint Laminated Assemblies⁵

E 874 Practice for Adhesive Bonding of Aluminum Facings to Nonmetallic Honeycomb Core for Shelter Panels⁶

E 1091 Specification for Nonmetallic Honeycomb Core for Use in Shelter Panels⁶

2.2 Federal Specifications:

PPP-B-566 Box, Folding, Paperboard⁷

PPP-B-636 Box, Shipping, Fiberboard⁷

PPP-B-676 Boxes, Set Up⁷

2.3 Federal Standard:

Fed. Std. No. 102 Preservation, Packaging, and Packing Levels⁷

2.4 Military Specifications:

MIL-C-9084C Cloth, Glass, Finished for Epoxy Resin Laminate⁷

MIL-P-18177C Plastic Sheet, Laminated, Thermosetting, Glass-Fiber Base, Epoxy Resin⁷

2.5 Military Standards:

MIL-STD-105 Sampling Procedures and Tables for Inspection by Attributes⁷

MIL-STD-129 Marking for Shipment and Storage⁷

3. Physical Requirements

3.1 Working Characteristics:

3.1.1 *Application*—The components of the epoxy resin shall be readily hand-mixed to a smooth consistency suitable for application. It shall be uniform and free of lumps. The resin components, once mixed, shall not settle out. The epoxy material shall be suitable for the wet-layup impregnation of MIL-C-9084C glass cloth and for application to core materials over the temperature range of 16 to 38°C (60 to 100°F) and at relative humidities of 30 to 75 %.

3.1.2 *Application Life*—The application life of a 200-g kit

⁴ Annual Book of ASTM Standards, Vol 08.02.

⁵ Annual Book of ASTM Standards, Vol 15.06.

⁶ Annual Book of ASTM Standards, Vol 04.11.

⁷ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.