Scotch-Weld™
Void Filling Compound
EC-3439

Technical Data **June, 2002**

Introduction

3M™ Scotch-Weld™ Void Filling Compound EC-3439 is a one part product with the following properties:

1. Contains no solvent.
2. Cures to a rigid, solvent resistant material in one hour at 250°F (121°C).
3. The compound has thixotropic properties for ease of application.
4. Cured material is flame retardant. Meets the flammability requirements of F.A.R. 25.853 (a).

Product Description

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Color:	Off white
Base:	Modified Epoxy
Density:	31.2 lb./cu. ft. (0.5 g/cm^3) maximum
Viscosity:	Thixotropic Paste

Product Performance

The following product performance data has been obtained in the 3M Laboratory under the conditions specified. General application methods and curing procedures are described later.

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Compressive Strength (Typical)

1/2" x 1/2" x 1" samples were cut from a cured test block of 3M™ Scotch-Weld™ Void Filling Compound EC-3439. Compression was run with the force applied to the 1/2" square surfaces.

Compression rate: 0.02"/minute. Cure Cycle: 250°F (121°C) for 60 minutes, no pressure.

Test Temperature	Compressive Strength	Compressive Modulus
75°F (24°C)	2500 psi	130,000 psi
250°F (121°C)	410 psi	15,000 psi
350°F (177°C)	320 psi	12,000 psi

Flammability

Horizontal: 5" x 1/2" x 1/4" samples were cut from a cured test block of Scotch-Weld EC-3439. A sample was clamped in a horizontal position with the 1/2" direction 45° from vertical. A bunsen burner was placed with the flame tip at one end of the specimen for 60 seconds. The flame on the sample extinguished immediately upon removal of the bunsen burner.

Vertical: 1/2" x 1/2" x 5" samples were cut from a cured test block of Scotch-Weld EC-3439. A sample was clamped in a vertical position at the top. A bunsen burner was placed with the flame tip at the bottom end of the sample. The flame was applied for 60 seconds. Upon removal of the bunsen burner, the flame on the specimen extinguished immediately.

Fluid Absorption

1/2" x 1/2" x 1/2" specimens were cut from a cured block of Scotch-Weld EC-3439 and immersed 1/2" below the surface of the following fluids for 24 hours at 75°F (24°C).

Fluid	Weight Increase
MIL-S-3136 Type III hydrocarbon fluid	0.8%
MIL-H-5606 Hydraulic Fluid	4.8%
Skydrol 500	5.4%
Distilled Water	2.1%

Poisson's Ratio

Tensile and shear modulus were determined on 1" x 6" x 1/4" cured samples of Scotch-Weld EC-3439. These values were used to calculate Poisson's ratio.

Tensile Modulus (E) = 243,000 psi

Shear Modulus (G) = 102,000 psi

Poisson's Ratio = $\frac{E}{2G} - 1 = 0.19$

Product Performance *(continued)*

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Specific Heat

Temperature	Cured Scotch-Weld C-3439
75°F (24°C)	.23 Cal/gm °C
180°F (82°C)	.28 Cal/gm °C

Thermal Conductivity

Temperature	Cured Scotch-Weld EC-3439
180°F (82°C)	.0575 Btu - ft./ft.^{2} hr. °F
250°F (121°C)	.0615 Btu - ft./ft.^{2} hr. °F

Product Application

Surface Preparation

A clean, dry, grease free surface is essential for maximum performance.

Adhesive Application

3M™ Scotch-Weld™ Void Filling Compound EC-3439 may be applied by spatula, trowel or extruded in place.

Recommended Cure Cycle

The test results reported in the product performance section were obtained using a 60 minute at 250°F (121°C) cure. Curing was accomplished without pressure in an air circulating oven. Curing at higher temperature up to 375°F (191°C) gave equivalent properties. 1/3 lb. masses of Scotch-Weld EC-3439 have been cured at 250°F (121°C) with no evidence of exotherm. The possibility of exotherms of larger masses has not been investigated.

Storage Stability

Refrigerated storage at 0°F (-18°C) or below is recommended for maximum storage life. Present data indicates Scotch-Weld EC-3439 has at least 5 days stability at 70-80°F (21-27°C). Scotch-Weld EC-3439 should be permitted to warm thoroughly to room temperature before using in order to prevent moisture condensation on the adhesive surface and to permit ease of application.

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Precautionary Information

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, call 1-800-364-3577 or (651) 737-6501.

For Additional Information

To request additional product information or to arrange for sales assistance, call toll free (800) 235-2376. Our fax number is (417) 869-5219. Address correspondence to: 3M Aerospace Central, 3211 E. Chestnut Expressway, Springfield, MO 65802.

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ISO 9002

This Engineered Adhesives Division product was manufactured under a 3M quality system registered to ISO 9002 standards.

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