3M

Scotch-Weld™

Structural Void Filling Compound

EC-3439 HS AF*

Technical Data Sheet **November 2007**

Product Description

3M™ Scotch-Weld™ Structural Void Filling Compound EC-3439 HS AF is a high strength, one-part, self-extinguishing product with the following features:

Features

- Low density
- High compressive strength from -55°C to +100°C
- Low volatile loss during cure
- Cures to a rigid, solvent resistant material in one hour at 125°C or at 175°C
- Easy to extrude
- Thixotropic for ease of application
- Cured material is flame retardant

Typical Physical Properties

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:	Epoxy resin
Cured Density:	0.75 maximum
Viscosity:	Non-flow, non-sag paste

*AF = Antimony Trioxide Free

Product Performance

The following product performance data was obtained in the 3M Laboratory, under the conditions specified.

General application methods and curing procedures are described in a later section.

Compressive Strength:

(12.5 x 12.5 x 25 mm) samples were cut from a cured test block of 3M™ Scotch-Weld™ Structural Void Filling Compound EC-3439 HS AF.

Compression was run with the force applied to the 12.5 mm square surfaces at a rate of 0.5 mm / minute.

– Cure cycle:
Temperature rise rate: 3.5°C/minute followed by 125°C for 60 mins., atmospheric pressure or 175°C for 60 mins., atmosphere pressure.

Test Temperature	Compressive Strength (Mpa)	
	125° Cure	175° Cure
-55°C	66.2	59.4
23°C	48.2	47.1
80°C	42.2	20.1

Compressive Modulus:

At 23°C: 2 040 MPa (175°C cure).
2 260 MPa (125°C cure).

Fluid Resistance:

Blocks of cured Scotch-Weld EC-3439 HS AF Compound measuring 12.5 x 12.5 x 25 mm with all faces cut were immersed in the following environments for a period of 48 hours at 23°C (unless otherwise stated):

	% Weight Absorption	Compressive Strength (MPa)	
	125°C cure	125°C cure	175°C cure
Control	–	48.1	42.2
De-ionized water	1.7%	39.6	37.3
JP4 (MIL-T-5624K)	< 0.1%	49.8	45.8
Hydraulic Oil (MIL-H-5606C)	< 0.1%	49.3	45.2
Skydrol®* 500 B	0.8	52.6	N.T.
Dry heat at 80°C	0%	52.0	47.8

N.T.: Not tested

*Available from Solutia, Inc. St. Louis, Missouri

Product Performance
(continued)

Filler Strength (Ejection test):

A 40 mm length of 10 mm diameter FPL etched aluminum rod is bonded into a 30 mm x 30 mm x 10 mm block of void filler such that 20 mm and 10 mm of the rod protrudes on either side. After cure, the force necessary to push out the rod is measured in Newtons.

Test Temperature	125° Cure	175° Cure
-55°C	3365 N	3560 N
23°C	3785 N	3980 N
80°C	3350 N	3150 N
Filler strength after immersion for 30 days at 23°C:		
Control	3785 N	3980 N
De-ionized water	2760 N	2730 N
JP 4 (MIL-T-5624K)	3360 N	3715 N
Hydraulic oil (MIL-H-5606C)	3795 N	3540 N
Dry heat at 80°C	3740 N	3875 N

Flammability:

a) Horizontal (125 x 12.5 x 6.4 mm) samples were cut from a cured test block of 3M™ Scotch-Weld™ Structural Void Filling Compound EC-3439 HS AF. A sample was clamped in a horizontal position with the 12.5 mm 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 extinguishes within 5 seconds upon removal of the Bunsen burner.

b) Vertical (12.5 x 12.5 x 12.5 mm) samples were cut from a cured test block of Scotch-Weld EC-3439 HS AF Compound. The 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 extinguishes within 5 seconds.

c) Scotch-Weld EC-3439 HS AF Compound meets the requirements of FAR 25.853 para. b.

Product Application

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

Application Application:
Scotch-Weld EC-3439 HS AF Compound may be applied by spatula, trowel or extruded in place.

Recommended Cure Cycle:
The test results reported in the product performance section were obtained by using a 60 minute cure at 125°C or 175°C.

3M™ Scotch-Weld™
Structural Void Filling Compound
EC-3439 HS AF

Storage and Handling

Refrigerated storage at 0°C (-18ºC) or below is recommended for maximum storage life. Storage life at 0F (-18ºC) is 6 months from data of shipment.

3M™ Scotch-Weld™ Structural Void Filling Compound EC-3439 HS AF 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.

The shop life of Scotch-Weld EC-3439 HS AF Compound at room temperature (15-25°C) is five days.

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, visit www.3M.com/msds or call 1-800-364-3577 or (651) 737-6501.

Additional Information or To Order

In the U.S., call toll free 1-800-235-2376, or fax 1-800-435-3082 or 651-737-2171. For U.S. Military, call 1-866-556-5714. If you are outside of the U.S., please contact your nearest 3M office or one of the following branches:

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This product was manufactured under a 3M quality standard registered under AS9100 standards.

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