3M™ Scotch-Weld™ Structural Void Filling Compound EC-3505 B/A FR

Product Description

3M™ Scotch-Weld™ Structural Void Filling Compound EC-3505 B/A FR is a two-part, low-density, flame-retardant epoxy compound that can be stored, applied and cured at room temperature.

Scotch-Weld EC-3505 B/A FR Compound is a non-sag, non-brittle compound designed for void-filling, edge-sealing/close-out, corner reinforcement, local reinforcement for mechanical fixation and complex gap-filling in honeycomb sandwich structures. The cured materials meet 14 CFR 25.853 (a).

Scotch-Weld EC-3505 B/A FR Compound is available in dual-chamber cartridges and bulk kits for use with pneumatic dispensers and bulk pumping equipment.

Key Features

- 100% solids
- Base is brown with black spots; accelerator is off-white
- Meets the flammability requirements of 14 CFR 25.853 (a)
- Available in duo-pack cartridges or in bulk pumpable kits
- Thixotropic properties for ease of application
- Excellent sag resistance
- Sandable & machinable within 6 hours at 75°F (23°C) after mixing or 1 hour at 110°F (43°C)
- Cures to a strong, low-density material within 48 hours at 75°F (24°C) or 2 hour at 110°F (43°C)
- Service temperature of -65°F to 212°F (-55°C to 100°C)
- Seals honeycomb panel edges and provides impact resistance to panel
- Paintable

General Applications

3M™ Scotch-Weld™ Structural Void Filling Compound EC-3505 B/A FR is designed for honeycomb sandwich constructions typically found in aircraft interiors such as galley structures, luggage bins, partition walls, lavatory structures, crew rest compartments, seating structures, ceiling panels, closets, stowage compartments, sidewall panels, bar units, coatrooms, air stairs and passenger doors.

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.

Product Description & Properties	Scotch-Weld EC-3505 B/A FR	
	Part B	Part A
Chemistry	Epoxy	Modified amine
Color	Brown with black spots	Off-white
Typical Uncured Density	0.45 to 0.51 g/cm^3 (g/cc)	0.32 to 0.43 g/cm^3 (g/cc)
Typical Mixed Pot Life	60 min @ 73°F (23°C)	
Typical Cured Density	0.40 to 0.48 g/cm^3 (g/cc)	
Form Stability (10g mixture) – Handle-Ability (3M Test Method)	4 h @ 73°F (23°C) or 30 minutes @ 110°F (43°C)	
Full Cure (10g mixture - Optimum mechanical properties)	48 h @ 73°F (23°C) or 2 h @ 110°F (43°C)	
Curing Process	Room Temperature 73°F (23°C); max 110°F (43°C)	
Consistency	Thixotropic paste	
Slump/Sag (AITM 2-0033)	Less than 0.02 inch (0.5 mm)	
Mix Ratio	100:50 cc by volume; 100:39 g by weight	
Solid Content	100%	
Application Method	Pumpable / Cartridge Dispensable	
Volatile Loss on Cure	Less than 0.01%	
Service Temperature Range	-67°F to 212°F (-55°C to 100°C)	

Typical Product Performance

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

Compressive Strength

A block was prepared from approximately 3.5 oz (100 grams) of mixed using an 18 element static mixer low density void-filler, which was carefully introduced into a mold with inner dimensions of approximately 0.75" x 3" x 5" (20 x 50 x 200 mm).

Individual specimens of the dimensions of 0.5" x 0.5" x 1.0" (12.5 x 12.5 x 25.0 mm) were cut from a cured block of void-filler with an accuracy of + 0.008" (+ 0.2 mm) on each dimension.

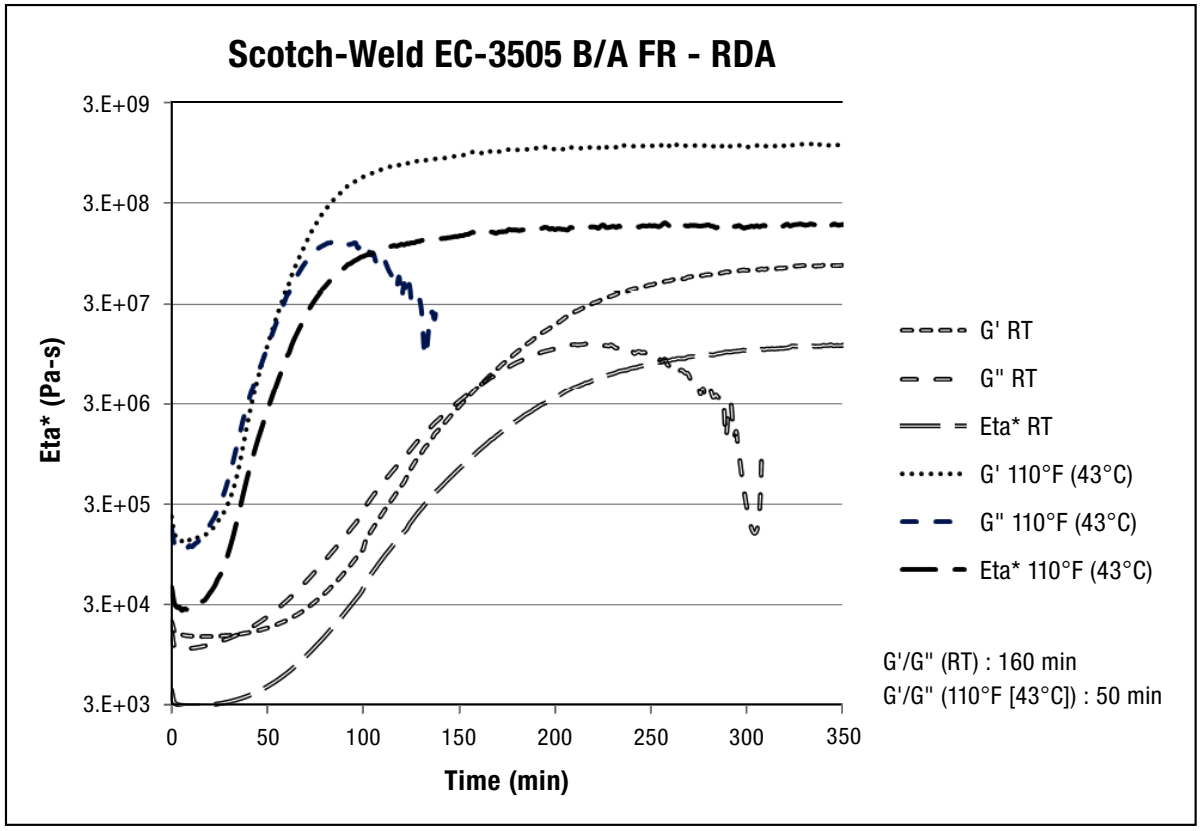
Compression strength tests were performed using a crosshead displacement rate of 0.02 inch/min (0.5 mm/min). All specimens were loaded with force applied to the 0.5" (12.5 mm) square surface. ASTM D695

Cure (air circulating oven): 48 hours at 72 ± 8°F (22 ± 5°C) followed by 60 ± 10 minutes at 150 ± 5°F (66 ± 3°C) with no additional pressure.

Properties	Test Method	Test Temperature	Scotch-Weld EC-3505 B/A FR		
			Peak Load - lbf (N)	Peak Stress - psi (MPa)	Modulus - ksi (MPa)
Typical Compressive Strength	ASTM D-695	73 ± 4°F (23 ± 2°C)	500 to 600 (2224 to 2669)	2000 to 2400 (13.8 to 16.5)	85 to 100 (586 to 689)

Parallel Plate RDA

Test Equipment: Rheometric Dynamic Analyzer (RDA)
1 Hz frequency, isothermal, 25 mm parallel plates, 1% initial strain, strain adjustment 100%.



Typical Product Application

Surface Preparation:
A cleaned, dry, contamination free surface is essential for maximum performance. For repeatable results the void-filler and the surfaces should have a temperature between 68-77°F (20-25°C).

Mixing:
3M™ Scotch-Weld Structural Void Filling Compound EC-3505 B/A FR can be mixed automatically (using static mixer, with a minimum of 12 elements, and for optimal flow 13 mm I.D. is recommended). For repeatable performance keep mixing ratio in a range of ± 5% (100:50 cc by volume; 100:39 g by weight).

Dual Cartridge application provides maximum accuracy and ease of handling. Always use a fresh unused static mixing nozzle with each application or with each new cartridge. When attaching the nozzle, orient the first element in a way for it to be perpendicular to the separation of the 2 parts. Scrap at least the first 2 cc or more until you have a uniform color after mixing both adhesive parts. Work life begins upon mixing. Reference for "**Handle-Ability**" can be found in "**Typical Physical Properties**" table, on page 2. For ease of extrudability, the product should be at the temperature of at least 75°F (25°C) and not greater than 110°F (43°C). Bulk pumping & mixing equipment recommendations are available upon request.

Curing Conditions:
A minimum cure time of 48 hours at room temperature or 24 hours at room temperature followed with a 1 hour at 110°F (43°C) post cure cycle to obtain the optimum mechanical properties of the product. Heat application accelerates the curing cycle.

Clean up of Void-Filler:
Uncured void-filler can be wiped with solvent e.g. Methylethyl-ketone (MEK). Cured material can be cleanly removed mechanically.

Storage

Storage Stability - Store 3M™ Scotch-Weld™ Structural Void Filling Compound EC-3505 B/A FR between 44°F and 77°F (7°C and 25°C) in original unopened container. Rotate stock on "first in - first out" basis.

Shelf Life

Standard shelf life for 3M™ Scotch-Weld™ Structural Void Filling Compound EC-3505 B/A FR is 9 months from date of shipment when stored between 44°F and 77°F (7°C and 25°C) in original unopened container.

Precautionary Information

Refer to Product Label and Safety Data Sheet (SDS) for health and safety information before using this product. For additional health and safety information, please visit www.3Ms.com/msds or call 1-800-364-3577 or (651) 737-6501.

For Additional Information

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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Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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This product was manufactured under a 3M Quality Management System registered to the AS9100 standard.

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