3M™ Scotch-Weld™ EC-3524 B/A

Structural Void Filling Compound

Product Description

3M™ Scotch-Weld™ EC-3524 B/A, 3M™ Scotch-Weld™ EC-3524 B/A AF (Antimontrioxid Free), 3M™ Scotch-Weld™ EC-3524 B/A FST (Fire, Smoke and Toxicity) are two part, low density, structural void filling compound based on epoxy chemistry. They are designed for use on interior honeycomb sandwich structures as edge close-out and corner reinforcement, as well as local reinforcement for mechanical fixation or complex gap filling. The void filler are compatible with metal and non-metal constructions that are typically found in aircraft interiors. 3M™ Scotch-Weld™ EC-3524 B/A Black Version is widely used as abradable fan track filler in aircraft engines. The cured material offers high mechanical properties by very low density and good chemical resistance.

Key Features

- Very low density material for light weight designs.
- 100% solids and low shrinkage material.
- Sandable within 3 hours at room temperature.
- Flame retardant according FAR 25.853 (a) and /b), FST version available.

Product Characterization

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

General Properties	EC-3524 B/A	EC-3524 B/A AF	EC-3524 B/A Black	EC-3524 B/A FST
Base	Epoxy / mod. Amine	Epoxy / mod. Amine	Epoxy / mod. Amine	Epoxy / mod. Amine
Consistency	Thixotropic Paste	Thixotropic Paste	Thixotropic Paste	Thixotropic Paste
Colour	B: Blue / A: White	B: Blue / A: White	B: Black / A: White	B: Black / A: White
Mix Ratio by weight	100 : 94	100 : 100	100: 94	100: 100
Pot Life [1]	> 90 minutes at room temperature			
Cure Cycle [2]	48 hours at room temperature between 15 – 25 °C			
Volatile Loss on Cure	Less than 0,1 % after 48 hours cure at room temperature			
Flow (Boeing Jig)	Less than 1,0 mm			
Uncured Specific Gravity	0,45 g/ccm	0,45 g/ccm	0,45 g/ccm	0,55 g/ccm
Shore D Hardness	55	-	-	-

[1] for more detailed information see chapter “handling, application, storage” on page 3

[2] shop life is depending on application approach.

Product Performance

The following product performance data was obtained in the 3M Laboratory under the conditions specified. The following technical data should be considered as typical or representative only and should not be used for specification purpose. The values represent typical average product performance. The material has been cured for 48 hours at 23 ± 2 °C before testing.

Mechanical Properties	Temperature / Medium	EC-3524 B/A AF	EC-3524 B/A FST
Compressive Strength ISO 604; 12,5 x 12,5 x 25 mm³	-55 ± 2 °C	-	38,0 MPa
	23 ± 2 °C	15,9 MPa	23,0 MPa
	80 ± 2 °C	2,6 MPa	5,8 MPa
Compressive Modulus, ISO 604	23 ± 2 °C	2200 MPa	-
Shear Strength	23 ± 2 °C	1915 N	2000 N
	100 ± 2 °C	405 N	-
Resistance to Fluids & Fluid Absorption ISO 604 Sample size : 12,5 x 12,5 x 25 mm³ The samples have standardized been immersed in the environments for 1000 hours.	Reference compression strength value at 23 ± 2 °C	15,9 MPa	-
	Boiling Water	8,5 MPa	-
	Hot / Wet after 50 ± 2 °C, 90 % RH at 23 ± 2 °C	8,4 MPa (3,2 %)	-
	Demineralised water at 23 ± 2 °C	10,8 MPa (1,5 %)	-
	Fuel F34 at 23 ± 2 °C	3,9 MPa (2,4 %)	-
	Skydrol 500B at 23 ± 2 °C	16,9 MPa (10 %)	-

Flammability, Smoke Density and Toxic Gas Emission

All specimens for flammability, smoke density and toxic gas emission tests had a thickness of 3,2 mm.

Flammability Properties		Requirements	EC-3524 B/A AF	EC-3524 B/A FST
Flammability 12 sec vertical FAR/JAR/CS 25.853(a) App F, part I(a)(1)(ii) Sample size : 300 x 75 x 3,2 mm³	Burn Length	≤ 200 mm	pass	-
	Afterflame Time	≤ 15 sec	2 sec	-
	Drips Exting Time	≤ 5 sec	0 sec	-
Flammability 60 sec vertical FAR/JAR/CS 25.853(a) App F, part I(a)(1)(i) Sample size : 300 x 75 x 3,2 mm³	Burn length	≤ 150 mm	-	60 – 70 mm
	Afterflame Time	≤ 15 sec	-	5 sec
	Drips Exting Time	≤ 3 sec	-	0 sec
Smoke Emission FAR/JAR/CS 25.853(d) App F, part V(b)	DS max in 4 min.	≤ 200 Ds Max	-	150 – 200 Ds
Toxic Gas Emission Airbus ABD0031 Boeing D6-51377 Sample size : 75 x 75 x 3,2 mm³	HF (flaming)	≤ 100 ppm	-	- ppm
	HCL (flaming	≤ 150 ppm	-	6 ppm
	HCN (flaming)	≤ 150 ppm	-	10 ppm
	$SO_2 + H_2S$ (flaming)	≤ 100 ppm	-	0 ppm
	CO (flaming)	≤ 1000 ppm	-	450 ppm
	NO + NO_2 (flaming)	≤ 100 ppm	-	25 ppm

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Data are typical values and cannot be taken for specification purpose.

All Data were generated in stand alone test mode.

Handling, Application, Storage

Precautionary Information

Refer to product label and Material Safety Data Sheet (MSDS) for health and safety information before using this product. For MSDS visit our website www.3M.com/msds.

Instructions for use

While this information is provided as general application guideline based upon typical conditions, it is recognized that no two applications are identical due to, among other things, differing assemblies, methods of heat and pressure application, production equipment and other limitations. It is therefore suggested that experiments be run, within the actual constrains imposed to determine optimum conditions for your specific application and to determine suitability of product for particular intended use.

Process step	Instruction
Preparation	A thoroughly cleaned, dry, grease-free surface is essential for maximum performance. For repeatable results the material and the substrates should be in the range of 20 – 25 °C (object temperature).
Void filler application	This product consists of two parts. Scale and mix Part B and Part A thoroughly manually by weight in the proportions specified on the product. Mix manually approximately 15 seconds after a uniform colour is obtained. The work life in mixed condition is around 90 minutes. **Caution:** Work life differs according to pot size and temperature. Larger sizes and higher temperatures create faster reaction times. Use a spatula to form the applied material in custom designed shape.
Curing and processing	Cure the product at room temperature or with mild heat (max. 80 °C). **NOTE:** Higher temperatures generate faster curing times and can expand the product. The following times and temperatures will result in a full cure: ▪ 2 days at 23 ± 2 °C ▪ 1 hours at 80 ± 2 °C **Important:** Be careful when curing larger quantities at elevated temperature, because exothermic reaction may occur. This product is paintable.
Cleaning	Excess uncured void viller can be cleaned with ketone type solvents. After cure the adhesive can be removed mechanically. **NOTE:** When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and instructions for use.
Storage and handling EC-3524 B/A (AF) (Black)	Store the product at room temperature or below. Shelf life is minimum 6 months from date of shipment in their original unopened containers. The specific expiry date is mentioned on the product label.
Storage and handling EC-3524 B/A FST	Store the product at room temperature or below. Shelf life is minimum 9 months from date of shipment in their original unopened containers. The specific expiry date is mentioned on the product label

For additional information on this product contact your local 3M Aerospace Sales Representative or visit our homepage at www.3m.eu/aerospace.

Automotive and Aerospace Solutions Division
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Reference: 231