Technical data sheet

Product:	EC-3450
Manufacturer:	3M DEUTSCHLAND GMBH
Product group:	KLEBSTOFF
Article group:	DICHTMASSE
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3M SCOTCH-WELD EC-3450 FST 750ML

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3M™ Scotch-Weld™ EC-3450 FST

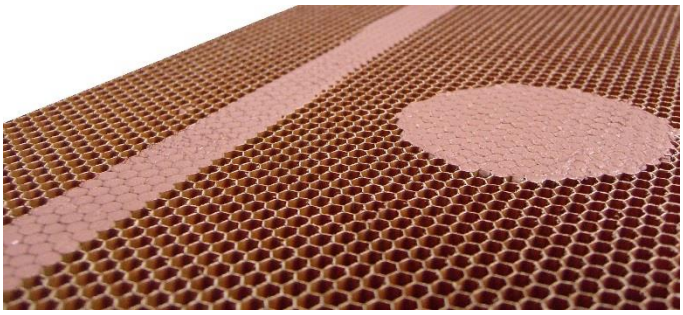
Structural Void Filling Compound

Product Description

3M™ Scotch-Weld™ 3450 FST (Fire Smoke Toxicity) is an extrudable, heat curing, low density, structural void filling compound based on epoxy chemistry. It is designed for use on interior honeycomb sandwich structures as edge close-out, corner reinforcement, as well as local reinforcement for mechanical fixation, complex gap or mismatch area filling. The void filler is compatible with metal and non metal constructions that are typically found in aircraft interiors. The cured material has excellent fire, smoke, and toxicity properties, based on a halogen and heavy metal- free FST System. It offers excellent chemical resistance and has best processing attributes due to its easy extruding, filling, grinding, and painting abilities.

Key Features

- Very low density material for light weight designs.
- Extrudable by dispensing systems for full automatic applications.
- Meeting FST acc. FAR 25.853 and ABD 0031
- 100% solid and shrinkage- free material



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	Scotch-Weld EC-3450 FST
Colour	Brown
Base	Epoxy
Consistency	Thixotropic paste
Uncured Specific Gravity	0.64 g/cm³
Volatile Content	< 1,5 %
Recommended Heat Rate	2-5 °C per minute
Minimum Cure Cycle [1]	60 min at 125 °C
Typical Slump AITM 2-0033	Less than 0,5 mm
Cured Specific Gravity	0.64 g/cm³
Exothermic Reaction Peak Temperature	+ 40 °C (+ 20 °C) while curing 100 g for 60 min at 125 °C (175 °C); heat rate 2 - 5°C / min
In- Service Temperature Range	-55 °C to 85 °C
Shop Life [2]	> 5 days at 23 ± 2 °C

[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 following cure cycles have been taken into account:
Cure Cycle 1: 60 minutes at 125°C in a heat press (heat rate 2-5 °C / minute)
Cure Cycle 2: 60 minutes at 175 °C in a heat press (heat rate 2- 5 °C / minute)

Mechanical Properties	Temperature / Medium	Cure Cycle 1	Cure Cycle 2
Compressive Strength ISO 604 ; Sample size : 12,5 x 12,5 x 25 mm³	-55 ± 2 °C	36 MPa	-
	23 ± 2 °C	33 MPa	-
	80 ± 2 °C	10 MPa	-
Compressive Modulus ISO 604 Sample size : 12,5 x 12,5 x 25 mm³	-55 ± 2 °C	1300 MPa	-
	23 ± 2 °C	1150 MPa	-
	80 ± 2 °C	350 MPa	-
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 30 days.	Reference compression strength value at 23 ± 2 °C	28 MPa	-
	Dry Heat after 80 ± 2 °C at 23 ± 2 °C	32 MPa	-
	Hot / Wet after 70 ± 2 °C, 85 % RH at 23 ± 2 °C	17 MPa (1,6 %)	-
	Demineralised water at 23 ± 2 °C	27 MPa (2,3 %)	-
	Fuel F34 at 23 ± 2 °C	30 MPa (2,4 %)	-
	Skydrol 500B at 23 ± 2 °C	29 MPa (2,4 %)	-

Flammability, Smoke Density and Toxic Gas Emission

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

Flammability Properties		Requirements	Cure Cycle 1	Cure Cycle 2
Flammability 12 sec vertical FAR/JAR/CS 25.853(a) App F, part I(a)(1)(ii) Sample size : 300 x 75 x 3 mm³	Burn Length	≤ 200 mm	42 mm	-
	Afterflame Time	≤ 15 sec	6 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 mm³	Burn length	≤ 150 mm	121 mm	-
	Afterflame Time	≤ 15 sec	0 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	147 Ds	-
Toxic Gas Emission Airbus ABD0031 Boeing D6-51377 Sample size : 75 x 75 x 3 mm³	HF (flaming)	≤ 100 ppm	5 ppm	-
	HCL (flaming	≤ 150 ppm	2 ppm	-
	HCN (flaming)	≤ 150 ppm	5 ppm	-
	SO_2 + H_2S (flaming)	≤ 100 ppm	< 1 ppm	-
	CO (flaming)	≤ 1000 ppm	435 ppm	-
	NO + NO_2 (flaming)	≤ 100 ppm	29 ppm	

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

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 one part. The material has to be defreezed to 20 – 25 °C before processing. **Note:** The temperature has an influence on the product viscosity. Higher temperatures will generate lower viscosity. For repeatable application results keep the product and substrate temperature in a constant range. Do not leave pails open if not used. Apply the product manual per spatula, or semi- to full automatic with an application device. **Caution**: Avoid high application pressures. It might result in a density increase and performance change. **Note:** Product viscosity will increase while room temperature storage. That influences the shop life. Do not defreeze more material than needed within shop life.
Curing and processing	Cure the product at 125 °C or above (max. recommended curing temperature: 185 °C) in heat press or autoclave. Keep heat rate in a range of 2 – 5 °C / minute. Higher temperatures generate faster curing times. The following times and temperatures will result in a full cure: ▪ 60 minutes at 125 ± 2 °C ; heat rate 2-5°C / minute ▪ 50 minutes at 175 ± 2 °C; heat rate 2-5 °C / minute Finish the shape mechanically after curing by using e.g. abrasive- or milling- processes. This product is paintable.
Cleaning	Excess uncured void filler 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 directions for use.
Storage and handling	Store the product at -18 °C or below. Shelf life below -18 °C is minimum 3 months from date of shipment in their original unopened containers or cartridges. 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.

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