

Technical data sheet



Product: 3074

Manufacturer: 3M DEUTSCHLAND GMBH

Product group: KLEBEBAND

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3M™ SCOTCH-WELD™ AF 3074 FST

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Tewipack Uhl GmbH
Industriestraße 15
D-75382 Althengstett

Telephone:
+49(0)7051/9297-0
Fax:
+49(0)7051/9297-99

E-Mail:
info@tewipack.de
Website:
www.tewipack.de

Managing director:
Alexander Uhl,
Michael Uhl
HRB 330424
Amtsgericht
Stuttgart

Bank details:
Sparkasse
Sindelfingen
Pforzheim
Calw
BLZ 666 500
85
Konto 17 787

Commerzbank
Sindelfingen
BLZ 603 400 71
Konto 8 001 166

Vereinigte
Volksbank AG
Böblingen
BLZ 603 900 00
Konto 80 089
003

Postbank
Stuttgart
BLZ 600 100
70
Konto 146
294 708

3M™ Scotch-Weld™ AF 3074 FST

Structural Core Splice Film

Product Description

3M™ Scotch-Weld™ AF (Adhesive Film) 3074 FST (Fire Smoke and Toxicity) is an epoxy based, 120 °C to 180 °C curable, structural core splice adhesive film which expands during cure. AF 3074 FST was designed for typical aircraft applications in interior and structural areas, e.g. edge foaming, filling mismatch areas or reinforcing and splicing honeycomb cores.

Key Features

- Reliable expansion rate.
- Flame retardant acc. FAR/JAR/CS 25.853(a) App F, part I(a)(1)(ii).
- Compatible with 120 °C and 180 °C cure cycles.
- Wide in-service temperature range.
- Long shop and shelf life at room temperature.



Product Characterization

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

General properties	30 mil version	50 mil version	Test method
Color		Grey	
Chemical base		Epoxy	
Form		Unsupported film	
Liners		Polyester (red)	
	Polyethylene (blue)	Polyethylene (yellow)	
Thickness	0,76 mm	1,27 mm	prEN 2667-3
Mass per unit area	950 g/m ²	1600 g/m ²	prEN 2667-3
Volatiles content (120 °C cure)	< 1 wt. %	< 1 wt. %	prEN 2667-3
Available packaging sizes	Sheets (300 x 400 mm ²)	Sheets (300 x 400 mm ²)	

Product Performance

The following product performance data were obtained with the 50 mil version of Scotch-Weld™ AF 3074 FST using two different cure cycles:

Cure cycle A: 60 minutes at 125 °C, heat-up rate 3-4 °C/min, atmospheric pressure

Cure cycle B: 30 minutes at 160 °C, hot-in / hot-out, atmospheric pressure

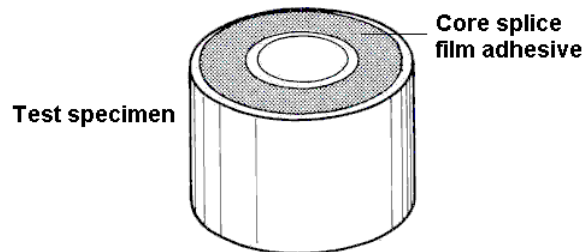
Properties of cured film	Cure cycle A	Cure cycle B	Test method
Expansion during cure	210 %	125 %	prEN 2667-3
Vertical slump ^{50 MIL}	0,6 mm	0,3 mm	prEN 2667-4
Density of cured film ^(a)	~ 0.40 g/cm ³	-	-

(a) free expansion

Tube shear strength

The tube shear strength was determined on Scotch-Weld™ AF 3074 FST using the procedures outlined in prEN 2667-2. 55 g ± 0.2 g were placed between the walls of two 230 mm long tubes. After curing under atmospheric pressure, the tubes were cut to individual specimens of 12.5 mm height. Tube shear resistance was calculated by the following formula:

$$\sigma [MPa] = \frac{F}{\pi d_{inner} h}$$



Outer and inner tubes: 12.5 mm height, aluminum alloy 5052-0 bare.
Outer tube: diameter 25.0 mm, thickness 1.25 mm. Inner tube: diameter 12.5 mm, thickness 1.25 mm.

	Test temperature	Cure cycle A
Tube shear strength	-55 °C	13 MPa
prEN 2667-2	23 °C	12 MPa
	80 °C	12 MPa
	135 °C	8 MPa

Flammability, Smoke Density and Toxic Gas Emission

All specimens for flammability, smoke density and toxic gas emission had a thickness of 6,3 mm and a density of ca. 0,5 g/ccm .

Flammability Properties	Requirements	Cure Cycle 1	
Flammability 12 sec vertical	Burn Length	≤ 200 mm	53 mm
FAR/JAR/CS 25.853(a)	After flame Time	≤ 15 sec	3 sec
App F, part I(a)(1)(ii)	Drips Exting Time	≤ 5 sec	0 sec
Sample size : 300 x 75 x 6,35 mm ³			
Smoke Emission	DS max in 4 min.	≤ 200 Ds Max	120 Ds
FAR/JAR/CS 25.853(d) App F, part V(b)			
Toxic Gas Emission	HF (flaming)	≤ 100 ppm	0 ppm
Airbus ABD0031	HCL (flaming)	≤ 150 ppm	1 ppm
Sample size : 75 x 75 x 6,35 mm ³	HCN (flaming)	≤ 150 ppm	18 ppm
	SO ₂ + H ₂ S (flaming)	≤ 100 ppm	11 ppm
	CO (flaming)	≤ 1000 ppm	390 ppm
	NO + NO ₂ (flaming)	≤ 100 ppm	44 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
Surface preparation	A thoroughly cleaned, dry, grease-free surface is essential for maximum performance. For repeatable behavior and results the material and the substrates should be in the range of 20 - 25 °C object temperature.
Film application	Care must be taken when handling AF 3074 FST at low temperatures because it can easily crack. Warm AF 3074 FST to ambient conditions in the sealed package to prevent moisture condensation on the adhesive surface. <ol style="list-style-type: none">1) Cut portion of film to be used with protective liners in place.2) Remove liner from one side of the film.3) Place film using the remaining liner as a protective cover.4) Avoid air entrapments between film and the surface. On metal surfaces, for example, the film can be rolled into position with a rubber roller.5) Remove second protective liner.6) Assemble parts and cure.
Suggested cure cycle	Normally, AF 3074 FST will begin to cure when a temperature of about 110 - 115 °C is reached. A minimum cure temperature of 120 °C is suggested to effect a full cure in reasonable time, e.g. 60 minutes. NOTE: The curing cycle will have an influence on the expansion ratio.
Storage	Shelf life - This product has a shelf life of 12 months from date of manufacturing when stored below -18 °C. As an alternative the product can be stored at room temperature for 6 month from date of manufacturing, when stored in the sealed protective bag. Shop life - Our data indicate, that no loss in mechanical properties is obtained after 30 days storage at room temperature outside the protective bag. The liners should be removed immediately before use only, in order to slow down moisture absorption.

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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Automotive and Aerospace Solutions Division

European Aerospace Laboratory

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