Technical data sheet

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3M™ SCOTCH-WELD™ AF 3074 FST

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
Pforzheim
Calw
BLZ 666 500
85
Konto 17 787

Commerzbank
Sindelfingen
BLZ 603 400 71
Konto 8 001 166

Vereinigte
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BLZ 603 900 00
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3M™ Scotch-Weld™ AF 3074 FST

Structural Core Splice Film

Preliminary Technical Data Sheet

Product Description

3M™ Scotch-Weld™ AF (Adhesive Film) 3074 FST (Fire Smoke and Toxicity) is an epoxy based, 250°F to 350°F (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. filling mismatch areas or reinforcing and splicing honeycomb core.

Key Features

- High and repeatable expansion rate
- Flame retardant acc. FAR/JAR/CS 25.853(a) App F, part I(a)(1)(ii).
- Compatible with 250°F and 350°F (120°C to 180°C) cure cycles
- Wide in- service temperature range from -67°F up to 275°F (-55°C up to 135°C)
- Extended shop and shelf life at room temperature

Product Characterization

Note: 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	Gray	Gray	
Chemical base	Epoxy	Epoxy	
Form	Unsupported film	Unsupported film	
Liners	Polyethylene (blue) Polyester (red)	Polyethylene (yellow) Polyester (red)	
Thickness	30 mil (0.76 mm)	50 mil (1,27 mm)	prEN 2667-3
Mass per unit area	0.184 lb/ft^2 (900 g/m²)	0.328 lb/ft² (1600 g/m²)	prEN 2667-3
Volatiles content (120 °C cure)	< 1 wt.%	< 1 wt.%	prEN 2667-3
Available packaging sizes	Sheets (12 x 16 in) (300 x 400 mm)	Sheets (12 x 16 in) (300 x 400 mm	

Product Characterization

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

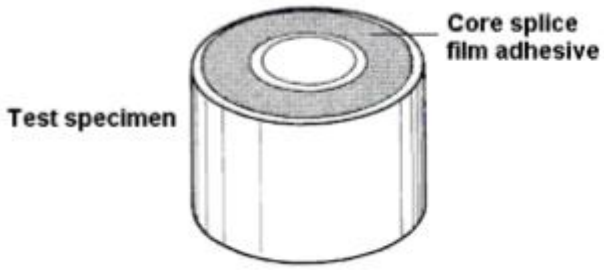
- **Cure Cycle A:** 60 minutes at 257°F (125°C), heat-up rate 5-7°F/min (3-4°C/min), atmospheric pressure
- **Cure Cycle B:** 30 minutes at 320°F (160°C), hot-in/hot-out, atmospheric pressure

Properties of Cured Film	Cure Cycle A	Cure Cycle B	Test Method
Expansion during cure	~ 225 %	~ 125 %	prEN 2667-3
Vertical slump	0.02 in (0,6 mm)	0.01 in (0,3 mm)	prEN 2667-4
Density of cured film[(a)]	< 0.50 g/cm³	----	----

[(a)] free expansion

Tube Shear Strength

The tube shear strength was determined on ScotchWeld™ AF 3074 FST using the procedures outlined in prEN 2667-2. 55g ± 0.2g were placed between the walls of two 9in (230mm) long tubes. After curing under atmospheric pressure, the tubes were cut to individual specimens of 0.5in (12.5mm) height. Tube shear resistance was calculated by the following formula: $\sigma\ [MPa] = F \div \pi d_{inner} h$



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 prEN 2667-2	-67°F (-55°C)	1883 PSI (13 MPa)
	73°F (23°C)	1883 PSI (13 MPa)
	176°F (80°C)	1738 PSI (12 MPa)
	275°F (135°C)	1014 PSI (7 MPa)

Flammability, Smoke Density and Toxic Gas Emission

All specimens for flammability, smoke density and toxic gas emission tests had a thickness of 0.25in.

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 6,35 mm³	Burn Length	≤ 200 mm	60 mm	----
	After Flame Time	≤ 15 sec	3 sec	----
	Drips Exting Time	≤ 5 sec	0 sec	----
Smoke Emission FAR/JAR/CS 25.853(d) App F, part V(b)	DS max in 4 min.	≤ 200 Ds Max	131 Ds	----
Toxic Gas Emission Airbus ABD0031 Sample size: 75 x 75 x 6,35 mm³	HF (flaming)	≤ 100 ppm	0 ppm	----
	HCL (flaming)	≤ 150 ppm	0 ppm	----
	HCN (flaming)	≤ 150 ppm	18 ppm	----
	SO2 + H2S (flaming)	≤ 100 ppm	11 ppm	----
	CO (flaming)	≤ 1000 ppm	390 ppm	----
	NO + NO2 (flaming)	≤ 100 ppm	44 ppm	----

Data are typical values and cannot be taken for specification purpose.
All Data were generated in standalone test mode.

Handling, Application, Storage

I. Precautionary Information

Refer to product label and Safety Data Sheet (SDS) for health and safety information before using this product. For SDS visit our website https://www.3m.com/3M/en_US/company-us/SDS-search/.

II. Instructions for Use

A. 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 68-77°F (20-25°C) object temperature. Caution: Use adequate respiratory, eye and skin protection when using etch solutions.

B. 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.

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

C. Suggested Cure Cycle

Normally, AF 3074 FST will begin to cure when a temperature of about 230-239°F (110-115°C) is reached. A minimum cure temperature of 248°F (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.

D. Storage

This product has a shelf life of 6 months from date of manufacturing in the sealed protective bag. At least 5 out of these 6 months, the product must be stored at 0°F (-18°C) or below. Accordingly, the maximum shelf life at room temperature is 1 months in the sealed protective bag. Our data indicate, that no loss in mechanical properties is obtained after 20 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.

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 representative.

**These products were manufacture under a 3M Quality Management System registered to the AS9100 standard*

Automotive & Aerospace Solutions Division
3M Center
St. Paul, MN 55144-1000
Phone 1-800-328-1684
Web www.3M.com/aerospace

AF 3074 FST
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