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European Technical Center, Beauchamp Effective : 23rd of July 2004 : 11th of July 2001 Aerospace Technical Data Sheet nb: 15 Supersedes : 1 of 2 Page

Scotch-WeldTM Structural adhesive primer EC-3909

Introdu	ction
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EC-3909 is a structural adhesive primer compatible with many epoxy or nitrilephenolic based adhesive films. Among those for example AF 30, AF 3109-2 and AF500. The primer has been designed for improved adhesion to anodized aluminium. It offers the following advantages:

- Insures complete wetting of film adhesive to adherend surface.
- Protects surface treated metals and diminish strongly the rate of natural re-oxidation.
- Improves shear and peel performance, on both etched and anodized surfaces.
- Results in superior environmental performance.
- Simplifies production scheduling by protecting the cleaned surfaces until bonding operation can be completed.
- Primer can be co-cured with heat curing film or 1-part paste adhesives.

Description

(This is not a specification)

Consistency: Liquid Net weight: 0.83 kg/litre Solids content : $9.0 \pm 0.5 \%$ Base: Modified epoxy resin Solvent: Ketone-alcohol blend Colour: Blue

Remark that colour has been modified. The reformulation of the primer (dye replacement) is due to toxicology issues.

Applications

Method Brush or spray Surface coverage 12-15 m²/litre

Open time 14 days at 23 \pm 2°C

Performance

Overlap shear performance using EC-3909 primer

Test method: EN2243-1 or ASTM D 1002

Adhesive film: Scotch-Weld[™] AF 30 (cured 60 mi nutes at 175°C)

Substrate: Clad aluminium alloy 2024 T3

Surface treatement: FPL etching according to EN 2334

<u>ondition</u> <u>Test Tempetature</u>		<u>Performance</u>
Initial	-55°C	26.1 MPa
Initial	+23°C	26.1 MPa
Initial	+80°C	17.8 MPa
Aged 1500h at 70°C, 85% RH	+23°C	29.7 MPa

Floating roller peel performance using EC-3909 primer

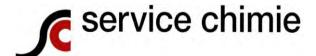
Test method: EN2243-1 or ASTM D 1002

Adhesive film: Scotch-Weld[™] AF 3109-2K.85, AF500M.06 (cured 60 minutes at 125°C)

Substrate: Clad aluminium alloy 2024 T3

Surface treatement: FPL etching according to EN 2334 Test condition: Test performed on initial performance at +23°C

<u>Film adhesive (initial performance)</u>	<u>Performance</u>
AF3109-2K.95	219 N/25mm
AF500M.06	281 N/25mm



Surface preparation

The adherend surfaces must be dry, free from dust, oils and release agents, for optimal performance. When bonding metal structures, we recommend the following surface pretreatment:

Mechanical Abrasion :

Abrasion of the bonding surfaces with Scot ch-Brite[™] or with sandpaper P120 followed by a solvent degreasing with Methyl Ether Ketone solution.

Chemical surface preparation of aluminium : (modified FPL etch)

- 1.) Degreasing with Methyl Ether Ketone
- 2.) 10 to 20 minutes immersion of alkaline degreasing 8% Oakite 164 solution at 85 ± 5 °C
- 3.) Rinsing in tap water
- 4.) Sulfochormic immersion (10 minutes) at 70 \pm 2°C

27.5% by weight of H ₂SO₄

7.5% by weight of Na ₂Cr₂O₇-2H₂O 65.0% by weight of demineralized water

0.5 g/litre aluminium 1.5 g/litre of CuSO ₄-5H₂O

- 5.) Rinsing in tap water
- 6.) 15 minutes drying at 23 \pm 2°C

7.) 10 minutes drying at 70 \pm 2°C

		7.) 10 minutes arying	at 70 ± 2°C		
Polymerisation	Room temperature cure Minimum 120 minutes at 20-25°C	Oven cure -	Combined cure -		
Primer application	Apply primer so that the dried	primer thickness is from 2 to	0 10 μm.		
Cleaning	Excess of non polymerised product can easily be cleaned with a solvent such as Methyl Ether Ketone. Polymerised product can only be taken off mechanically.				
Storage stability	A storage temperature of 4°C i of the product. Shelf life Maximum 6 months at 4°C	s recommended. Storage at Flash point -6°C	higher temperatures shorten the shelf life		
Precautionary Information	Refer to Product Label and Material Safety Data Sheet for health and security information before using the product. For additional health and safety information, please contact your local 3M Toxicological department.				
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Product Information source	3M European Technical Cente Aerospace Materials, France	r,			

Scotch-WeldTM EC-3909 Technical Datasheet

EC-3909

3M Reference

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