

# 3 Scotch-Weld™ Structural adhesive primer EC-3909

<b>Introduction</b>	<p>EC-3909 is a structural adhesive primer compatible with many epoxy or nitrile-phenolic 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 :</p>	<ul style="list-style-type: none"> <li>• Insures complete wetting of film adhesive to adherend surface.</li> <li>• Protects surface treated metals and diminish strongly the rate of natural re-oxidation.</li> <li>• Improves shear and peel performance, on both etched and anodized surfaces.</li> </ul>	<ul style="list-style-type: none"> <li>• Results in superior environmental performance.</li> <li>• Simplifies production scheduling by protecting the cleaned surfaces until bonding operation can be completed.</li> <li>• Primer can be co-cured with heat curing film or 1-part paste adhesives.</li> </ul>
---------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<b>Description</b>	(This is not a specification)		
	<p>Consistency : Liquid          Net weight : 0.83 kg/litre          Solids content : 9.0 ± 0.5 %</p>	<p>Base : Modified epoxy resin          Solvent : Ketone-alcohol blend</p>	<p>Colour : Blue  <i>Remark that colour has been modified. The reformulation of the primer (dye replacement) is due to toxicology issues.</i></p>

<b>Applications</b>	<p><u>Method</u> Brush or spray</p>	<p><u>Surface coverage</u> 12-15 m<sup>2</sup>/litre</p>	<p><u>Open time</u> 14 days at 23 ± 2°C</p>
---------------------	-----------------------------------------	--------------------------------------------------------------	-------------------------------------------------

<b>Performance</b>	<p><u>Overlap shear performance using EC-3909 primer</u>          Test method : EN2243-1 or ASTM D 1002          Adhesive film : Scotch-Weld™ AF 30 (cured 60 minutes at 175°C)          Substrate : Clad aluminium alloy 2024 T3          Surface treatment : FPL etching according to EN 2334</p>		
	<u>Condition</u>	<u>Test Temperature</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
	<p><u>Floating roller peel performance using EC-3909 primer</u>          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 treatment : FPL etching according to EN 2334          Test condition : Test performed on initial performance at +23°C</p>		
	<u>Film adhesive (initial performance)</u>	<u>Performance</u>	
	AF3109-2K.95	219 N/25mm	
	AF500M.06	281 N/25mm	

<b>Surface preparation</b>	<p>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 :</p> <p><i>Mechanical Abrasion :</i> Abrasion of the bonding surfaces with Scot ch-Brite™ or with sandpaper P120 followed by a solvent degreasing with Methyl Ether Ketone solution.</p> <p><i>Chemical surface preparation of aluminium : (modified FPL etch)</i></p> <ol style="list-style-type: none"> <li>1.) Degreasing with Methyl Ether Ketone</li> <li>2.) 10 to 20 minutes immersion of alkaline degreasing 8% Oakite 164 solution at 85 ± 5°C</li> <li>3.) Rinsing in tap water</li> <li>4.) Sulfochormic immersion (10 minutes) at 70 ± 2°C             <ul style="list-style-type: none"> <li>27.5% by weight of H<sub>2</sub>SO<sub>4</sub></li> <li>7.5% by weight of Na<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub>·2H<sub>2</sub>O</li> <li>65.0% by weight of demineralized water</li> <li>0.5 g/litre aluminium</li> <li>1.5 g/litre of CuSO<sub>4</sub>·5H<sub>2</sub>O</li> </ul> </li> <li>5.) Rinsing in tap water</li> <li>6.) 15 minutes drying at 23 ± 2°C</li> <li>7.) 10 minutes drying at 70 ± 2°C</li> </ol>				
<b>Polymerisation</b>	<u>Room temperature cure</u> Minimum 120 minutes at 20-25°C	<u>Oven cure</u> -	<u>Combined cure</u> -		
<b>Primer application</b>	Apply primer so that the dried primer thickness is from 2 to 10 µm.				
<b>Cleaning</b>	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.				
<b>Storage stability</b>	<p>A storage temperature of 4°C is recommended. Storage at higher temperatures shorten the shelf life of the product.</p> <table border="0"> <tr> <td><u>Shelf life</u> Maximum 6 months at 4°C</td> <td><u>Flash point</u> -6°C</td> </tr> </table>			<u>Shelf life</u> Maximum 6 months at 4°C	<u>Flash point</u> -6°C
<u>Shelf life</u> Maximum 6 months at 4°C	<u>Flash point</u> -6°C				
<b>Precautionary Information</b>	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.				
<b>Important notice to purchaser</b>	<p>3M MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a 3M Adhesives Division product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for the user's method of application.</p>				
<b>Limitations of remedies and Liability</b>	<p>If the 3M product is proved to be defective, THE EXCLUSIVE REMEDY, AT 3M'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE 3M PRODUCT. 3M shall not otherwise be liable for loss or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal theory asserted, including negligence, warranty, or strict liability.</p>				
<b>Product Information source</b>	3M European Technical Center, Aerospace Materials, France				
<b>Issued by :</b>	Approved by :				
<b>3M Reference</b>	EC-3909				