Attn: Bernd Neumann  
Rhoba Chemie GmbH
Gustav-Winkler-StraBe32a
33699 Bielefeld
GERMANY

Date: 21-Dec-2009

SMI/REF: 0910-862

Product: RHOBa AIR AIII DRY WASH (0928703 DW)
(received 20-Nov-2009)

Dilution: As received

---

British Aerospace AIRBUS AIMS 09-00-002 Issue 2;
EVALUATION OF MAINTENANCE MATERIALS
Exterior and General Cleaners

Sandwich Corrosion Test  Conforms
Total Immersion Test  Conforms
Hydrogen Embrittlement Test  Conforms
Paint Softening Test  Conforms
Acrylic Crazing Test  Conforms
Polycarbonate Crazing Test  Conforms

Respectively submitted,

[Signature]

Patricia D. Viani, SMI Inc.
5.2.1 Sandwich Corrosion Test: Testing shall be in accordance with ASTM-F-1110 using aluminium alloy 2024 T3 sensitized by heat treatment at 495 ± 5°C for 40 minutes and quenched in water at 100°C, aluminium alloys 2024 T3 unclad and 7075 T6 unclad. After the test the aluminium alloy specimens shall show a rating less than or equal to 1 or no worse than a control sample prepared with distilled water.

<table>
<thead>
<tr>
<th>AMS 4037, heat treated at 495°C for 40 minutes and quenched in water at 100°C</th>
<th>AMS 4037 (2024-T3)</th>
<th>AMS 4045 (7075-T6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As received</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>CONTROL</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Result: Conforms

5.2.2 Total Immersion Test: Testing shall be in accordance with ASTM-F-483 using aluminium alloys as per 5.2.1 above and scratched cadmium plated steel e.g. XC 18 or equivalent. The immersion time shall be (24 ± 0.5) h. The immersion temperature shall be (23 ± 2)°C. No significant visual change shall be evident and a maximum weight change of 2 mg/dm² is allowable.

<table>
<thead>
<tr>
<th>ALLOY</th>
<th>WGT LOSS mg/dm²/24hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMS 4037, heat treated at 495°C for 40 minutes and quenched in water at 100°C</td>
<td>As received</td>
</tr>
<tr>
<td>AMS 4037 (2024-T3)</td>
<td>0.4 mg/dm²/24 hrs</td>
</tr>
<tr>
<td>AMS 4045 (7075-T6)</td>
<td>1.8 mg/dm²/24 hrs</td>
</tr>
<tr>
<td>Scratched cadmium plated steel (ASTM F 1111)</td>
<td>0.4 mg/dm²/24 hrs</td>
</tr>
</tbody>
</table>

Note: weight changes are reported as mg/dm², not mg/cm²

Result: Conforms
5.2.3 **Hydrogen Embrittlement Test:** The product shall be non-embrittling as determined in accordance with ASTM F 519, using type 1a, 1c, or 2a specimens, cadmium plated in accordance with MIL-STD-870. Type 1a and Type 1c specimens shall be loaded to 45% of the predetermined notch fracture strength and Type 2a specimens loaded to 80% of the yield strength. The entire 2a stressed specimen, or just the notched area of the 1a and 1c stressed specimen, shall be immersed continuously in the solution under test for 150 hours at a temperature between 20-30°C (68-86°F).

The maintenance material being tested shall not cause embrittlement of the test specimens.

**As received:** No failures within 150 hours

Result: Conforms

5.2.4 **Paint Softening Test:** Maintenance material compatibility shall be tested with Airbus approved paints and/or customer specific systems. Testing shall consist of three specimens for each of the following combinations. The substrate shall be clad aluminum alloy 2024 suitably pre-treated.

- Epoxy primer of polyurethane primer with or without polyurethane topcoat (interior paint scheme according to TN A 007 10050 OR epoxy primer to MIL-PRF-23377 Type I with or without polyurethane topcoat to MIL-PRF-85285 Type I or customer specific system)
- Basic primer plus relevant exterior paint scheme according to TN A 007 10050 OR epoxy primer to MIL-PRF-23377 Type I with polyurethane topcoat to MIL-PRF-85285 Type I OR external paint scheme conforming to AMS 3095 OR customer specific system.

The thickness and drying times of individual coats shall be in accordance with the manufacturer’s instruction sheets. Testing shall be in accordance with ISO 1518 "Scratch Test" using the following test sequence: one hour immersion in the maintenance material at an ambient temperature (23 ± 2)°C, rinsing with water immediately after the immersion and drying for 1 hour at room temperature. The material shall not soften the paint coat and the Scratch Test shall have 90% of the original value after the immersion. The agent being tested shall not produce any blistering, discoloration or staining.
5.2.4 Paint Softening Test: continued

<table>
<thead>
<tr>
<th>Paint System</th>
<th>Weight required to produce scratch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before exposure</td>
</tr>
<tr>
<td>Epoxy Primer without topcoat:</td>
<td>No scratch*</td>
</tr>
<tr>
<td>Primer: MIL-PRF-23377 Type I, Epoxy, High Solids</td>
<td></td>
</tr>
<tr>
<td>Epoxy primer with polyurethane topcoat:</td>
<td>No scratch*</td>
</tr>
<tr>
<td>Primer: MIL-PRF-23377 Type I, Epoxy, High Solids</td>
<td></td>
</tr>
<tr>
<td>Topcoat: MIL-PRF-85285 Type I, Polyurethane, High solids</td>
<td></td>
</tr>
</tbody>
</table>

*a utilizing a 2-kg weight

No blistering, discoloration or softening of any panel; scratch of exposed portion occurred within 90% of the original value, or was over the 2000 gram threshold of testing.

Result: Conforms

5.2.5 Acrylic Crazing Test Material confirming to MIL-P-25690 Type C shall be tested in accordance with ASTM-F-484. The maintenance materials shall not craze, crack, stain or discolor the test specimens.

As received: No evidence of craze, crack, stain or discolor.

Result: Conforms

5.2.6 Polycarbonate Crazing Test: Material confirming to ASTM-D-3935 (PC120T00) or AMS-P-83310 shall be tested in accordance with the method for the determination of stress crazing detailed in ASTM F 484.

Specimens shall be stressed for (30 ± 2) minutes to an outer stress of 21MPa (3000 psi) at a temperature of (23 ± 2) °C.

As received: No evidence of craze, crack, stain or discolor.

Result: Conforms