

**SMI, Inc.**

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Attn: John Pastorello  
Refrigeration Technologies  
1111 N. Armand Street  
Anaheim, CA 92806

Date: 04-Feb-2013

SMI/REF: 1211-175

Product: **VIPER MC** (received 11-Dec-2012)

Dilution: As received

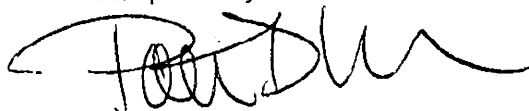
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**AMS 1526C**

Cleaner for Aircraft Exterior Surfaces  
Water-Miscible, Pressure-Spraying Type

|         |                                        |                      |
|---------|----------------------------------------|----------------------|
| 3.2.1.1 | Sandwich Corrosion                     | <u>Conforms</u>      |
| 3.2.1.2 | Total Immersion Corrosion              | <u>Conforms</u>      |
| 3.2.1.3 | Low-Embrittling Cadmium Plate          | <u>Conforms</u>      |
| 3.2.2   | Hydrogen Embrittlement                 | <u>Conforms</u>      |
| 3.2.3   | Flash Point                            | <u>Conforms</u>      |
| 3.2.4   | Effect on Transparent Acrylic Plastics | <u>Conforms</u>      |
| 3.2.5   | Effect on Painted Surfaces             | <u>Conforms</u>      |
| 3.2.6   | Effect on Unpainted Surfaces           | <u>Conforms</u>      |
| 3.2.7   | Storage Stability                      | <u>Not performed</u> |

Respectfully submitted,



Patricia D. Viani, SMI Inc.

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2.1.1 Sandwich Corrosion: Specimens, after test, shall show a rating not worse than 1 determined in accordance with ASTM F 1110.

|                | 2024-T3<br>Anodized | 2024-T3<br>Alclad | 7075-T6<br>Anodized | 7075-T6<br>Alclad |
|----------------|---------------------|-------------------|---------------------|-------------------|
| <b>PRODUCT</b> | 1                   | 1                 | 1                   | 1                 |
| <b>CONTROL</b> | 1                   | 1                 | 1                   | 1                 |

Result Conforms

3.2.1.2 Total Immersion Corrosion: The product shall neither show evidence of corrosion of the panels nor cause a weight change of any test panel greater than the following, determined in accordance with ASTM F 483:

| PANEL                                                       | Allowable Weight<br>Change<br>mg/cm <sup>2</sup> /24hrs | RESULTS |
|-------------------------------------------------------------|---------------------------------------------------------|---------|
|                                                             |                                                         | PRODUCT |
| AMS 4037 Aluminum Alloy, anodized per AMS 2470              | 0.3                                                     | 0.01    |
| AMS 4041 Aluminum Alloy                                     | 0.3                                                     | 0.03    |
| AMS 4049 Aluminum Alloy                                     | 0.3                                                     | 0.03    |
| AMS 4376 Magnesium Alloy, dichromate treated as in AMS 2475 | 0.2                                                     | 0.04    |
| AMS 4911 Titanium Alloy                                     | 0.1                                                     | 0.01    |
| AMS 5045 Carbon Steel                                       | 0.8                                                     | 0.01    |

Result Conforms

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- 3.2.1.3 Low-Embrittling Cadmium Plate: Panels coated with low-embrittling cadmium plate shall not show a weight change greater than 0.3 mg/cm<sup>2</sup> per 24 hours, determined in accordance with ASTM F 1111.

**As received: + 0.05 mg/cm<sup>2</sup>**

Result Conforms

- 3.2.2 Hydrogen Embrittlement: The product shall be non-embrittling, determined in accordance with ASTM F 519, utilizing 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°C - 30°C (68 - 86°F)

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

Result Conforms

- 3.2.3 Flash Point: The flash point shall not be lower than 60°C (140°F), determined in accordance with ASTM D 56.

**As received: No flash to 61 °C (142°F)**

Result Conforms

- 3.2.4 Effect on Transparent Acrylic Plastics: There shall be no crazing or staining of stretched MIL-P-25690 plastic, determined in accordance with ASTM F 484.

**As received: No crazing or staining**

Result Conforms

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- 3.2.5 Effect on Painted Surfaces: The product shall neither decrease the hardness of the paint film by more than 2 pencil hardness levels nor shall it produce any streaking, discoloration or blistering of the paint film, determined in accordance with ASTM F 502.

**As received:** *No hardness change; no streaking,  
discoloration, or blistering*

Result Conforms

- 3.2.6 Effect on Unpainted Surfaces: The product, tested in accordance with ASTM F 485, shall neither produce streaking nor leave any stains requiring polishing to remove.

**As received:**

**AMS 4049 (aluminum):** *No streaking nor staining*  
**AMS 4911 (titanium):** *No streaking nor staining*

Result Conforms

- 3.2.7 Storage Stability: The product shall neither show separation from exposure to heat or cold nor show an increase in turbidity greater than a control sample equally diluted to use concentration with ASTM D 1193, Type IV water, determined in accordance with ASTM D 1104.

Result Not performed