

# SMI, Inc.

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Attn: Chad Parson  
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Date: 03-Aug-2016

SMI/REF: 1606-003

Product: **SW-6/8** (received 14-Jun-2016)

Dilution: As received

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## Douglas Aircraft Company Customer Service Document CSD No. 1

Type I: Materials and Procedures for General Exterior  
Cleaning of Painted and Unpainted Surfaces  
(General Purpose Cleaner)

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Effect on Painted Surfaces	<u>Conforms</u>
Residue	<u>Conforms</u>
Sandwich Corrosion	<u>Conforms</u>
Stress Cracking Test on Acrylic Plastics	<u>Conforms</u>
Immersion Corrosion, Aluminum	<u>Conforms</u>
Cadmium Removal	<u>Conforms</u>
Hydrogen Embrittlement	<u>Conforms</u>

Respectfully submitted,



Patricia D. Viani, SMI Inc.

Client: ChemFree Corporation

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*Douglas CSD #1, Type I General Purpose Cleaner*

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1. Effect on Painted Surfaces Test: The material shall not produce a decrease in paint film hardness greater than one pencil; that is the number of the next softer pencil, or any discoloration or staining when tested in accordance with ASTM F 502. At least two panels shall be used per test.

***As received: No softening or discoloration of polyurethane topcoat when examined 24 hours after exposure per ASTM F 502.***

Result Conforms

2. Residue Test: The material shall leave no residue or stain when tested in accordance with ASTM F 485.

*AMS 4911: (As received): PASS*

*AMS 4049: (As received): PASS*

Result Conforms

3. Sandwich Corrosion Test: The compound shall not cause significant corrosion of aluminum alloy faying surfaces when tested in accordance with the following conditions of temperature and humidity:

- \* Alternate intervals of 16 hours in the humidity cabinet and eight hours in an oven. Beginning with the humidity cabinet exposure, the cycling test shall be continued for a total of seven days.
- \* The humidity cabinet shall be maintained at  $100^{\circ} \pm 2^{\circ}\text{F}$  ( $37.8^{\circ} \pm 1.1^{\circ}\text{C}$ ) and 98 to 100 percent relative humidity.
- \* The oven shall be maintained at  $100^{\circ} \pm 5^{\circ}\text{F}$  ( $37.8^{\circ} \pm 2.8^{\circ}\text{C}$ )

Corrosion Rating:

0	=	No visible corrosion
1	=	Very slight corrosion or discoloration
2	=	Slight corrosion
3	=	Moderate corrosion
4	=	Extensive corrosion

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3. Sandwich Corrosion Test: continued

Corrosion on any panel exceeding that obtained using tap water shall be considered excessive.

ALLOY	PRODUCT (AS RECEIVED)	CONTROL
2024-T3 Bare/Alodined per MIL-C-5541	1	1
2024-T3 Bare/Anodized per MIL-A-8625	1	1
2024-T3 Clad/Alodined per MIL-C-5541	1	1
2024-T3 Clad/Anodized per MIL-A-8625	1	1
7075-T6 Clad/Alodined per MIL-C-5541	1	1
7075-T6 Clad/Anodized per MIL-A-8625	1	1

Result Conforms

4. Stress Cracking Test on Acrylic Plastics: The compound shall not cause crazing, cracking, or other attack on acrylic based plastics when tested in accordance with ASTM F 484, using Type C material at a stress level of 4500 psi.

**As received: No visible crazing.**

Result Conforms

5. Immersion Corrosion Test: The average weight loss of aluminum alloy specimens shall not exceed 10 milligrams per coupon when tested per ASTM F 483. The aluminum alloy 7075-T6 alclad coupons shall conform to Federal Specification QQ-A-250/13 Temp-T6, with corners and edges smoothed.

**As received: 0.3 mg after 168 hours**

Result Conforms

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6. Cadmium Removal Test: The average weight loss of cadmium from low hydrogen embrittlement cadmium plated steel shall not exceed 10 milligrams per coupon when tested per ASTM F 483. The test duration shall be 24 hours. The test specimens shall be 1 x 2 x 0.040 inch 4130 steel panels (MIL-S-18729) with corners and edges smoothed and then plated with 0.003 to 0.006 inch of low hydrogen embrittlement cadmium plating (P/N 7452876-23)

*Note: Specimens were cadmium plated in accordance with ASTM F1111.*

**As received: + 0.8 mg after 24 hours**

Result Conforms

7. Hydrogen Embrittlement: Hydrogen Embrittlement testing shall be in accordance with ASTM F 519, Type 1C.

*Specimens: Type 1c, cadmium plated per MIL-STD-870.  
45% load, room temperature, immersed for duration*

**As received:**

- #1: No failure within 150 hours.**
- #2: No failure within 150 hours.**
- #3: No failure within 150 hours.**
- #4: No failure within 150 hours.**

Result Conforms