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Date: 19-Aug-2020

SMI/REF: 2006-828

Product: **TOTAL-SHIELD PLUS™** (received 02-Jul-2020)

Dilution: As received

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BOEING SPECIFICATION SUPPORT STANDARD

BSS7434

CHEMICAL COMPATIBILITY OF CLEANING PRODUCTS AND INTERIOR PARTS/MATERIALS OF COMMERCIAL TRANSPORT AIRCRAFT

(Version: Original issue, 04-Jun-2019)

Supersedes Boeing D6-7127

(Note: Boeing D6-7127 was cancelled and superseded by BSS7434 on 04-Jun-2019)

5.1	Sandwich Corrosion	<u>Conforms</u>
5.2	Immersion Corrosion Test	<u>Conforms</u>
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Respectfully submitted,



Patricia D. Viani, SMI Inc.

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PROCEDURE

7.a Cleaning materials must be tested in accordance with BAC5150 test requirements.

5.1 / 7.1 Sandwich Corrosion Test

Requirement (BAC5150 / 11.3.1): Corrosion in excess of that on the control panel constitutes failure when tested in accordance with the procedures section for sandwich corrosion in BSS7434.

	CLAD 7075-T6 ALUMINUM (AMS 4049)	BARE 7075-T6 (AMS-QQ-A-250/12) ANODIZED PER MIL-A-8625 TYPE I (with dichromate seal)
PRODUCT (AS RECEIVED)	1	1
CONTROL (D.I WATER)	1	1

Result Conforms

5.2 / 7.2 Immersion Corrosion Test

Requirement (BAC5150 / 11.3.2): The average weight change of each test specimen shall not exceed ± 10 mg in a 24 hour immersion period when tested in accordance with the procedures section for immersion corrosion in BSS7434.

	PRODUCT (AS RECEIVED) (Loss per 1" x 2" panel)
Clad 2024-T3 aluminum (AMS-QQ-A-250/5)	< 1.0 mg
Bare 2024-T3 aluminum (AMS-QQ-A-250/4) alodined per MIL-C-5541	1.4 mg
Bare 2024-T3 aluminum (AMS-QQ-A-250/4) anodized per MIL-A-8625 Type I	1.0 mg
Bare 7178-T6 aluminum (AMS-QQ-A-250/14) anodized per MIL-A-8625 Type I	1.4 mg

Result Conforms

5.3 / 7.3 Rubber Test

Requirement (BAC5150 / 11.3.3): Changes in properties must not exceed the following, when tested in accordance with the procedures section for rubber test in BSS7434.

PROPERTY RUBBER: BMS1-72* <small>*Note: BMS1-63 replaced with BMS1-72 according to Triangle Rubber Co.</small>	MAX. CHANGE ALLOWED	PRODUCT (AS RECEIVED)
Tensile Strength	25 % loss	< 5%
Elongation	25 % loss	< 10%
Volume	$\pm 15\%$ change	< 5%

24 hour immersion at room temperature

Result Conforms

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5.4 / 7.4 Sealant Test

Requirement (BAC5150 / 11.3.4): The sealant must not lift at the edges or lose adhesion when tested in accordance with the procedures section for sealant test in BSS7434.

Sealant: BMS 5-95

Water control: No lifting or loss of adhesion when pried away from edge

PRODUCT (AS RECEIVED):

No lifting or loss of adhesion when pried away from edge

Result Conforms

5.5 / 7.5 Painted Surface Test

Requirement (BAC5150 / 11.3.5): When tested in accordance with the procedures section for painted surface test in BSS7434 and Section 7.c, the following is required:

Exposure: 2 minutes, then rinsed

- a. Paint film hardness shall not decrease more than 2 pencil hardnesses.
- b. Greater than minimal color change or staining constitutes test failure.

Paint System: BMS10-83 enamel prepared in accordance with BAC5755

PRODUCT (AS RECEIVED):

Hardness change: < 2 pencil hardness change

Color change (AATCC Gray Scale): Grade 5 / minimal to none

(No perceived difference in color or contrast between original material and tested specimen).

Result Conforms

5.6 / 7.6 Tedlar Surface Test

Requirement (BAC5150 / 11.3.6): When tested in accordance with the procedures section for tedlar surface test in BSS7434 and Section 7c., the following is required:

Exposure: 2 minutes, then rinsed

- a. Greater than minimal color change or staining constitutes test failure.
- b. Examine for scratches

PRODUCT (AS RECEIVED):

Color change (AATCC Gray Scale): Grade 5 / minimal to none

(No perceived difference in color or contrast between original material and tested specimen).

No scratches

Result Conforms

5.7 / 7.7 Vinyl Surface Test

Requirement (BAC5150 / 11.3.7): When tested in accordance with the procedures section for vinyl surface test in BSS7434 and Section 7c., the following is required:

Exposure: 2 minutes, then rinsed

- a. Cracking or brittleness of exposed specimen constitutes test failure.
- b. Greater than minimal color change or staining constitutes test failure.

PRODUCT (AS RECEIVED): No cracking or brittleness

Color change (AATCC Gray Scale): Grade 5 / minimal to none

(No perceived difference in color or contrast between original material and tested specimen).

Result Conforms

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5.8 / 7.8 Fabric and Carpet Test

Requirement (BAC5150 / 11.3.8): When tested in accordance with the procedures section for fabric and carpet test in BSS7434 and Section 7c., the following is required:

Upholstery:

- a. Greater than minimal color change or staining constitutes test failure.

PRODUCT (AS RECEIVED):

Color change (AATCC Gray Scale): Grade 5 / minimal to none

(No perceived difference in color or contrast between original material and tested specimen).

Result Conforms

- b. Flammability: maximum values:

PROPERTY	MAXIMUM VALUE	FABRIC (cut perpendicular "fill")	FABRIC (cut parallel "warp")
Extinguishing Time	15 seconds	Less than 3 seconds	Less than 3 seconds
Burn Length	8 inches	5 inches	5 inches
Drip Extinguish Time	5 seconds	Less than 3 seconds	Less than 3 seconds

Result Conforms

Carpet:

- a. Greater than minimal color change or staining constitutes test failure.

PRODUCT (AS RECEIVED):

Color change (AATCC Gray Scale): Grade 5 / minimal to none

(No perceived difference in color or contrast between original material and tested specimen).

Result Conforms

- b. Flammability: maximum values:

PROPERTY	MAXIMUM VALUE	CARPET (cut perpendicular "fill")	CARPET (cut parallel "warp")
Extinguishing Time	15 seconds	Less than 3 seconds	Less than 3 seconds
Burn Length	8 inches	4 inches	4 inches
Drip Extinguish Time	5 seconds	Less than 3 seconds	Less than 3 seconds

Result Conforms

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5.9 / 7.9 Leather and Naugahyde Test

Requirement (BAC5150 / 11.3.9): When tested in accordance with the procedures section for leather and naugahyde in BSS7434 and Section 7c., the following is required:

Leather:

- a. *Cracking or brittleness of exposed specimen constitutes test failure.*
- b. *Greater than minimal color change or staining constitutes test failure.*

PRODUCT (AS RECEIVED): No cracking or brittleness

Color change (AATCC Gray Scale): Grade 5 / minimal to none

(No perceived difference in color or contrast between original material and tested specimen).

Result Conforms

Naugahyde:

- a. *Cracking or brittleness of exposed specimen constitutes test failure.*
- b. *Greater than minimal color change or staining constitutes test failure.*

PRODUCT (AS RECEIVED): No cracking or brittleness

Color change (AATCC Gray Scale): Grade 5 / minimal to none

(No perceived difference in color or contrast between original material and tested specimen).

Result Conforms

5.10 / 7.10 Flash Point Test

Requirement (BAC5150 / 11.3.10): All cleaning candidates having a flash point must be approved by Fire Protection Engineering before they can be evaluated for use. Method used ASTM D93.

PRODUCT (AS RECEIVED):

Flash point observed at 115 °F (46°C)

Result Informational

5.11 / 7.11 Polycarbonate Crazing Test

Requirement (BAC5150 / 11.3.11): Any cracking or crazing of the polycarbonate sheet constitutes failure, when tested in accordance with the procedures section for polycarbonate crazing test in BSS7434.

(Strain = 0.008; 10 minute exposure)

PRODUCT (AS RECEIVED):

LEXAN 9600:

No cracking or crazing

BMS8-400 BAC 70913:

No cracking or crazing

Result Conforms