



AMS 1453A (2015-07) Disinfectant Cleaner for Aircraft Interior – General Purpose Liquid.

Crebisol has undergone testing to AMS 1453A (2015-07) Standard as a Disinfectant Cleaner for Aircraft Interior.

This specification covers a general purpose disinfectant/cleaner in the form of a concentrated liquid to be used diluted in accordance with label instructions.

Crebisol disinfectant/cleaner can be used typically for disinfection of aircraft galleys, passenger service trays and drop-down table surfaces. Significantly it can be used on surfaces which will come into direct contact with food. Crebisol may also be used for sanitizing hard surfaces in aircraft lavatories, sinks and surrounds. This multiple purpose product is also uniquely certified to address key infections associated with high density environments.

Crebisol as of 3rd May 2016 conforms with the following ASTM requirements:

ASTM F1111 Standard Test Method for Corrosion of Low- Embrittling Cadmium Plate by Aircraft Maintenance Chemicals

This test method is intended as a means of determining the corrosive effects of aircraft maintenance chemicals on low-embrittling cadmium plating used on aircraft high-strength steel, under conditions of total immersion by quantitative measurements of weight change.

ASTM F 519 Standard Test Method for Mechanical Hydrogen Embrittlement Evaluation of Plating/Coating Processes and Service Environments

Plating/coating Processes—This test method provides a means by which to detect possible hydrogen embrittlement of steel parts during manufacture by verifying strict controls during production operations such as surface preparation, pretreatments, and plating/coating. It is also intended to be used as a qualification test for new plating/coating processes and as a periodic inspection audit for the control of a plating/coating process.

Service Environment—This test method provides a means by which to detect possible hydrogen embrittlement of steel parts (plated/coated or bare) due to contact with chemicals during manufacturing, overhaul and service life.

ASTM D56 Standard Test Method for Flash Point by Tag Closed Cup Tester

Flash point measures the tendency of the specimen to form a flammable mixture with air under controlled laboratory conditions. It is only one of a number of properties that shall be considered in assessing the overall flammability hazard of a material.

Flash point is used in shipping and safety regulations to define flammable and combustible materials. One should consult the particular regulation involved for precise definitions of these classes.

Flash point can indicate the possible presence of highly volatile and flammable materials in a relatively nonvolatile or nonflammable material. For example, an abnormally low flash point on a sample of kerosene can indicate gasoline contamination.

ASTM F484 -Standard Test Method for Stress Crazing of Acrylic Plastics in Contact with Liquid or Semi-Liquid Compounds

This test method covers the procedure for determining the crazing effect caused by a liquid or semi-liquid on transparent three types of acrylic plastic materials under bending stress. Cast acrylic materials from Types A and B should be annealed according to specifications while the stretched acrylic materials of Type C should not be annealed. All test specimens should be machined from polished acrylic plastic sheets and should have smooth machined surfaces.

ASTM F502 Standard Test Method for Effects of Cleaning and Chemical Maintenance Materials on Painted Aircraft Surfaces

This test method covers determination of the effects of cleaning solutions and chemical maintenance materials on painted aircraft surfaces. Materials used for testing shall be drawing pencils, fine sand paper, abrasive mats, acetone, MIL-PRF-85285 coating, MIL-PRF-23377 primer coating, chemical conversion materials, and distilled or deionized water. Plate and sheet specimens of aluminum alloy shall be examined under concentrated and diluted test solutions. Pencils preparation, panels preparations, testing, and hardness determination shall be done according to the indicated procedure.

ASTM F485 Standard Practice for Effects of Cleaners on Unpainted Aircraft Surfaces

This practice is used to ensure that candidate aircraft surface cleaners do not leave a residue which, on drying, would leave a permanent stain requiring polishing to remove. This practice describes the procedure used to determine the effect of cleaners on unpainted aircraft surfaces. Visual observation is used for determining streaking or permanent stains which require polishing to remove.

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Date: 31-May-2016

SMI/REF: 1603-736

Product: **CreBISol (50:1 dilution)** (received 03-May-2016)

Dilution: As recieved

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AMS 1453A (2015-07)
DISINFECTANT CLEANER FOR AIRCRAFT INTERIOR
General Purpose Liquid

3.2.1.1	Sandwich Corrosion	<u>Does not conform</u>
3.2.1.2	Total Immersion Corrosion	<u>Does not conform</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 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	Long Term Storage Stability	<u>Not performed</u>
3.2.8	Performance	<u>Excluded</u>
3.2.9	Accelerated Storage Stability	<u>Does not conform</u>

Respectfully submitted,



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SCIENTIFIC MATERIAL INTERNATIONAL
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- 3.2 Properties: Disinfectant shall conform to the following requirements; tests shall be performed in accordance with specified test methods on the disinfectant supplied in concentrated form and at use dilution recommended by the manufacturer as hereinafter specified. Diluent shall be ASTM D 1193, Type IV, water.

3.2.1 Corrosion of Metal Surfaces

- 3.2.1.1 Sandwich Corrosion: Specimens, after test, shall not show corrosion worse than control panels, using ASTM D 1193, Type IV, water, determined in accordance with ASTM F 1110.

	2024-T3 Bare Anodized	2024-T3 Alclad	7075-T6 Bare Anodized	7075-T6 Alclad
PRODUCT	1	2/3*	1	2/3*
CONTROL	1	1	1	1

*"2/3" based on visible discoloration and/or corrosion between 10 to 25% of area.

Result *Does not conform

- 3.2.1.2 Total Immersion Corrosion: The product shall neither show evidence of corrosion nor cause a weight change of any test panel greater than shown in Table 1, determined in accordance with ASTM F 483.

ALLOY	Weight Change (mg/cm ² /24hrs)	
	ALLOWABLE	PRODUCT
AMS 4037 Aluminum anodized per AMS 2470	0.3	+ 0.06* ¹
AMS 4049 Clad Aluminum	0.3	0.21* ¹
AMS 4911 Titanium	0.1	0.01
AMS 5045 Steel	0.8	0.04* ²

¹Visible corrosion/oxidation; non-conformance based on appearance.

²Visible corrosion/rust; non-conformance based on appearance.

Result *Does not conform

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- 3.2.1.3 Low-Embrittling Cadmium plate: Test panels coated with low-embrittling cadmium plate shall not show a weight change greater than 0.3 mg/cm²/24hrs per 24 hours, determined in accordance with ASTM F 1111.

PRODUCT: 0.15 mg/cm²/24 hours

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, Class 1 Type I. 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 stresses specimen, shall be immersed continuously in the solution under test for 150 hours at a temperature between 68 to 86°F (20 to 30°C)

*Specimens: Type 1c, cadmium plated per MIL-STD-870 Class 1 Type I
Test temperature: 68°F (20°C)*

PRODUCT: No failures occurred within 150 hours.

Result Conforms

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

PRODUCT: No Flash point observed to 141°F.

Result Conforms

- 3.2.4 Effect on Plastic: The product shall not craze, stain, or discolor MIL-P-25690 stretched acrylic plastic, determined in accordance with ASTM F 484.

PRODUCT: No cracking or crazing evident.

Result Conforms

- 3.2.4.1 Product shall not craze, stain, or discolor MIL-P-83310 polycarbonate plastic determined in accordance with procedures in ASTM F 484 except the specimens shall be stressed for 30 minutes \pm 1 to an outer fiber stress level of 13.8 MPa (2000 psi).

PRODUCT: No cracking or crazing evident.

Result Conforms

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3.2.9 Accelerated Storage Stability: continued

3.2.9.2 Cold Temperature: One 6-oz (175-mL) sample of the product shall be placed in 8-oz (250-mL) clear glass bottles and sealed and, from that time until test is completed, shall be handled so as to minimize movement of the sample. The jar shall be exposed for 120 hours ± 1 at 14°F ± 5 (-10°C ± 3). At the end of the 120-hour period, remove the sample to a room-temperature environment, and allow to thaw completely and examine for conformance to 3.2.9.

Evidence of precipitation.

Result Does not conform

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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 two pencil hardness levels, nor shall it produce any streaking, discoloration, or blistering of the paint film, determined in accordance with ASTM F 502.

**PRODUCT: No decrease in hardness
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 which would require polishing to remove.

**PRODUCT: AMS 4911 - No streaking nor stains
AMS 4049 - No streaking nor stains**

Result Conforms

- 3.2.7 Long Term Storage Stability: The product, tested in accordance with ASTM F 1104, shall be restorable to its original appearance by moderate shaking, and shall meet all technical requirements after the storage stability period of 1 year.

Result Not performed

- 3.2.8 Performance: The product, used in accordance with label instructions, shall remove normally accumulated soils from the surfaces being cleaned and shall leave those surfaces in a disinfected or sanitized condition without any visible residue.

Result Excluded

- 3.2.9 Accelerated Storage Stability: Disinfectant shall remain homogeneous and shall show no evidence of layering, separation, settling or crystallization, determined in accordance with 3.2.9.1 and 3.2.9.2.

3.2.9.1 Elevated Temperature: One 6-oz (175-mL) sample of the product shall be placed in 8-oz (250-mL) clear glass bottles and sealed and, from that time until test is completed, shall be handled so as to minimize movement of the sample. The jar shall be exposed for 120 hours \pm 1 at 122°F \pm 5 (50°C \pm 3). At the end of the 120-hour period, remove the sample to a room-temperature environment, and allow to cool completely and examine for conformance to 3.2.9.

Evidence of precipitation.

Result Does not conform