

MIL-R-81261A
AMENDMENT 1
7 January 1976

MILITARY SPECIFICATION

RAIN REPELLENT, GLASS WINDOW
AND WINDSHIELD, FOR IN-FLIGHT APPLICATION

This amendment forms a part of Military Specification MIL-R-81261A dated 7 July 1970, and is approved for use by all Departments and Agencies of the Department of Defense.

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Paragraph 2.1 Under Specifications, Military add; "MIL-P-5425 Plastic, Sheet, Acrylic, Heat Resistant, MIL-C-23377 Primer Coating, Epoxy Polyamide, Chemical and Solvent Resistant, MIL-C-81773 Coating, Polyurethane, Aliphatic, Weather Resistant"; delete "MIL-L-19538 Lacquer, Acrylic-Nitro-cellulose, Camouflage (For Aircraft Use)"; delete "MIL-P-22750 Coating, Epoxy-Polyamide, Chemical and Solvent Resistant for Weapons Systems" and substitute "MIL-C-22750 Coating, Epoxy Polyamide"; delete "MIL-P-81352 and substitute "MIL-L-81352".

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Paragraph 3.3, line 3. After the word "glass", add "or plastic window and".

Paragraph 3.4.2, line 3. After the word "glass", add "or plastic".

Paragraph 3.4.3, line 1. After the word "glass", add "or plastic".

Paragraph 3.4.4, line 2. After the word "glass", add "or plastic".

Paragraph 3.4.5, line 2. After the word "glass", add "or plastic".

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Paragraph 4.3.1, line 2 of the label marking information. After the word "glass", add "or plastic".

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Paragraph 4.4.2. After the title, add "The procedures specified in paragraph 4.4.2.1 and 4.4.2.2. shall also be performed on 0.25 by 1 by 7 inches Acrylic plastic panels conforming to MIL-P-5425, in addition to the glass panels."

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Paragraph 4.4.3 After the title, add "The procedures specified in paragraphs 4.4.3.1 and 4.4.3.2 shall also be performed on 0.25 by 1 by 7 inches Acrylic plastic panels conforming to MIL-P-5425, in addition to the glass panels."

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Paragraph 4.4.5, line 1. After the word "glass" add "and an Acrylic plastic".

Paragraph 4.4.6. Delete in its entirety and substitute "4.4.6 Effects on aircraft surfaces".

Add new paragraph "4.4.6.1 Effects on coated and uncoated alclad aluminum. One half of a 3 inch alclad aluminum panel conforming to QQ-A-250/5 shall be coated with a primer conforming to MIL-C-23377 and then coated with a polyurethane conforming to MIL-C-81773, with the other half of the panel remaining uncoated. A $\frac{1}{2}$ inch wide bead of glazing compound conforming to MIL-S-7124 shall be placed down the center of the panel, so that it extends $\frac{1}{4}$ inch over the coated surface, the remainder being in contact with the aluminum. Additional panels shall be similarly coated with a primer conforming to MIL-C-23377 and then coated with an epoxy coating conforming to MIL-C-22750 and with acrylic lacquer conforming to MIL-L-81352. The rain repellent shall then be sprayed to form a continuous film over the entire surface of each panel. The spraying shall be repeated three times at 15 minute intervals. At the end of this period, the glazing and paint shall be examined for softening. The panel shall be air dried for 24 hours and re-examined for deleterious effects, such as corrosion on metal, distortion of glazing compound or paint or any other noticeable change."

Add new paragraph "4.4.6.2 Effect on acrylic plastics."

Add new paragraph, "4.4.6.2.1 Apparatus. Three 0.25 by 1 by 7 inches test panels shall be fabricated of acrylic base plastic sheet conforming to MIL-P-5425. A centilever test rack, as shown in Figure 1, shall be constructed for use in this procedure."

Add new paragraph "4.4.6.2.2 Procedure. Three plastic test panels shall be annealed by suspending in an oven maintained at $194^{\circ} +4^{\circ}\text{F}$ ($90^{\circ} +2^{\circ}\text{C}$) for 2 hours. At the end of the annealing period, the temperature of the test panels shall be reduced to room temperature at the rate of $49^{\circ} +9^{\circ}\text{F}$ ($9.4 +2\text{C}$) per hour maximum. The annealed test panels shall be conditioned at room temperature for at least 7 days before use. Each of

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three test panels shall be set up as a cantilever beam under load as shown in figure 1. The panels shall then be loaded by means of weights or lead shot bags to produce a stress of 2000 pounds per square inch. The load necessary to produce this stress may be determined by use of the following formula:

$$P = \frac{Sbd^2}{6L}$$

Where:

S = 2000 = Stress in pounds per square inch

P = Load in pounds

L = Distance in inches from fulcrum to point at which load is applied

b = Width of plastic sheet 1/

d = Thickness of plastic sheet 1/

1/ Measured by means of a micrometer to within 0.001 inch.

After 10 minutes the test panels shall be examined to insure that no crazing has occurred prior to Rain Repellent compound application. While test panels are still under stress, a 1 by 2 inch piece of flannel cloth shall be placed on the top surface of the panel with its long axis parallel to that of the panel and centered over the fulcrum. The flannel shall be wet (using a medicine dropper) with 2 ml of the Rain Repellent compound. The flannel shall be kept wet by applying an additional milliliter of Rain Repellent compound as necessary for 4 hours. At the end of 6 hours, while the panels are still under stress, the flannel cloth shall be removed and the panel inspected for crazing by passing a light under the loaded end of the panel and observing panel at the fulcrum from above. The appearance of bright refractory lines parallel to the fulcrum is evidence of crazing. Lines less than 1/8 of an inch length touching the sheared edges of the panel shall be disregarded."

Custodians:

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Preparing Activity

Navy AS

Project 6850-0578

