

DECALCOMANIAS

1. SCOPE:

1.1 Form: This specification covers face-up type of water-applied, solvent-applied, or adhesive-applied decalcomanias.

1.2 Application: Primarily for marking of parts.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

AMS 3006 - Alcohol-Water Mixtures

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM B117 - Salt Spray (Fog) Testing

ASTM D471 - Rubber Property - Effect of Liquids

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

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3. TECHNICAL REQUIREMENTS:

3.1 General:

- 3.1.1 Material: Decalcomanias and adhesives shall be free of constituents such as halide compounds which may have a corrosive effect on parts when subjected to conditions normally encountered in service.
- 3.1.2 Opacity: Shall be such that the colors of the decalcomania will not be affected by the color of the surface to which it is applied.
- 3.1.3 Elasticity: Shall be such that the decalcomania, when placed on a flat surface having a local convex dimple 0.312 in. (7.8 mm) in diameter and 0.0625 in. (1.6 mm) high, will not break when rolled with a soft rubber roller. The decalcomania shall be sufficiently firm that it will not stretch out of shape during application.
- 3.1.4 Backing Release: Six months after manufacture, the decalcomania shall release from the backing in approximately the same length of time, and with approximately equal ease, as a freshly manufactured decalcomania will release from its backing.

- 3.2 Properties: Decalcomanias shall conform to the following requirements: Decalcomanias shall be applied, in accordance with manufacturer's instructions, to anodized aluminum alloy panels which have been painted with a primer and an enamel, and cleaned immediately before applying decalcomanias. If decalcomanias are to be marked with data when applied to parts, tests shall be conducted on decalcomanias which have been stamped with some marking with a black imprint ink; in such cases, the markings shall be subject to the same requirements as the decalcomanias. If decalcomanias are too large to test conveniently as a whole, a section or sections may be tested provided that the section or sections tested include all colors of the decalcomanias. A separate decalcomania or separate sections of a decalcomania shall be used for each of the following tests. Testing shall be done without benefit of a varnish or similar protective coating.

3.2.1 Adhesion:

- 3.2.1.1 Adhesion shall be such that 4 hr after application of the decalcomania to a part, the part may be subjected to normal handling without damage to the decalcomania.
- 3.2.1.2 After 24 hr drying at room temperature for solvent-applied and water-applied decalcomanias and after 96 hr drying at room temperature for adhesive-applied decalcomanias, it shall be impossible to separate the decalcomania from the surface to which it is applied, by scratching with the thumb nail or with a diagonally applied knife or razor blade.

- 3.2.2 Abrasion Resistance: After drying for 12 hr at room temperature, the decalcomania shall withstand, without wearing through, 500 revolutions of a CS-17-F Calibrase wheel at 1000 g pressure on the Tabor Abraser. Abrasive particles shall be removed continually during the test. The wheel shall be redressed before starting each test.
- 3.2.3 Heat Resistance: After heating for 8 hr at $300^{\circ}\text{F} + 2$ ($150^{\circ}\text{C} + 1$) and cooling to room temperature, the decalcomania shall be legible and shall not have separated from the panel. Discoloration of the decalcomania is acceptable.
- 3.2.4 Fluid Resistance: Decalcomanias, after being immersed in the test media in accordance with 4.5.1, at room temperature, and observed 3 hr after removal from water, 3 hr after rinsing following exposure to salt spray, and 24 hr after final removal from all other media, shall show no evidence of peeling, blistering, bleeding, fading, or appreciable whitening and no loss of adhesion, hardness, toughness, or gloss as compared to similar decalcomanias not exposed to the test media. Separate specimens shall be tested in each medium.
- 3.3 Mounting Instructions: Complete and detailed instructions for mounting the decalcomanias on a surface shall be printed on the backing. If size prohibits printing this information on the backing, the backing of each decalcomania shall be marked with manufacturer's identification and type, and the mounting instructions shall be furnished in each package.
- 3.4 Quality: Decalcomanias, as received by purchaser, shall be uniform in quality and condition, and free from foreign materials and from imperfections detrimental to usage of the decalcomanias.
4. QUALITY ASSURANCE PROVISIONS:
- 4.1 Responsibility for Inspection: The vendor of decalcomanias shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.6. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that decalcomanias conform to the requirements of this specification.
- 4.2 Classification of Tests:
- 4.2.1 Acceptance Tests: Tests to determine conformance to the following requirements are classified as acceptance tests and shall be performed on each lot:

Requirement	Paragraph Reference
Elasticity	3.1.3
Adhesion	3.2.1
Abrasion Resistance	3.2.2
Heat Resistance	3.2.3
Fluid Resistance	3.2.4
Quality	3.4

4.2.2 Preproduction Tests: Tests to determine conformance to all technical requirements of this specification are classified as preproduction tests and shall be performed prior to or on the initial shipment of the product to a purchaser, when a change in material, processing, or both requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.2.1 For direct U.S. Military procurement, substantiating test data, and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, contracting officer, or request for procurement.

4.3 Sampling:

4.3.1 For Acceptance Tests: Sufficient product shall be taken at random from each lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three.

4.3.1.1 A lot shall consist of all decalcomanias of the same part number presented for vendor's inspection at one time. A lot may be packaged in small quantities and delivered under the basic lot approval provided lot identification is maintained.

4.3.2 For Preproduction Tests: Shall be as agreed upon by purchaser and vendor.

4.3.2.2 When a statistical sampling plan and acceptance quality level (AQL) have been agreed upon by purchaser and vendor, sampling shall be in accordance with such plan in lieu of sampling as in 4.3.1 and the report of 4.5 shall state that such plan was used.

4.4 Approval:

4.4.1 Sample decalcomanias shall be approved by purchaser before decalcomanias for production use are supplied, unless such approval be waived by purchaser. Results of tests on production decalcomanias shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods of inspection on production decalcomanias which are essentially the same as those ingredients, in type of equipment for processing, or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in material, processing, or both and, when requested, sample decalcomanias. Production decalcomanias made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Test Methods:

4.5.1 Test Media and Time:

4.5.1.1 Immerse in distilled water for 24 hours.