

MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

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DECALCOMANIAS

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. **APPLICATION:** Primarily for marking of parts.
3. **FORM:** Face-up type of water-applied, solvent-applied, or adhesive-applied decalcomanias, unless a specific type is specified by purchaser.
4. **TECHNICAL REQUIREMENTS:**
 - 4.1 **General:**
 - 4.1.1 **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.
 - 4.1.2 **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.
 - 4.1.3 **Elasticity:** Shall be such that the decalcomania, when placed on a flat surface having a local convex dimple 5/16 in. in diameter and 1/16 in. 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.
 - 4.1.4 **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.
 - 4.2 **Properties:** Decalcomanias shall conform to the following requirements. Decalcomanias shall be applied, in accordance with instructions furnished by the manufacturer, 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.
 - 4.2.1 **Adhesion:**
 - 4.2.1.1 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.

- 4.2.1.2 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.
- 4.2.2 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 Taber Abraser. Abrasive particles shall be removed continually during the test. The wheel shall be redressed before starting each test.
- 4.2.3 Heat Resistance: After heating for 8 hr at 300 F + 2 and cooling to room temperature, the decalcomania shall be legible and shall not have separated from the panel. Discoloration will not be cause for rejection.
- 4.2.4 Fluid Resistance: Decalcomanias, after being immersed in, or exposed to, the test media listed below, 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.
- 4.2.4.1 Test Media and Time:
- 4.2.4.1.1 Immerse in distilled water for 24 hours.
- 4.2.4.1.2 Expose to salt spray in accordance with ASTM B117-49T for 24 hr and rinse in water.
- 4.2.4.1.3 Immerse in AMS 3006, Type 4, alcohol-water mixture for 8 hr and air dry for 16 hours. Repeat this cycle. Immerse finally for 8 hours.
- 4.2.4.1.4 Immerse in ASTM Reference Fuel B for 8 hr and air dry for 16 hours. Repeat this cycle. Immerse finally for 8 hours.
- 4.2.4.1.5 Immerse in ASTM Oil No. 3 for 8 hr and air dry for 16 hours. Repeat this cycle. Immerse finally for 8 hours.
- 4.3 Mounting Instructions: Complete and detailed instructions for mounting the decalcomania 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.
5. REPORTS:
- 5.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report stating that the product conforms to the requirements of this specification. This report shall include the purchase order number, material specification number, part number, and quantity.