



# AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York, N. Y. 10017

## AMS 2474A

Superseding AMS 2474

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### CHEMICAL TREATMENT FOR ALUMINUM BASE ALLOYS Low Electrical Resistance Coating

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 increasing the corrosion resistance of aluminum or aluminum base alloys and to improve paint adhesion where a conductive coating is required and for improving the corrosion resistance and paint adhesion properties of abraded or discontinuous anodized surfaces on aluminum or aluminum alloy parts.
3. **PREPARATION:** Before parts are placed in the coating solution, they shall have chemically clean surfaces prepared with minimum erosion, pitting, or unintended abrasion. If alkaline cleaners are employed, very thorough water rinsing, preferably by spray, shall be employed after cleaning. Cleaning procedures recommended by the vendor of the processing chemicals should be followed closely.
4. **PROCEDURE:** Consists of immersion of the parts in a solution which will form a chemical coating of silicate or chromate for such time and at such temperature as will produce coatings meeting the requirements of Section 5, followed by rinsing and drying.
  - 4.1 Only processes which permit adequate solution control by chemical analysis shall be used.
    - 4.1.1 It shall be the responsibility of the vendor of proprietary processing chemicals to supply the purchaser with methods of analysis and directions for maintenance of the solutions.
5. **TECHNICAL REQUIREMENTS:** When ASTM methods are specified for determining conformance to the following requirements, tests shall be conducted in accordance with the issue of the ASTM method listed in the latest issue of AMS 2350.
  - 5.1 The coating shall have uniform appearance characteristic of the process used. Color may range from iridescent yellow to dark olive green, originating from chromic acid or from dichromate salts in the processing solution or in the final rinse.
  - 5.2 For control purposes, samples of AMS 4037 sheet 0.040 in. thick and 3 x 10 in. (the 10 in. dimension being perpendicular to the direction of rolling) treated in accordance with Section 4 shall withstand 168 hr exposure to salt spray without corroding to the extent that would cause more than 5% decrease in tensile strength or 10% decrease in elongation from those of duplicate treated but unexposed panels. The salt spray test shall be conducted in accordance with ASTM B117. Test results for both exposed and unexposed panels shall be reported as the average of three specimens from each panel. Tensile tests shall be conducted in accordance with the latest issue of AMS 2355. The foregoing test is not required when material or parts treated in accordance with Section 4 are subsequently to be painted.
  - 5.3 Each part that is treated and not subsequently painted shall be capable of withstanding the salt spray test for 168 hr conducted in accordance with ASTM B117, without showing more than a few scattered corrosion pits visible to the unaided eye.
  - 5.4 A sample of AMS 4037 sheet treated in accordance with Section 4 and painted shall show paint adhesion equivalent to that on a similar sample anodized in accordance with AMS 2470 and painted in the same manner. The paint film shall be dried 24 hr and shall then be scribed by a sharp instrument such as a fine knife edge with two lines perpendicular to each other. The scratched panel shall be subjected to 500 hr of salt spray exposure and then dried for 24 hours. The salt sprayed panel shall show no evidence of visible corrosion of the metal except directly in the scribed marks, and shall show no evidence of paint blisters or flaking in the areas adjacent to the scribing.

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