



AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

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

AMS 2436A

Superseding AMS 2436

Issued 1-15-60

Revised 11-1-67

FLAME DEPOSITION Aluminum Oxide

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 providing a hard, wear-resistant surface on metal parts, particularly those used under corrosive or elevated temperature oxidizing conditions. This coating is not recommended for surfaces with deep, vee-shaped grooves, blind cavities, narrow holes, sharp corners, or where deformation of the basis metal is expected.
3. **EQUIPMENT:** A specially constructed machine in which the particles of coating material may be fed into the tube of a gun, suspended in a mixture of oxygen and acetylene which is detonated, heating the particles to plasticity and hurling them at high velocity out of the gun barrel onto the part.
4. **COATING MATERIAL:** Shall consist of not less than 99% aluminum oxide.
5. **PROCEDURE:**
 - 5.1 **Preparation:** Surfaces to be coated shall be machined to allow for the finish thickness of the coating. Parts required to be hardened to a specified hardness shall be fully heat treated prior to flame deposition.
 - 5.2 **Cleaning:** Parts shall be thoroughly cleaned free from dirt, grit, oil, grease, and other foreign materials by either approved chemical or mechanical means.
 - 5.3 **Masking:** Parts shall be suitably masked as required to protect surfaces not designated to be coated.
 - 5.4 **Surface Conditioning:** Surfaces to be coated shall be grit blasted to produce a uniform matte finish sufficient to give good adhesion of the coating.
 - 5.5 **Coating:** The coating material shall be deposited onto the designated surfaces to a sufficient thickness to permit finishing to dimensions specified on the part drawing. Temperature of the part being coated shall be maintained so as not to exceed 400 F (204 C), unless otherwise specified.
 - 5.6 **Surface Finishing:** Procedures for grinding and lapping shall be as agreed upon by purchaser and vendor.
6. **TECHNICAL REQUIREMENTS:**
 - 6.1 **Specimens:** Test bars, 1/2 in. in diameter x 2 in. long processed on the surface as in Section 5, and coated to a thickness of 0.007 - 0.009 in., shall have the following properties:
 - 6.1.1 **Hardness:** The coating shall have a cross-sectional hardness of Vickers 950 - 1250, using 300 g load, or equivalent. Hardness shall be determined from an average of a minimum of ten microhardness readings.
 - 6.1.2 **Apparent Porosity:** The average apparent coating porosity shall be less than 2% of coating cross-section when determined by microscopic comparison with an approved standard at 200X magnification using polarized lighting.

SAE Technical Board rules provide that: "All technical reports, including standards approved by the Board, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents."