



AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

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AMS 2479

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Revised

ANODIC TREATMENT OF MAGNESIUM BASE ALLOYS Acid Type, Thin Coat

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.
2. **APPLICATION:** To provide surfaces which will ensure maximum paint adherence. This process is applicable to all cast and wrought magnesium alloys but should not be used on parts which will be flexed in service. This process produces no significant dimensional change except on very close-tolerance dimensions but has abrasion resistance lower than that of AMS 2476 and AMS 2478 coatings; when similarly painted or resin coated, other properties are similar. Coating thickness is approximately 0.0003 in., of which approximately 0.0002 in. is build-up.
3. **PREPARATION:** Parts to be treated shall be cleaned as necessary to leave the surfaces free from grease, oil, soap, alkali, and other contaminants.
4. **SOLUTIONS:**
 - 4.1 **Electrolyte:** Shall be an aqueous solution of one of the following compositions, as applicable; concentrations are in oz per gallon:

	AC Process	DC Process
Ammonium Bifluoride (NH_4HF_2)	30.0 - 60.0	40.0 - 60.0
Sodium Dichromate ($\text{Na}_2\text{Cr}_2\text{O}_7 \cdot 2\text{H}_2\text{O}$)	6.7 - 16.0	6.7 - 16.0
Phosphoric Acid (85% H_3PO_4) (fluid measure)	6.5 - 14.0	6.5 - 14.0

The temperature of the electrolyte shall be maintained at a temperature within the range of 160 - 180 F (71.1 - 82.2 C).

- 4.2 **Sealer:** Shall be an aqueous solution containing 6 - 8 oz per gal of sodium tetrasilicate ($\text{Na}_2\text{Si}_4\text{O}_9$) (water glass) maintained at a temperature within the range of 200 - 212 F (93.3 - 100 C).
5. **PROCEDURE:**
 - 5.1 **Racking:**
 - 5.1.1 For AC processing, parts shall be suspended on both electrodes so that the surface areas of the parts on each electrode are approximately equal. For DC processing, parts shall be suspended on one electrode with the other electrode being separate steel plates except as noted in 5.2.
 - 5.1.2 Parts shall be firmly attached to the racks; contact areas shall be kept to minimum size, and, when practicable, shall be on surfaces not required to be coated. When parts are to be coated all over, electrical contact shall be on areas indicated on the drawing.
 - 5.1.3 The parts shall, insofar as practicable, be hung so that no escaping gas can be entrapped during processing.

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