



AEROSPACE MATERIAL SPECIFICATION

AMS2451™/12**REV. A**

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Reaffirmed 2022-05

Superseding AMS2451/12

Plating, Brush, Tin

RATIONALE

AMS2451/12A is the result of a Five-Year Review and update of this specification with changes to 3.2.2.

AMS2451/12A has been reaffirmed to comply with the SAE Five-Year Review policy.

1. SCOPE

1.1 Purpose

This specification covers the engineering requirements and process for brush plating of tin by electrodeposition. It shall be used, in conjunction with AMS2451, for general purpose tin deposits.

1.2 Application

This process has been used typically to prevent galling or seizing of metal surfaces, to provide a surface for soft soldering, or to improve corrosion resistance, but usage is not limited to such applications.

1.3 Safety - Hazardous Materials

Shall be in accordance with AMS2451.

2. APPLICABLE DOCUMENTS

In addition to those listed in AMS2451, the issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AMS2408 Plating, Tin

AMS2451 Plating, Brush, General Requirements

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Full document details: [SAE AMS2451_12A](http://www.sae.org)

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS2451/12A/>

Documents

Document Sharing Hub

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B545 Electrodeposited Coatings of Tin

3. TECHNICAL REQUIREMENTS

Shall be in accordance with AMS2451 and as follows.

3.1 Procedure

3.1.1 Except as required in 3.1.1.1 or 3.1.2, tin shall be electroplated directly on the basis metal from a suitable brush plating solution in accordance with processing instructions from the solution manufacturer.

3.1.1.1 For aluminum and aluminum alloys, a zinc immersion preplate may be used.

3.1.2 Prior to electrodeposition of tin for solderability on aluminum or copper-zinc alloy parts, a copper plate shall be deposited to a thickness of 0.0002 to 0.0003 inch (5.1 to 7.6 µm).

3.2 Properties

3.2.1 Thickness

Where "tin flash" is specified, plate thickness shall be approximately 0.0001 inch (2.5 µm).

3.2.2 Hydrogen Embrittlement

Shall be in accordance with AMS2451.

3.2.3 Solderability

When specified, solderability of the plating shall be in accordance with ASTM B545. The method of test shall be as specified by purchaser.

3.2.4 Continuity of Plating

When specified, plating on ferrous parts, having a plating thickness of 0.0004 inch (10 µm) or more, shall be subjected to the porosity test of ASTM B545 and the result evaluated according to the procedure described. When specified, plating on copper and copper alloys shall be subjected to the porosity test for copper basis metal given in ASTM B545: the specimens shall be considered to have failed if pores in the coating blacken by the polysulfide test.

4. QUALITY ASSURANCE PROVISIONS

Shall be in accordance with AMS2451.

5. PREPARATION FOR DELIVERY

Shall be in accordance with AMS2451.

6. ACKNOWLEDGEMENT

Shall be in accordance with AMS2451.

7. REJECTIONS

Shall be in accordance with AMS2451.