



AEROSPACE MATERIAL SPECIFICATION	AMS03™-17	REV. A
	Issued 2015-04 Stabilized 2018-02	
	Superseding AMS03-17	
Electro-Deposition of Gold		

RATIONALE

AMS03-17A stabilizes this document because this document contains mature technology that is not expected to change and thus no further revisions are anticipated.

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AMS2422 Plating, Gold

AMS2425 Plating, Gold for Thermal Control

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FOREWORD

REVISION NOTE

This Defence Standard was raised to Issue 3 to update its content and incorporate the latest MoD/DStan policy in place at the time.

HISTORICAL RECORD

This standard supersedes the following:

DTD 938 dated December 1968

Def Stan 03-17 Issue 1 dated 13 July 1979

Def Stan 03-17 Issue 2 dated 23 October 1992

INTRODUCTION

This Standard specifies the requirements for the electro-deposition of gold on ferrous-base materials, copper-base materials, aluminum-base materials, zinc-base materials and nickel-base materials for MOD use. It is primarily intended for use on electrical and electronic items which are to be plated with gold to improve electrical conductivity and solderability. It does not cover the gold plating of threaded items.

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1. SCOPE

1.1 This SAE Standard specifies the requirements for the electro-deposition of gold on ferrous-base materials, copper-base materials, aluminum-base materials, zinc-base materials and nickel-base materials for MOD use. It is primarily intended for use on electrical and electronic items which are to be plated with gold to:

a. Increase the electrical conductivity of the surface.

b. Provide a solderable surface.

1.2 This Standard does not cover the gold plating of threaded items.

2. WARNING

This section which appeared in DEF STAN 03-17 Issue 3 has been deliberately deleted.

3. NORMATIVE REFERENCES

3.1 The publications shown below are referred to in the text of this standard. Publications are grouped and listed in alpha-numeric order.

BS EN ISO 1463 Metallic and Oxide Coatings. Measurement of Coating Thickness. Microscopical Method

BS EN ISO 2177 Metallic Coatings, Measurement of Coating Thickness. Coulometric Method by Anodic Dissolution

BS EN ISO 2178 Non-Magnetic Coatings on Magnetic Substrates. Measurement of Coating Thickness. Magnetic Method

BS EN ISO 3497 Metallic Coatings. Measurement of Coating Thickness. X-ray Spectrometric Methods

BS EN ISO 3543 Metallic Coatings. Measurement of Coating Thickness. Beta Backscatter Method

BS EN ISO 3696 Water for Analytical Laboratory Use. Specification and Test Methods

BS EN ISO 4516 Metallic and Other Inorganic Coatings. Vickers and Knoop Microhardness Tests

BS 2011-2.1T Environmental Testing. Tests. Test T. Soldering

Def Stan 03-2 Cleaning and Preparation of Metal Surfaces

AMS03-2 Cleaning and Preparation of Metal Surfaces

Def Stan 03-4 The Pre-Treatment and Protection of Steel Items of Specified Maximum Tensile Strength Exceeding 1450 MPa

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4. DEFINITIONS

4.1 For the purpose of this Standard the following definitions apply.

4.2 GOLD ALLOY COATING

A coating of gold alloy having a minimum thickness of not less than 0.5 µm and a gold content of not less than 60% by mass.

4.3 GOLD COATING

A coating of gold having a minimum thickness of not less than 0.5 µm and a gold content of not less than 98% by mass.

4.4 MULTIPLE LAYER GOLD COATING

A gold or gold alloy coating consisting of more than two discrete layers of differing gold content.

4.5 PROCESS CONTROL SCHEDULE

The document which specifies/defines:

- a. The sequence of manufacturing operations and processes.
- b. The control parameters and their tolerances for each individual process within the total sequence.

4.6 SIGNIFICANT SURFACE

That area of the item, covered or to be covered by the coating, and for which the coating is essential for serviceability and/or appearance.

5. INFORMATION TO BE SUPPLIED BY THE PURCHASER

The following information shall be given on the drawing, contract or order:

- a. The number of this AMS Material Specification or its superseded Defence Standard.
- b. The specification and metallurgical condition of the basis metal.
- c. The significant surface. This may be indicated on the drawing or by a marked example.
- d. The process to be used.
- e. The details of any pre and post deposition heat treatment.
- f. The thickness of the coating required.
- g. The details and thickness of any necessary undercoat to be applied.
- h. The Classification Code of the gold or gold alloy coating required.
- i. Where appropriate, the details of any major alloying elements to be used in the gold coating.
- j. Where appropriate, the gold content, composition and hardness values of the gold coating.
- k. Where appropriate, the type of surface finish required (e.g., bright or matt).
- l. The details of any special requirements (e.g., masking).