

26-741

	SARA SAE ENGINEERING SPECIFICATION		
	Section: SES 26 – 741		
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SPECIFICATION FOR SILVER PLATING THICKNESS INSPECTION

Rev	Reason of Change	Date	Made By	Reviewed By	Approved By	Status
2		13-03-2013	USR	J Gulati	KKD	Released



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SPECIFICATION FOR SILVER PLATING THICKNESS INSPECTION

1.0 PURPOSE

- 1.1 This procedure specifies the standard methods and locations for silver plating test and reporting of SARA SAE products.
- 1.2 This specification describes the system for inspection of silver plated material from suppliers to ensure that received material is of required specifications,
- 1.3 This material specification is intended to aid the Quality control / production department in out sourcing and the vendor to comply the requirements of silver plating of a material which needs to meet its intended use, and the quality control department in the inspection and release of incoming material.

2.0 SCOPE

- 2.1 This specification covers requirements for silver plating to meet requirements of as specified in the standard or customer requirement.
- 2.2 All measurements shall have compliance as specified in the specification.

3.0 VENDOR APPROVAL

- 3.1 Prior to outsourcing the process, prospective vendors shall be assessed for their capabilities for silver plating,
- 3.2 Prior to silver plating of bulk the prospective vendor shall submit first article samples of the product duly plated as per procedure for evaluation & approval.
- 3.3 After approval vendor shall not make any changes in process without the written permission of SARA SAE and re-approval of first article sample, if desired by SARA SAE.
- 3.4 In case of any change in the process re-approval of first article sample, by SARA SAE is required.



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4.0 GENERAL REQUIREMENTS

4.1 Properties : The deposited silver shall conform to the following requirement:

- a) Thickness shall be determined on representative parts or test coupon in accordance with this specification or other method agreed upon by the purchaser and vendor.
- b) Silver as plated should not be less than 99.9% pure. The process of plating should be controlled to produce this purity.

4.2 Preparation: The sample preparation shall be as described below:

- a) **Electrolyte** - The electrolyte shall be made as mentioned below:
 - I. SN 10 Solution: 180 grams Potassium Thiocyanate shall be mixed in 1 liter of distilled water. The solution shall be agitated properly before use.
- b) **Cleaning:**
 - I. Etching tank shall be clean by distilled water before pouring electrolyte. After each & every test it shall be cleaned.
 - II. It is necessary that the surface of the sample under test is cleaned properly using the typewriter eraser. This ensures the surface is free of contamination prior to etching of top layer.
- c) **Measurement:**
 - I. The measuring device should be calibrated once before & once after a measurement, with known test sample, unless repeated experience indicates otherwise.
 - II. When making calibration and coating measurements, both should be made by the same operator, the stage micrometer and the coating should be centered in the field, and each measurement at a point should be made at least twice and averaged.



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5.0 ACCEPTANCE

- 5.1 Plate thickness should be 0.0002 to 0.002" (0.005 to 0.050 mm).
- 5.2 The sample shall be checked as defined in the SARA / DOC / 0042.
- 5.3 The plating thickness shall be within the limits at any point of material.
- 5.4 Silver plating should be sound, smooth & continuously bonded to the base material.
- 5.5 Plating shall be uniform in appearance , not coarsely crystalline and free from pin holes , porosity , cracks , flakes , blisters , nodules , pits and other imperfection detrimental to the performance of the plating.
- 5.6 General adhesion of the finished plating should be tested by attaching a section of scotch tape. Temperature of the surface to be tested should not exceed 120°F.
- 5.7 Pull the tape off the surface. No plating material should be adhering to the tape.
- 5.8 Intermediate layers may be tested on non critical surfaces.
- 5.9 All the above tests will be qualified for acceptance through a QTC plated under similar conditions from each lot.
- 5.10 QTC will be marked with traceability of the lot and will be preserved in bond for future references.
- 5.11 Records will be logged in QC register.
- 5.12 Identification tags removed from the gaskets during plating shall be reattached after completion of inspection.



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6.0 SAFETY PRECAUTIONS:

- 6.1 Don't touch electrolyte solutions with naked hand. Contact with skin or eye should be avoided.
- 6.2 Proper care is taken while handling rubber gasket and glass dropper of destructive thickness machine.
- 6.3 Avoid mixing of different electrolyte solutions with each other.
- 6.4 Clean etching tank after every operation as well as changing coat/base combination.

7.0 PACKING

- 7.1 Plated material shall be supplied in packages that protect against damages during shipment.

8.0 DOCUMENTATION REQUIRED

Each shipment shall be accompanied by certifications for each lot of silver plated material.

8.1 IN CASE OF OUTSOURCED VENDOR

- a) Plating thickness report.
- b) Certificate of procedure compliance with detailed process.
- c) The batch no. of chemical shall be recorded in the certificate.
- d) QTC traceable to the lot.

8.2 INHOUSE PLATING FACILITY

- a) Plating thickness of the sampled pieces (as per sampling plan Sara/doc/0042) shall be recorded in the QC register.



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9.0 TESTING TO BE CARRIED OUT BY SARA SAE

- 9.1 Silver plating thickness will be checked as per sampling plan SARA/DOC/0042 before picking up the lot.
- 9.2 The sample under rest shall be provided with the batch material.
- 9.3 Tape test will be carried out on the QTC provided by the vendor.

