MTAC - A Summary of Critical Decisions

This document has been created and reviewed by the A2LA Materials Testing Advisory Committee (MTAC). It provides a summary of consensus decisions voted on and approved by the MTAC and the A2LA Criteria Council (CC) for use by laboratories and assessors.

I. Traceability Decisions
   a. Density Beads – PT results may be accepted in lieu of traceability for density beads as long as the laboratory participates in available commercial PT annually. This exception is applicable to the following testing:

      Density of Plastics - Gradient Column Method
      ASTM D1505
      ISO 1183-2

   b. Severn Engineering Instrumentation – Upon review it has been determined that the calibration of Severn Engineering Instrumentation including the Ferrite Indicator, Type I or II, and Low-Mu Permeability Indicator is traceable to an NMI (e.g., NIST).

      Due to this all laboratories using such equipment must request an exception to A2LA P102 – A2LA Policy on Metrological Traceability. If an exception is not granted by A2LA prior to an assessment, assessors are instructed to write a deficiency to A2LA P102 section T1 which states that the laboratory must use accredited calibration providers.

      However, laboratories requesting an exception will not be required to submit evidence that they have looked for an accredited provider or evidence of traceability to the SI. When requesting an exception, laboratories are instructed to provide a copy of their calibration certificate from Severn Engineering. This record will be compared to records maintained by A2LA and if needed, follow-up will be requested. This clarification is applicable to the following testing:

      Determination of Low Magnetic Permeability
      ASTM A342
      MIL-I-17214B

      Determination of Ferrite Content of Welds
      ASTM A799 / A799M-04
      ANSI / AWS4.2M / A4.2-2006
c. Variable Thread Gauging Systems – The gauge system consists of three separate parts.

Part 1) Dial or digital indicators
Part 2) Calibration setting plug
Part 3) Contacting rolls and segments

Part 1) and Part 3) constitute the gauge as it is commonly used for inspection. The gauge system is the part of System 22 that covers pitch diameter and functional size measurement. Part 2) confirms the presence of the correct setting of the inspected gauge system, the actual calibrated size of the setting plug.

When Parts 1) and 3) are assembled together, the gauge is verified using the calibrated setting plug, Part 2), which is calibrated by an accredited calibration lab.

Upon review it has been determined that the accredited calibration of the setting plug is sufficient to verify the system as a whole, and therefore a full system calibration is not required.

d. Aluminum Conductivity Standards – If a CAB is accredited to the Boeing specification for conductivity (BAC 5651), their aluminum conductivity standard must be calibrated yearly.

e. Strain Gages – Upon review it has been determined that in many cases strain gages are certified by the manufacturer for a particular gage factor and then permanently attached to an item. The gage is then attached to a read out device via soldering or bonding. The attachment of the strain gage to the read out device is a critical step and should be closely evaluated by the CAB to ensure proper connection.

When strain gages are used in the above manner, the readout device must be calibrated by an accredited provider and the system (strain gage and readout) must be verified using a calibrated instrument (e.g. a multimeter, resister). As long as the CAB has a certificate from the manufacturer for the strain gage and has verified the system using an accredited instrument, accredited calibration of the strain gage is not required.

When a strain gage is not used in the above manner, accredited calibration is required. This explanation includes but is not limited to the following testing:
Compressive Properties of Composite Materials
ASTM D3410/D3410M
ASTM D6642/D6641M
Shear Properties of Composite Materials
ASTM D53799/D53799M
ASTM D7778/D7778M
ASTM D3518/D3518M

II. Requirements for listing SAE Standards on an A2LA Scope of Accreditation:
   a. Application of SAE J81
      i. Upon review by the Materials Testing Advisory Committee it was determined
         that the following wordage found in *SAE J81 – Thread Rolling Screws*:

         “by other suitable means in any ductility test for thread cutting screws”

         be interpreted as meaning ‘any means by which the laboratory can make the
         required bend is acceptable.’ (Motion 9, MTAC meeting minutes dated 4/2/2011)

III. Requirements for listing ASTM Standards on an A2LA Scope of Accreditation:
      i. Upon review by the Materials Testing Advisory Committee it was determined
         that the following requirements must be met by a CAB in order to list
         ASTM E308 on their Scope.
            1. The laboratory must own a copy of the standard.
            2. The laboratory must own, lease or rent a color spectrometer capable of
               producing a printout of reflectance or transmittance spectra to the
               resolution needed for the testing they are performing.
            3. The laboratory must be able to provide objective evidence
               demonstrating that their color calculations used the formulae required
               by ASTM E308.
      ii. CABs who use ASTM E308 as a reference when performing associated
          testing, but are unable to perform those tests outlined in the standard, may list
          ASTM E308 on the bottom of their accredited Scope with a footnote
          indicating that ASTM E308 is referenced when performing testing, but that
          the CAB is not accredited to perform ASTM E308 testing.

IV. Requirements for Mechanical and Chemical Scopes of Accreditation
   a. Failure Analysis
i. Upon review by the Materials Testing Advisory Committee it was determined that ASM Handbook 11 contained or referred to several test methods that may or may not be employed by a CAB to perform failure analysis. To clarify the full range of capability included as accredited work on a Scope of Accreditation it was determined that Scopes must list ASM Handbook 11 in one of two ways:

<table>
<thead>
<tr>
<th>Test</th>
<th>Test Method(s)</th>
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<tbody>
<tr>
<td>Failure Analysis</td>
<td>Using the methods listed above in accordance with the ASM Handbook Volume 11</td>
</tr>
<tr>
<td>Failure Analysis (Visual Examination, Coating Thickness, Photomicrography)</td>
<td>ASM Handbook Volume 11 (Pages xxx-xxx)</td>
</tr>
</tbody>
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b. Standard Methods Containing Options for Equipment Set-Up or Arrangement
   i. It was determined that standards exist that offer options for equipment arrangement that may or may not be employed by the CAB in performance of the test. To clarify the full range of capability included as accredited work on a Scope of Accreditation it was determined that Scopes must identify their equipment arrangement capability if they are not capable of performing the identified testing in accordance with all arrangement options. This clarification is applicable to the following test:
      1. ASTM E290: Standard Test Methods for Bend Testing of Material for Ductility (Arrangements A, B, and/or C).

V. Miscellaneous
   a. Fastener tests using an optical comparator, thread gauging, angle and radius and other small parts, do not require environmental controls, as stated in ANSI B1.2.
Document Revision History

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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| 02/22/12   | - Revision of Section II – added title “Requirements for listing SAE Standards on an A2LA Scope of Accreditation”  
- Addition of Section III – “Requirements for listing ASTM Standards on an A2LA Scope of Accreditation”  
- Addition of Section IV – Listing AMS Handbook 11 (Failure Analysis) on Scopes of Accreditation |
| 06/22/12   | - Addition of section IV.b Standard Methods Containing Options for Equipment Set-Up or Arrangement |
| 03/15/13   | - Addition of Section I.c. Strain Gauges and I.d. Variable Thread Gauging Systems  
- Addition of Section V. Miscellaneous |
| 08/26/13   | - Removal of Section I.c. Strain Gauges and renumbering of I.d. Variable Thread Gauging Systems |
| 04/15/15   | - Addition of Sections I.d. Aluminum Conductivity Standards, I.e. Strain Gages  
- Revised title of A2LA P102 |