



Test Monitoring Center

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MEMORANDUM: 16-033

DATE: October 18, 2016

TO: D02.B07 TEOST (D6335, D7097) Mailing List

FROM: Tom Schofield

SUBJECT: D7097 (MTEOS) Technical Update: New TMC Calibration Requirements
Effective November 14, 2016

On October 13, 2016, the ASTM D02.B0.07 TEOST Surveillance Panel voted by teleconference to approve the attached TMC Calibration Requirements which explain the new requirements needed to calibrate a D7097 MHT TEOST instrument with the TMC.

These requirements are effective November 14, 2016.

TMS/tms

Attachment

c: <ftp://ftp.astmtmc.cmu.edu/docs/bench/mteos/memos/mem16-033.pdf>
ftp://ftp.astmtmc.cmu.edu/docs/bench/mteos/procedure_and_ils/MTEOS_TMC_Calibration_Requirements.pdf

Distribution: Email

D7097 (MTEOS) TMC Calibration Requirements
Surveillance Panel Approved Version 20161013

The following are the specific D7097 (MTEOS) TMC calibration test requirements as approved by the ASTM D02.B0.07 TEOST Surveillance Panel by Teleconference vote on 20161013, and effective 20161114.

A. Reference Oils and Critical Parameters

1. The critical pass/fail parameter is Total Deposit Weight, in mg. The reference oils, performance targets and acceptance criteria required for the test stand calibration with the TMC are listed in Table 1 and have been approved by the ASTM D02.B0.07 TEOST Surveillance Panel.

Table 1
D7097 (MTEOS) Reference Oil Targets and Acceptance Bands Effective 20060731

Test	Oil Code	Parameter	n	Mean	sR	Acceptance Bands*	
						95%	
						Lower	Upper
MTEOS by D7097	432	Total Deposit wt. (mg)	30	47.04	4.50	38.2	55.9
	434	Total Deposit wt. (mg)	30	27.37	6.57	14.5	40.2

*95% Acceptance Bands = Mean +/- (1.960 x sR)

B. Acceptance Criteria

1. New Laboratory/Test Stand(s)

- a. The TMC calibration auditing system calibrates individual test stands (instruments) at individual laboratories. There are no special requirements to bring a LAB into TMC calibrated status, there are only requirements to bring individual test stands into TMC calibrated status, as follows:
- b. A minimum of two (2) operationally valid calibration tests which fall within the acceptance bands for the oils assigned are required to calibrate a stand for the first time. These must be back-to-back consecutive runs on the same test stand, though exceptions can be made at the sole discretion of the TMC for operational fails for reasons that would be considered to have had no bearing on the operational performance of the test stand for subsequent tests (for example, a power failure)
- c. Passing two back-to-back consecutive TMC calibrations places the new test stand in TMC calibrated status. Both tests must pass on operational and statistical criteria.
- d. TMC calibrated status of a test stand is valid for no more than 90 days from date completed of a valid TMC calibration (that is, the end of the test's 24-hour oxidation heating cycle. To renew the calibration at the end of the calibration period, see Item 2 for Existing Laboratory/Test Stand(s).

2. Existing Laboratory/Test Stand(s)

- a. An existing TMC calibrated test stand, or one where the TMC calibrated status had expired within the past 90 days, can renew its TMC calibrated status by demonstrating a successful calibration on another single TMC blind calibration audit. The test must pass on both operational and statistical criteria.
- b. TMC calibrated status of an existing test stand is valid for no more than 90 days from date completed of a valid TMC calibration (that is, the end of the test's 24-hour oil oxidation heating cycle. Test stands that exceed these time/run specifications are considered to be out of calibration for TMC monitoring purposes.
- c. A stand that has been out of TMC calibration for more than 90 days from the prior TMC calibration expiration date will require New Test Stand calibration as listed in B.1.b through B.1.d. of this document.
- d. A stand must pass the TMC calibration within two operationally valid test runs. If a stand cannot produce a calibration test that falls into the acceptance bands for the assigned oil within two operationally valid runs, renewing calibration on that stand will require the two test calibration as listed in B.1.b through B.1.d.

3. Tracking and Reporting Stand Runs

- a. Tracking a stands calibration status by run number will be effected by tracking and reporting Instrument ID and Run Number to the TMC. Run Number shall be a consecutive integer count of test starts. Instrument ID and Run Number are separate fields on the approved data dictionary. An example is:
Instrument ID: 1234567
Run Number: 1234
Instrument ID shall be the instrument serial number and shall not change for the entire history of a TMC monitored test stand (instrument ID variations will be allowed for existing instruments that were calibrated prior to the serial number ID requirement).
Run Number shall be increased incrementally by one (1) for each new test start, regardless of whether or not the test runs to completion, or whether or not the run is a TMC calibration attempt.

4. Reference Oil Assignment:

Of the two tests required to bring a new stand into TMC calibrated status, the tests shall be conducted on reference oil 432 and 434, or reblends as approved by the surveillance panel, assigned in random order. Once a stand has attained TMC calibrated status (existing test stand), 100% of the scheduled calibration tests should be conducted on an assigned blind reference oil from the currently accepted set. A preference for assignment shall be as follows:

Oil	% assigned by instrument
432	50%
434	50%



5. Calibration Test Evaluation:

The calibration status of the stands will be based on a review of operational parameters for compliance with the test method, followed by a statistical evaluation of the critical parameter test result against the acceptance ranges in Section A (commonly referred to as a Shewhart severity evaluation). Unless otherwise noted, the acceptance bands in Section A are based on a 95% confidence treatment of round robin test results with data exclusions as approved by the surveillance panel.

6. Removal of Test Stands from the System

The laboratory must notify the TMC when removing a stand from the system. No reference oil data shall be removed from the TMC's data base of prior TMC calibrations or calibration attempts. Return of the stand to the system will be evaluated based on section B.1.b through B.1.d above.

7. Introduction of New or Re-Blended Reference Oils

Introduction of new or replacement reference oils will be conducted at the discretion of the surveillance panel. Participating laboratories may be asked to donate tests on the new oil(s) to establish baseline performance in the D7097 (MTEOS) test. The number of tests requested will be sufficient to rigorously evaluate the oil's performance (typically a minimum of 12 tests total among all the participating labs). Preliminary statistical performance targets and acceptance criteria will be established by the surveillance panel, and those values will be re-assessed as the TMC collects additional calibration data.