A Program of ASTM International

**Test Monitoring Center**

@ Carnegie Mellon University
6555 Penn Avenue, Pittsburgh, PA 15206, USA

http://astmtmc.cmu.edu
412-365-1000

CBT Information Letter 19-1
Sequence No. 13

October 9, 2019

***ASTM consensus has not been obtained on this information letter. An appropriate ASTM ballot will be issued in order to achieve such consensus.***

TO: CBT Mailing List

SUBJECT: Update Coupon Hanger for CBT
Standardization of Test Result Calculation Precision and Reporting

During the September 19, 2019, teleconference held by the Corrosion Bench Test Surveillance Panel, the panel approved a motion to revise the arrangement of the test coupons by adding the stainless steel hanger as is used in the D6594 HTCBT method.

During the same meeting a motion was approved to standardize the calculation and reporting of the copper, lead, and tin concentration results for the test: all measured and calculated copper, lead, and tin concentration results shall be reported in whole number units only (i.e. no decimal places permitted). In addition, the use of the "less than" symbol is no longer permitted in any reported value.

All of these changes are effective for all tests completed on or after October 19, 2019.

Mike Lopez
Chairman
CBT Surveillance Panel

Frank M. Farber
Director
ASTM Test Monitoring Center

Attachment

c: http://www.astmtmc.cmu.edu/ftp/docs/bench/cbt/procedure_and_ils/cbtil19-1.pdf

Distribution: Email

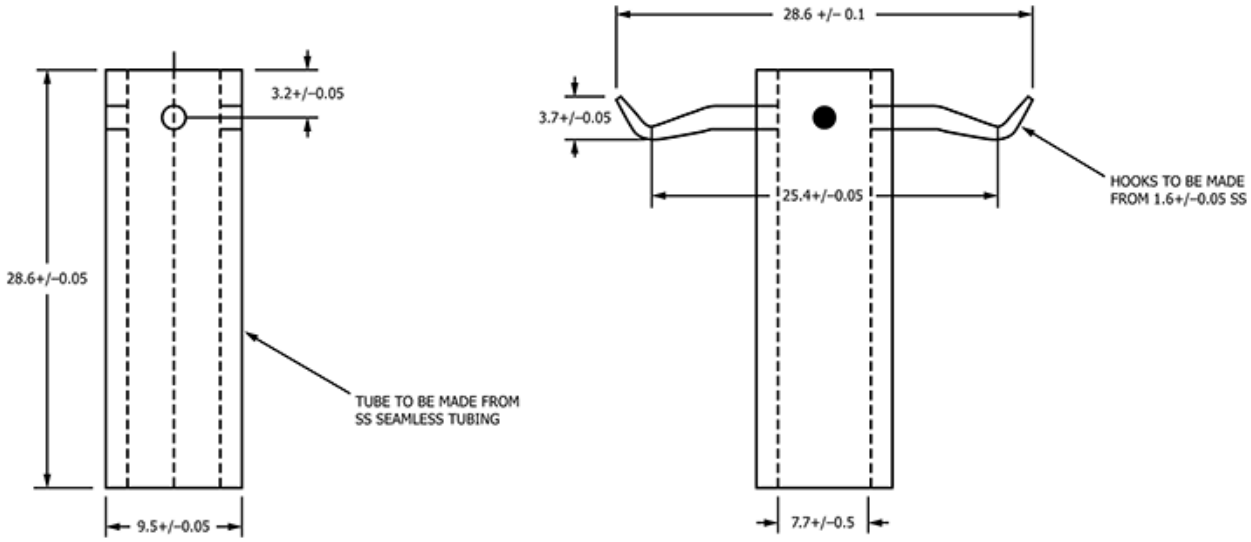
*Replace the text of 5.2.1 with the following:*

5.2.1 *Hanger* (for metal specimens), of stainless steel, having the dimensions listed in Fig. 7

*Delete section 6.3 and renumber sections 6.4 through 6.13 accordingly:*

~~6.3 *Nichrome Wire*, clean (for tying coupons together).~~

*Remove current Figure 7 and replace with new Figure 7*




NOTE 1—All dimensions in mm.

**FIG. 7 Specimen Hanger**

*Delete section 7.4.1 and renumber section 7.4.2 and all subsections accordingly:*

~~7.4.1 Wash a length of the metal tying wire with acetone and allow to dry. (**Warning**—This and the following preparation processes should be performed under a fume hood.)~~

*Delete section 8.1.1, renumber current section 8.1.2 as new section 8.1.1, and add new sections 8.1.2 through 8.1.4:*

~~8.1.1 Insert the tied coupons in the test tube, positioning the squares vertically (so that the air tube can be inserted to touch the bottom of the test tube).~~

~~8.1.2~~ 8.1.1 Add 100 mL ± 1 mL of oil to the test tube.

8.1.2 Place the specimen hanger onto the air tube, and hang test specimens on their respective hooks.

8.1.2.1 Arrange the specimens on the hanger in the sequence: lead, copper, tin, and phosphor bronze.

8.1.3 Insert the air tube with the attached specimens into the sample tube so that the air tube rests on the bottom of the sample tube.

8.1.4 Place the sample tube head on the sample tube.

*Delete current section 8.1.5, renumber current sections 8.1.3 and 8.1.4 as sections 8.1.5 and 8.1.6, respectively:*

~~8.1.3~~ 8.1.5 Assemble the test tube and condenser and mount the assembly so that the test tube is submerged 23 cm to 35 cm in the bath with the test oil temperature set at 121 °C ± 0.5 °C.

~~8.1.4~~ 8.1.6 Start the flow of cooling water through the condenser jacket.

~~8.1.5 Insert the air tube (orifice-end down) through the condenser and into the oil sample and support it so that its orifice is within 0.3 cm of the bottom of the tubes.~~

*Replace the text of 8.6.1 with the following:*

8.6.1 Immediately after calibration of the ICP-AES instrument (as specified in Test Method D5185), use Test Method D5185 to determine, in duplicate, the ~~concentration~~ mass fraction of copper, lead, and tin in both the new and used oil, with the exception that all mass fraction values are to be recorded in whole numbers. No decimal results shall be recorded.

10.2 *Change in Metal ~~Concentration~~ Mass Fraction in the Used Oil:*

$$C = C_2 - C_1 \qquad (2)$$

where:

$C$ = change in metal ~~concentration~~ mass fraction before and after test,

$C_1$ = average of the duplicate measurement of metal ~~concentration~~ mass fraction in new oil, and

$C_2$ = average of the duplicate measurement of metal ~~concentration~~ mass fraction in used oil.

*Add new sections 10.2.1 and 10.2.2, renumber current section 10.2.1 as 10.2.3, and add new section 10.2.4:*

10.2.1 Any measured mass fraction results that round to zero shall be reported as zero.

10.2.2 Round all measurements of metal mass fraction to the nearest whole number.

~~10.2.1~~ 10.2.3 *Correction Factor*—Apply a correction factor of 0.276 to the lead coupon batches designated by the Central Parts Distributor (CPD) with a serial number ending in "-A" or "–Cx" (where x denotes a number designating the coupon batch cut). Multiply non-reference test results for change in lead ($C$ in 10.2) by this correction factor as follows:

$$C_{\text{Lead Corrected}} = C_{\text{Lead}} \times 0.276 \qquad (3)$$

where:

$C_{\text{Lead Corrected}}$ = corrected change in lead ~~concentration~~ mass fraction, mg/kg, and

$C_{\text{Lead}}$ = change in lead ~~concentration~~ mass fraction, before and after test, mg/kg, as determined in 10.2.

10.2.4 Report the corrected change in lead mass fraction to the nearest whole number

*Revise section 11.2 as shown below:*

11.2 Report ~~concentrations~~ mass fractions of copper, lead, and tin in oil before and after adjustment based on the internal standard, and the difference ($C$ in 10.2). Report metal mass fractions, and differences, to the nearest whole number.

11.2.1 Report the corrected change in lead ~~concentration~~ mass fraction ($C_{\text{Lead Corrected}}$ in 10.2.1), and the applied correction factor (0.276), for non-reference oils. Report the corrected change in lead mass fractions to the nearest whole number.

11.2.2 The "less than" symbol shall not be used when reporting any mass fraction result.

11.2.3 Decimal values for the metal mass fraction results are shown in the data dictionary for reporting of results completed prior to October 19, 2019. All results after this date shall be reported in whole numbers only.