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Committee D31 on Leather
Subcommittee D31.02 on Wet Blue

Research Report: D31-1023

Interlaboratory Study to Establish Precision Statements for ASTM D7967-16, Test Method For Analysis of Chrome Content (as Cr2O2) in Wet Blue Using Atomic Absorption

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1. Introduction:

Interlaboratory Study 953 was conducted to establish a precision statement for D7967, Test Method For Analysis of Chrome Content (as Cr2O2) in Wet Blue Using Atomic Absorption.

2. Test Method:

The Test Method used for this ILS is D7967-16. To obtain a copy of Analysis of Chrome Content (as Cr_20_3) in Wet Blue using Atomic Absorption, go to ASTM's website, www.astm.org, or contact ASTM Customer Service by phone at 610-832-9585 (8:30 a.m. - 4:30 p.m. Eastern U.S. Standard Time, Monday through Friday) or by email at service@astm.org.

3. Participating Laboratories:

The following laboratories participated in this interlaboratory study:

S.B Foot Tanning Co. (2 operators)
805 Bench Street
Red Wing, MN 55066-9504
Lori Hyllengren
Lori.Hyllengren@REDWINGSHOES.COM

Leather Research Laboratory (2 operators)
5997 Center Hill Avenue
Cincinnati, OH 45224
Kadir Donmez
donmezk@uc.edu

USDA-ARS-ERRC (2 operators)
600 E. Mermaid LN
Wyndmoor, PA 18974
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4. **Description of Samples:**

There was 1 composite sample used for this study. Each sample was prepared and distributed by Lori Hyllengren of S.B. Foot Tanning Company. Below is a list of the samples with the corresponding supplier:

Wet Blue
Provided by S.B. Foot Tanning Company

5. **Interlaboratory Study Instructions**

Laboratory participants were emailed the test program instructions. For a copy of the instructions, please see Annex A.

6. Description of Equipment/Apparatus[1]:
For information on the equipment/apparatus used by each laboratory, please see Annex B.

7. Data Report Forms:
Each laboratory was provided with a data report form for the collection of data. A copy of the data is provided in Annex C.

Please note: The laboratories have been randomly coded and cannot be identified herein.

8. Statistical Data Summary:
A summary of the statistics calculated from the data returned by the participating laboratories is provided in Annex D.

9. Precision and Bias Statement:

9.1 The precision of this test method is based on an interlaboratory study of ASTM D7967, New Standard Test Method for Analysis of Chrome Content (as Cr_2O_3) in Wet Blue Using Atomic Absorption, conducted in 2011. A total of three laboratories participated in this study, with each supplying two different operators, each operator tested a single wet blue material both as received/cubed and dried ground. Every "test result" reported represents an individual determination, and as an average, and all participants were asked to report duplicate test results. Practice E691 was followed for the design and analysis of the data; the details are given in ASTM Research Report No. D31-1023.[i]

9.1.1.1 Repeatability can be interpreted as maximum difference between two results, obtained under repeatability conditions, that is accepted as plausible due to random causes under normal and correct operation of the test method.

9.1.1.2 Repeatability limits are listed in Table 1 below.

9.1.2 Reproducibility (R) - The difference between two single and independent results obtained by different operators applying the same test method in different laboratories using different apparatus on identical test material would, in the long run, in the normal and correct operation of the test method, exceed the following values only in one case in 20.

9.1.2.1 Reproducibility can be interpreted as maximum difference between two results, obtained under reproducibility conditions, that is accepted as plausible due to random causes under normal and correct operation of the test method.

9.1.2.2 Reproducibility limits are listed in Tables 1 and 2 below.

[1] The equipment listed was used to develop a precision statement for D7967-16. This listing is not an endorsement or certification by ASTM International.