2018 SPONGE & CHAMOIS INSTITUTE (SCI)/NIST OWM CHAMOIS AREA TEST PROCEDURE INTERCOMPARISON

	SCI MEASURED AREA & LABELED AREA (1-5)					AUDIT TEST PROCEDURE (6 - 10)					REVISED GRAVIMETRIC TEST PROCEDURE (11 - 15)				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Chamois Test Sample	Measured Area in Square Inches by SCI using Electronic Area Measuring Device	Labeled Area in Square Feet	Labeled Area in Square Inches	Difference (Labeled Area and Measured Area) in Square Inches	Difference (Labeled Area and Measured Area) in Percent (%)	Measured Area Using "Audit" Procedure (using graph paper - no ironing) in Square Inches	Difference (Audit and Measured Area) in Square Inches	Difference (Audit and Measured Area) in Percent (%)	Difference (Audit and the Labeled Area) in Square Inches	Difference (Audit and the Labeled Area in Percent) (HB 133 difference cannot be on average more than -3 % of the labeled area)	Measured Area Using "Revised Gravimetric Test Procedure" (drawing paper) in Square Inches	Difference (Gravimetric Procedure and Measured Area) in Square Inches	Difference (Gravimetric Procedure and Measured Area) in Percent (%)	Difference (Gravimetric Procedure and Labeled Area) in Square Inches	Difference (Gravimetric Procedure and Labeled Area) in Percent (%)
1	360	2.5	360	0	0.00	354.2	-5.80	-1.64	-5.8	-1.61	357.2	-2.8	-0.8	-2.8	-0.8
2	362	2.5	360	2	0.55	361.4	-0.60	-0.17	1.4	0.39	363.5	1.5	0.4	3.5	1.0
3	392	2.5	360	32	8.16	393.7	1.70	0.43	33.7	9.36	402.2	10.2	2.5	42.2	11.7
4	601	4	576	25	4.16	607.3	6.30	1.04	31.3	5.43	613.5	12.5	2.0	37.5	6.5
5	594	4	576	18	3.03	598.0	4.00	0.67	22.0	3.82	599.9	5.9	1.0	23.9	4.1
6	589	4	576	13	2.21	591.6	2.60	0.44	15.6	2.71	591.0	2.0	0.3	15.0	2.6
7	872	6	864	8	0.92	868.1	-3.90	-0.45	4.1	0.47	882.1	10.1	1.1	18.1	2.1
8	868	6	864	4	0.46	861.4	-6.60	-0.77	-2.6	-0.30	865.4	-2.6	-0.3	1.4	0.2
9	894	6	864	30	3.36	893.6	-0.40	-0.04	29.6	3.43	895.6	1.6	0.2	31.6	3.7

The NIST Office of Weights and Measures (OWM) and the Sponge and Chamois Institute (SCI) collaborated to review the current NIST Handbook (HB) 133 Section 4.8. "Procedure for Checking the Area Measurement of Chamois." OWM and SCI developed recommended amendments to the NIST HB133 test procedure which include changes to the graph paper (from 1inch grid to ¼ inch grid), providing more detailed measurement procedures used for the audit test. The proposed changes also included a suggested temperature range for the iron which is used to smooth wrinkles on the test samples and elimination of the re-hydration protocol used when the gravimetric procedure is performed for enforcement purposes.

Once the revised test procedure was developed a study was conducted by OWM and SCI. The purpose of the study was to evaluate the accuracy of the audit and gravimetric test procedures in NIAT HB133 Section 4.8. The study compared nine chamois (i.e., the samples were varied in three different size "classifications" (i.e., 2.5 ft², 4 ft² and 6 ft²). The samples went through normal processing steps at the plant and were measured on an electronic photocell leather area measuring device. The results confirmed the audit test can provide measurement results within the 3 % criteria specified in Section 4.8. It also confirmed that it is no longer necessary to perform the sample conditioning (i.e., re-hydration in a laboratory environment) of the chamois prior to performing the gravimetric test. This will enable officials to perform both test procedures in the field instead of the current prescribed test procedure that requires the samples to be re-hydrated in a laboratory setting for 24 hours prior to being measured. Due to the irregular shapes, shrinkage, wrinkling and other factors chamois processors typically "understate" the labeled area (e.g., a chamois measuring between 576 sq. in. [4 sq. ft.] and 611 sq. in. [4.24 sq. ft.] is "classified" and labeled as 4 square feet). This was a primary reason to study and compare the test procedure findings to both the measured area and labeled area.

The study also confirmed that the 3 % criteria used to identify potentially short measure chamois is reasonable and should not be mistaken for a tolerance. It was established when the original test procedure was added to NIST HB 133. This allows for the audit test procedure to be a field screening method and it allows the official to avoid placing a potentially short measure sample of chamois on hold pending the results of the laboratory test which involved the re-hydration of the chamois. If the 3 % limit is not exceeded the inspector is not required to repeat the test using the gravimetric test procedure ironing the chamois and weighing the special paper using the higher accuracy weighing device by recognizing the uncertainty that occurs when measuring an irregularly shaped product using the methods described in the audit procedure. The source of the uncertainty comes from several factors including: the natural wrinkling, shrinkage, and irregular shape of chamois (the size, trimming, and other cut of the chamois impacts the amount of wrinkling that occurs); the necessity of taping graph paper together to have an area large enough to trace a chamois (e.g., an area of 6 sq. ft. or more); variations that occur in tracing the outline of a chamois using a marking pen; and errors that occur in counting squares; and, the rounding required when the tracing line only covers a portion of a square (note: the recommended grid size was reduced from 1-inch squares to ¼ inch squares).

If a chamois is found to have a minus error greater than 3 % there is more confidence that the chamois is shortmeasure due to mislabeling or a measurement inaccuracy. The official should then utilize the gravimetric test procedure to confirm that the area declaration on the package label is overstated.

NOTE: The Sponge and Chamois Institute was represented by Stephen Heller, Director of Operations at the Hopkins Manufacturing Corporation 855 Pine Street, Tarpon Springs, Florida 34689. Mr. Heller may be contacted by telephone at 620-591-8230 or by email at Stephen.Heller@hopkinsmfg.com .