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**1 October 2018**

**Committee F08 on Sports Equipment, Playing Surfaces, and Facilities  
Subcommittee F08.22 on Camping Softgoods**

**Research Report: F08-1015**

**Interlaboratory Study to Establish Precision Statements for ASTM  
F3340, Test Method for Measuring Thermal Resistance of Camping  
Mattresses Using a Guarded Hot Plate Apparatus**

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RR: [RR # – ASTM to assign]

1. **Introduction:**

An interlaboratory Study 1400 was conducted in 2017 and 2018 to establish a precision statement for ASTM F3340-18, Test Method for Measuring Thermal Resistance of Camping Mattresses Using Guarded Hotplate Apparatus.

2. **Test Method:**

The Test Method used for this ILS is ASTM F3340-18. To obtain a copy of F3340, go to ASTM's website, [www.astm.org](http://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](mailto:service@astm.org).

3. **Participating Laboratories:**

The following laboratories participated in this interlaboratory study:

**Mountain Equipment Coop, John Shen**

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Canada

**SGS Hong Kong Ltd., HingLeung Chan**

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Seattle, WA 98199  
USA

**Note:** There are no more than three test apparatus meeting the requirements of the standard at present time. Thus, ILS recommendation of minimum six participating labs was not met. However, the three-lab data were very consistent and informative. The WK59903 task committee believe that it is worth to publish to provide comprehensive precision profile.

4. **Description of Samples:**

Six samples with various targeted results were used for this study. Each sample was prepared and distributed by John Xiaolan Shen of Mountain Equipment Coop. Below is the list of the samples and the corresponding suppliers:

1. Air-filled only, 75mm  
Provided by Mountain Equipment Coop.

2. Air-filled with polyester nonwoven insulation, 75 mm.  
Provided by Mountain Equipment Coop.
3. Self-inflating open cell foam with horizontal coring, 100 mm.  
Provided by Exped.
4. Air-filled with polyester nonwoven insulation, 127 mm.  
Provided by Exped.
5. Self-inflating open cell foam, 100 mm.  
Provided by Cascade Design.
6. Air-filled with reflective material, 65 mm.  
Provided by Cascade Design.

**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<sup>1</sup>:**

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 F3340-18, Test Method for Measuring Thermal Resistance of Camping Mattresses Using Guarded Hotplate Apparatus conducted in 2017. Each of three laboratories tested six different mattresses, which covered various mattress constructions and thermal insulation values. Every “test result” represents an individual determination, and all participants reported triplicate test results.

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<sup>1</sup> The equipment listed was used to develop a precision statement for ASTM F3340-18. This listing is not an endorsement or certification by ASTM International.

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