



September 1, 2023

TRANSMITTED VIA EMAIL

Mike Leshner
ASTM F15.19 Re-breathing Task Group Chair
ASTM International
100 Barr Harbor Drive
West Conshohocken, PA 19428

Dear Mr. Leshner,

U.S. Consumer Product Safety Commission (CPSC) staff¹ submits the following comments on work item WK84613 – Standard Test Method for Firmness of Infant Bedding.

Introduction

The introduction to the test method should be specific when describing the incidents and hazards that are addressed, and the test method does not directly address airflow or carbon dioxide rebreathing. To align the introduction with what is actually being tested, staff recommends the following changes:

This Standard Test Method addresses ~~potential respiratory hazards-incidents~~ associated with infant bedding identified by the U.S. Consumer Product Safety Commission (CPSC). In response to incident data compiled by the CPSC, this test method should be useful in attempting to minimize the following respiratory hazards: positional asphyxiation ~~or suffocation~~ ~~from airflow resistance,~~ ~~suffocation from rebreathing.~~

7.0 Test Specimens

Section 7.2 appears to be inconsistent with section 9.2. Section 7.2 says to “avoid sampling at the edges” if the specimen is smaller than 8 x 8 inches, implying a 4-inch minimum distance to the edge, while section 9.2 says the test locations shall be “located at least three inches away from any edge or obstruction.” Staff recommends the following change:

¹ The views expressed in this letter are those of CPSC staff, and they have not been reviewed or approved by, and may not necessarily reflect the views of, the Commission.

7.2 The dimensions of the specimen ~~should~~shall be at least 8 inches (200 mm) in length and width, if possible. Report any deviations from the minimum size. ~~If the specimen is smaller than 8 x 8 inches, a~~Avoid sampling ~~at within 3 inches (76.2 mm)~~ of the edges, if possible.

In section 7.3, after “specimen,” staff recommends a change of “should” to “shall.”

8.0 Calibration and Standardization

Section 8.3 states to check calibration of distance measurement at [0]² and 1 inch, but section 6.4 specifies a range of 3 inches. Staff recommends that the calibration be checked at 0 and 1 inch, and at additional 1 inch increments up to a total of 3 inches as necessary, based on the expected range of the test.

9.0 Procedure

In section 9.2, change “items” to “specimens.”

In section 9.6, a “stable” force should be defined. Consider using the stated minimum resolution of the force gauge: for example, the force is stable when it changes less than 0.1 N³ in 30 seconds.

In section 9.6.1, does the 5 minute recovery time apply to the three repeat measurements at the same test location (which will certainly be closer than 3 inches apart), as well as to separate test locations? Based on the expected materials of test specimens, frequent repeated measurements at the same test location can affect test results. Staff recommends the following change:

9.6.1 Perform three repeat measurements at each of three test locations (Nine measurements). ~~If the test locations must be closer than three inches apart, allow five minutes for the material to recover between tests~~ Allow five minutes between all measurements within 3 inches (76.2 mm), including repeated measurements at a test location, for the material to recover.

For section 9.7, some products may have a thin, soft layer over a firm layer and will “bottom out” (*i.e.*, have an increase in force greater than 120% of the previous measurement) before the range of interest is reached. Staff recommends that further clarification of the phrase “bottom out” may be helpful. For example:

9.7 Record the force and distance at each incremental step. Stop the test when the probe “bottoms out” ~~by measuring the firmness of the test surface.~~; This is

² Editorial: check use of numerals throughout the document when specifying a measurement; for example, 0 for “zero,” 3 for “three.”

³ Editorial: the test method should use a consistent measurement system (pounds-inches, N-mm, etc.). For instance, the resolution should be specified in pounds (Newtons), for consistency with rest of the document.

typically indicated in soft or thin materials by an increase in force greater than 120 % of the previous measurement.

Staff appreciates the work of the task group towards improving the safety of infant and juvenile products, and better understanding the hazards associated with such products. If you have any questions, you may contact me at: dtaxier@cpsc.gov, or (301) 987-2211.

Sincerely,

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Children's Program Manager
Directorate for Engineering Sciences

cc: Molly Lynyak, ASTM F15 Staff Manager
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