



PIA-TEST METHOD-6010C

25 November 2013

Superseding

PIA-TEST METHOD-6010B

15 September 2007

The following commercial specification is adopted from the military document. Revision A included all known accepted revisions, amendments, notices, and Department of Defense (DoD) engineering changes previously developed for this item. Revisions B and forward include changes adopted to reflect technology and design evolution.

SHRINKAGE OF CORDAGE, BOILING WATER METHOD; DETERMINATION OF

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1. SCOPE

1.1 Scope. This method is intended for determining the residual shrinkage of cordage.

2. TEST SPECIMEN

2.1 Test Specimen. The specimen shall be a single length of 24 inches (610 mm) cut from the sample unit.

3. NUMBER OF DETERMINATIONS

3.1 Number of determinations. Unless otherwise specified in the procurement document three determinations shall be made from each sample unit.

4. APPARATUS

4.1 Container. A container of suitable size so that the required specimens can be completely immersed in water when being tested.

4.2 Weights. Weights of suitable size that will cause the specimen to be completely submerged.

4.3 Measurement stick or metal tape. Yardstick, meterstick, metal tape or other suitable measuring device graduated in increments of 1/16 inch (1 mm).

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4.4 Marking medium. Pen marker containing water-insoluble ink.

4.5 Whipping twine or tape.

4.6 Oven. Circulating-air oven capable of maintaining the required temperature within $\pm 4^{\circ}\text{F}$ ($\pm 2^{\circ}\text{C}$).

5 PROCEDURE

5.1.1 Unless otherwise specified in the procurement document, the specimens shall be brought to equilibrium under Standard Atmospheric Conditions in accordance with ASTM D 1776 Standard Practice for Conditioning and Testing Textiles.

5.2 The cord shall be securely whipped or taped at proper intervals prior to cutting to permit the removal of 24 inch (610 mm) specimens without raveling or fraying the ends.

5.3 The specimen shall be laid out on a flat surface and straightened out, so that there are no twists or turns, and an 18- inch (457 mm) length shall be marked off on the specimen a minimum of 2 inches (51 mm) from either end. It shall be marked with water-insoluble ink or other suitable marking medium.

5.4 The weights shall be attached to the specimen and the whole assembly immersed in boiling water for 15 minutes.

5.5 At the end of the immersion period, the specimen shall be air-dried for at least 4 hours or dried in a circulating air oven at a temperature of 185°F (85°C) for 1/2 hour.

5.6 After drying, the specimen shall be returned to equilibrium under Standard Atmospheric Conditions in accordance with ASTM D 1776 Standard Practice for Conditioning and Testing Textiles, and the distance between the marks measured for change in length to the nearest 1/16 inch (1 mm).

5.7 Calculations.

5.7.1 The calculation for the percent residual shrinkage shall be made as follows:

$$\text{Residual shrinkage, percent} = \frac{18 \text{ inches (457mm)} - E}{18 \text{ inches (457 mm)}} \times 100$$

Where: E = measurement between marks after immersion in boiling water and return to equilibrium.

6. REPORT

6.1 The residual shrinkage shall be the average of 3 determinations, calculated to the nearest 0.5 percent.