

§ 164.023-7

46 CFR Ch. I (10-1-06 Edition)

§ 164.023-7 Performance; non-standard thread.

(a) *Use Codes 1, 2, 3, 4BC, 4RB, 5 (any).* Each non-standard thread which meets all of the requirements of paragraphs (a)(1) through (a)(3) of this section is assigned Use Codes 1, 2, 3, 4BC, 4RB, and 5 (any).

(1) *Single strand breaking strength.* The thread, as received, must have a single strand breaking strength of not less than 25 N (5.7 lb.), when tested in accordance with Test Method 4100 in Federal Test Method Standard No. 191A using a Constant-Rate-of-Traverse (CRT) testing machine.

(2) *Single strand breaking strength (after weathering).* After exposure in a sunshine carbon-arc weatherometer in accordance with Test Method 5804 in Federal Test Method Standard No. 191A for a period of 100 hours, the thread must retain at least 60 percent of its single strand breaking strength as received, and have a breaking strength of at least 21 N (4.7 lb.).

(3) *Loop breaking strength.* The thread, as received, must have a loop breaking strength of not less than 45 N (10.0 lb.), when tested in accordance with Test Method 4100 in Federal Test Method Standard No. 191A using a CRT testing machine, except that—

(i) Each specimen must consist of two 35 cm (14 in.) pieces of thread; and

(ii) Both ends of one piece of thread must be secured without twisting in one clamp of the testing machine so that the length of the loop formed equals one half the distance between the clamps. One end of the second piece must then be passed without twisting through the loop formed by the first, and both ends must be secured in the other clamp of the machine. The breaking strength must then be determined under the single strand test.

(b) *Use Code 4B.* Each non-standard thread which meets all of the requirements of paragraphs (b)(1) and (b)(2) of this section is assigned Use Code 4B.

(1) *Single strand breaking strength.* The thread as received must have a single strand breaking strength of not less than 160 N (36.0 lb.) when tested in accordance with Test Method 4100 in Federal Test Method Standard No. 191A using a CRT testing machine.

(2) *Single strand breaking strength (after weathering).* After exposure in a sunshine carbon-arc weatherometer in accordance with Test Method 5804 in Federal Test Method Standard No. 191A for a period of 100 hours, the thread must retain at least 60 percent of its single strand breaking strength.

(c) *Prohibited threads.* Cotton thread, and monofilament thread of any composition, will not be accepted for use in structural applications unless demonstrated to the Commandant to be equivalent to standard thread in durability in all foreseeable conditions of use and stowage.

§ 164.023-9 Samples submitted for acceptance.

Application samples. A product sample submitted for acceptance as required by § 164.019-7(c)(4) must consist of at least one unit of put-up of thread.

§ 164.023-11 Acceptance tests.

(a) *Performance testing.* Manufacturers shall ensure that the performance tests described in § 164.023-7 (a) or (b), as appropriate, are performed on a minimum of five samples in each of the lightest and darkest colors submitted for acceptance.

(b) *Identification testing.* Manufacturers shall ensure that the following identification tests are conducted:

(1) The average length/weight ratio of the thread in meters per kilogram (yards per pound) must be determined in accordance with Test Method 4010 in Federal Test Method Standard 191A.

(2) The generic chemical composition of the thread must be determined by qualitative infrared analysis, thermogravimetric analysis, differential scanning calorimeter, or other equivalent means adequate to conclusively identify the composition of the product tested.

(3) Elongation at break must be determined on the same samples tested for single strand breaking test in accordance with § 164.023-7(a)(1) or (b)(1), as appropriate.

§ 164.023-13 Production tests and inspections.

(a) *Manufacturer's test equipment and facilities.* The manufacturer shall provide the following test equipment and

facilities for use in production tests and inspections:

(1) A Constant Rate of Traverse tensile testing machine, capable of initial clamp separation of ten inches and a rate of separation of 30 cm (12 in.) per minute.

(2) Fletcher, Callaway, U.S. Rubber clamps, or equivalent cam-actuated clamps to prevent slippage and twist of the samples.

(3) An analytical balance or grain-yarn scale, accurate to within 0.25 percent of the measured value.

(b) *Lot size.* Lot size must not exceed 460,000 meters (500,000 yds.) or 45 kg (100 lb.) of any color.

(c) *Sample selection.* Samples must be selected at random by the manufacturer (or inspector, as applicable) after the entire lot of thread has been completed.

(d) *Second sampling.* A second sampling, where required, must consist of five times the original sample size.

(e) *Manufacturer's production tests.* The component manufacturer shall perform the following tests on the samples indicated (each sample to include at least 5 specimens unless otherwise specified in the referenced test procedure) on each lot of thread:

(1) *Breaking strength.* One sample must be tested in accordance with § 164.023-7(a)(1) or § 164.023-7(b)(1), as applicable.

(2) *Length/weight ratio.* One sample must be tested in accordance with § 164.023-11(b)(1).

(f) *Recognized laboratory production tests.* Manufacturers shall ensure that the following tests and inspections are performed on non-standard components by a recognized laboratory:

(1) *Composition.* At least annually, one sample of each accepted thread must be tested in accordance with § 164.023-11(b)(2).

(2) *Breaking strength.* At least quarterly, one sample in each of the lightest and darkest colors accepted must be tested in accordance with § 164.023-7(a)(1) or § 164.023-7(b)(1), as applicable. This test may be performed by a recognized laboratory, or witnessed by a recognized laboratory inspector at the manufacturer's plant, at the laboratory's discretion.

(3) *Elongation.* At least annually, one sample of each accepted thread in each of the lightest and darkest colors accepted must be tested in accordance with § 164.023-11(b)(3). This test may be performed by a recognized laboratory, or witnessed by a recognized laboratory inspector at the manufacturer's plant, at the laboratory's discretion.

(g) *Accept/reject criteria.* Unless the alternate procedures as permitted by § 164.019-013(m) are followed, the results of required production testing on a lot must meet the following criteria for the lot to be shipped as Coast Guard-accepted thread:

(1) Breaking strength test results must be within 10 percent below and 20 percent above the acceptance testing values but not less than the performance minimums.

(2) Length/weight values must be within 5 percent of the acceptance testing values but not less than the performance minimums.

(3) Elongation values must be within 20 percent of the acceptance testing values but not less than the performance minimums.

(4) Composition testing must indicate that the sample tested is of identical composition to the sample tested for acceptance or in accordance with the performance specification.

§ 164.023-15 Marking.

(a) *General.* The manufacturer must ensure that each shipping label, and each spool or individual unit of put-up, is permanently and clearly marked in a color which contrasts with the color of the surface on which the marking is applied. Each label must be marked with—

(1) The manufacturer's or supplier's name, trade name, or symbol;

(2) The unique style, part, or model number of the thread;

(3) The size of the thread;

(4) The composition of the thread; and

(5) The lot number of the thread.

(b) *Non-standard thread.* In addition to the markings specified in paragraph (a) of this section, each unit of put-up of non-standard thread must be marked with the appropriate recognized laboratory's certification marking(s).