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SPECIFICATION FOR COTTON EMBROIDERY THREADS

BUREAU OF CEYLON STANDARDS

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Gr. 4

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Sri Lanka.

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FOREWORD

This Sri Lanka Standard specification has been prepared by the Drafting Committee of the Bureau on Embroidery Threads. It was approved by the Textiles Divisional Committee of the Bureau of Ceylon Standards and was authorized for adoption and publication by the Council of the Bureau on 1979-08-03.

All standard values given in this standard specification are in SI units.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final values observed or calculated, expressing the result of a test or observation shall be rounded off in accordance with CS 102. The number of figures to be retained on the rounded off value shall be the same as that of the specified value in this standard.

This standard makes reference to the following standards:

CS 16 Standard atmospheres for conditioning and testing textiles.

CS 20 Method for determination of the size of yarns.

CS 22 Method for the determination of breaking load and extension of yarns from packages.

CS 23 Twist in yarn in package form.

CS 55 Method for the determination of colour fastness of textile materials to washing at 95 °C for 30 minutes (Test 4).

CS 62 Method for the determination of colour fastness of textile materials to daylight.

CS 67 Method for the determination of colour fastness of textile materials to perspiration.

CS 102 Presentation of numerical values.

SLS 288 Method for determining the fluidity of cotton, rayon and cellulose acetate in cuprammonium hydroxide solution.

In the preparation of this standard assistance obtained from the publications of the Indian Standards Institution is acknowledged.

1 SCOPE

This standard deals with constructional details and other particulars of cotton embroidery threads, unbleached, bleached or dyed.

2 DEFINITION

embroidery thread: A slack twist, mercerized cotton yarn made in a variety of sizes and plies.

TABLE 1 - Particulars of cotton embroidery thread

Variety No. (1)	Linear density in tex (2)	Length in m/kg min. (3)	Single thread breaking load on 500 mm test length in newtons, min. (4)
1	60 tex X 2	8000	30.5
2	50 tex X 2	10000	25.5
3	42 tex X 2	11200	19.5
4	16 tex X 2	30000	5.2
5	14 tex X 2	35000	5.0
6	12 tex X 2	41600	4.8
7	9.8 tex X 2	50000	4.2
Tolerance	± 5%	-	-
Method of Test	CS 20	Appendix A	CS 22

3 GENERAL REQUIREMENTS

3.1 Yarn

The yarn used in the manufacture of embroidery thread shall be evenly spun from suitable Egyptian or equivalent cotton and shall be combed for counts finer than 16 tex.

3.2 Thread

3.2.1 The thread shall be of reasonably uniform thickness throughout and the turns per metre of the thread shall be so adjusted as to produce a balanced twist thread.

3.2.2 The thread shall be finished soft and mercerized and shall be free from dressing and finishing materials liable to cause tendering after a lapse of time.

3.2.3 The thread shall be reasonably free from defects such as slubs, knots, kinks, projections, broken or loose ends and other manufacturing imperfections which affect its appearance or serviceability.

3.2.4 The thread shall perform satisfactorily on all appropriate types of hand and power driven sewing machines.

4 SPECIFIC REQUIREMENTS

4.1 The embroidery thread shall comply with the requirements of Table 1.

4.2 Twist balance

A maximum of 5 turns as re-twist or double on account of kink shall be permissible in the loop when the two ends of the thread gripped by hand at an approximate distance of 1.5 m are brought together.

4.3 Colour fastness

The dyed threads which are declared as *fast colour* shall conform to the requirements specified in Table 2 when tested by the methods referred to in Column 4 of the table.

TABLE 2 - Colour fastness requirements

Serial No. (1)	Agency (2)	Numerical rating (3)	Method of test (4)
1	Day light	5 or better	CS 62
2	Washing	4 or better	CS 55
3	Perspiration	5 or better	CS 67

4.4 Cuprammonium fluidity

The cuprammonium fluidity of embroidery thread shall not be more than 8 poise. The fluidity shall be determined by the method prescribed in SLS 288.

4.5 Length

The length of the embroidery thread in a tube, spool, reel, skein or cone shall be not less than 98 per cent of the length marked on its label. The length of embroidery thread shall be determined using a wrap reel with tensioning device as specified in Appendix A.

4.6 Direction of twist

Unless otherwise agreed, the direction of twist in single and double yarns shall be at the discretion of the manufacturer.

5 PACKAGING

5.1 The embroidery thread shall be uniformly and completely wound in the form of balls, tubes, reels, cones, skeins, spools or in any other form as required. In all cases the free end of the thread shall be securely fastened to prevent unravelling.

5.2 The construction and finish of cones, reels, cops and tubes shall be such that they shall not impede the smooth and even unwinding of the thread on the machine.

6 MARKING

Each tube, reel, ball, cone, skein, spool etc., of embroidery thread shall be marked preferably on a label, with the following information :

a) Type of material (cotton) and finish;

b) Count of thread or ticket number;

c) Length of thread in a unit package;

d) *Fast colour* if declared;

e) Manufacturer's name, initials and/or trade mark (if any); and

f) Number of ply.

7 SAMPLING

7.1 lot: The quantity of embroidery thread of the same variety delivered to a buyer against a despatch note shall constitute the lot.

7.2 The conformity of the lot to the requirements of this standard shall be determined on the basis of tests carried out on the samples selected from the lot.

7.3 Unless otherwise agreed to between the buyer and the seller, the number of packs to be selected at random from a lot shall be as follows :

Number of packs in the lot	Number of packs to be selected
Up to 15	5
16 to 30	7
31 to 50	10
51 to 100	15
101 to 300	25
301 and above	30

7.4 One ball, tube, reel, cone, skein or spool shall be selected at random from each of the packs selected according to **7.3**. The tube or reel thus selected shall constitute the test sample for determining,

a) length in metres per kg;

b) breaking load;

c) balance of twist; and

d) length per tube or reel (subject to minimum of 20 tubes or reels).

For testing colour fastness and cuprammonium fluidity, two specimens of the required size for a lot size of 30 packs or less, and 3 specimens for a lot size of more than 30 packs shall be taken from the tubes drawn in accordance with 7.3 and tested accordingly. In the case of lot sizes less than 100 packs, additional samples to make up 20 tubes or reels required for determination of length per tube or reel shall be selected by taking equal numbers of tubes or reels as far as possible from each of the selected packs.

7.5 Criteria for conformity

The lot shall be declared as conforming to the requirements of this standard, if the following conditions are satisfied:

a) From the test results for length in m/kg and breaking load, the average $\bar{x}$ and the range R shall be calculated, and the value of the expression $\bar{x} - 0.4R$ is greater than or equal to the relevant value specified. When the number of test results is 10 or more, $\bar{R}$ shall be used in place of R,

NOTES

1 Average $\bar{x}$ is the value obtained by dividing the sum of the observed values by the number of tests.

2 Range R is the difference between the maximum and the minimum in a set of observed values.

3 When the number of test results is 10 or more they shall be grouped in groups of five, the mean range $\bar{R}$ is the value obtained by taking the average of the range of the groups.

b) All the test specimens examined for balance of twist, colour fastness and cuprammonium fluidity satisfy the relevant requirements; and

c) The average of the length measurements is not less than 98 per cent of the marked length.

APPENDIX A

METHOD FOR THE DETERMINATION OF LENGTH

(See 4.5 and Table 1)

A.1 ATMOSPHERIC CONDITIONS FOR TESTING

A.1.1 The test shall be carried out in a standard atmosphere at 65 ± 2 per cent relative humidity and 27 ± 2 °C temperature, as given in CS 16.

A.2 CONDITIONING OF TEST SPECIMENS

A.2.1 Prior to test, the test specimens shall be conditioned to moisture equilibrium in a standard atmosphere at 65 ± 2 per cent relative humidity and 27 ± 2 °C temperature.

A.2.2 When the test specimens have been left in such an atmosphere for 24 hours, in such a way as to expose, as far as possible, all portions of the test specimens to the atmosphere, they shall be deemed to have reached moisture equilibrium.

A.3 APPARATUS

For the purpose of this test, the following apparatus shall be used.

A.3.1 *Wrap reel,* equipped with a dial showing the number of revolutions and to wind precisely 1m per revolution.

A.3.2 *Adjustable yarn tensioning device,* capable of giving a reeling tension that will result in skeins of specified length when measured under a load of 0.5 gf/tex.

A.3.3 *Analytical balance,* capable of weighing skeins in grams with an accuracy of 0.2 per cent.

A.4 PROCEDURE

A.4.1 Place one tube, reel, etc., constituting the test specimen on the wrap reel and wind 100m of embroidery thread. Apply sufficient tension on the thread during winding so as to keep it taut without stretching it. Remove the thread so wound from the wrap reel and weigh it in grams. Calculate the length per kg by the following formula:

$$\text{Length in metres per kg} = \frac{100 \times 1000}{W_1}$$

where,

W_1 = weight in grams, of 100m of thread.

A.4.2 Repeat the test with the remaining tubes, reels, etc., in the test specimens.

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The Sri Lanka Standards Institution is the owner of the registered certification mark shown below. Beneath the mark, the number of the Sri Lanka Standard relevant to the product is indicated. This mark may be used only by those who have obtained permits under the SLS certification marks scheme. The presence of this mark on or in relation to a product conveys the assurance that they have been produced to comply with the requirements of the relevant Sri Lanka Standard under a well designed system of quality control inspection and testing operated by the manufacturer and supervised by the SLSI *which includes surveillance inspection of the factory, testing of both factory and market samples.*

Further particulars of the terms and conditions of the permit may be obtained from the Sri *Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.*

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