SRI LANKA STANDARD 87 : 1999

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METHOD FOR DETERMINATION OF SCOURING LOSS IN GREY AND FINISHED COTTON TEXTILE MATERIAL

(FIRST REVISION)

SRI LANKA STANDARDS INSTITUTION

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SLS 87 : 1999

Gr. 2

SRI LANKA STANDARDS INSTITUTION
No. 17, Victoria Place
Elvitigala Mawatha
Colombo 08.
SRI LANKA

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

SRI LANKA STANDARD
METHOD FOR DETERMINATION OF SCOURING LOSS IN GRAY AND FINISHED COTTON TEXTILE MATERIAL (FIRST REVISION)

FOREWORD

This Sri Lanka Standard was approved by the Sectoral Committee on Textiles, Clothing and Leather and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 1999-11-11.

This standard was first published in 1970. A revision was considered necessary to include a mild test method for fabrics of loose construction and to update the standard.

In reporting results of a test or an analysis made in accordance with this standard, if the final value obtained or calculated is to be rounded off, it shall be done in accordance with CS 102.

In the revision of this standard the assistance derived from the following publication is gratefully acknowledged:

IS 1383 : 1977 (1992) Indian Standard Methods for Determination of Scouring Loss in Gray and Finished Cotton Textile Materials.

1 SCOPE

1.1 This standard prescribes two methods for determining scouring loss (loss in mass on scouring) of grey and finished cotton textile material.

1.2 These methods are applicable to grey and finished cotton textile material wherein only starch or tamarind kernel powder or both; and water soluble or finishing agents such as oils, fats and china clay which would normally be removed during scouring process, have been used.

2 APPARATUS

2.1 Soxhlet apparatus

2.2 Ventilated oven, for drying specimens at $105 \pm 3^{\circ}$ C

2.3 Analytical balance, accurate to $\pm$ 0.001 g

3 REAGENTS

Unless specified otherwise, reagents of analytical grade and distilled water shall be used during testing.

3.1 Desizing enzyme, diastase or other suitable enzyme

3.2 Sodium chloride, solid

3.3 Caustic soda solution, 2 per cent (m/V) containing 1 per cent turkey red oil

3.4 Acetic acid, 1 per cent (V/V) solution

3.5 Chloroform

4 DETERMINATION OF MOISTURE

4.1 Draw from the test sample at least 2 test specimens each weighing about 3g. If the test sample is a fabric, the specimens drawn should preferably be square in shape. Weigh the test specimen accurately (m_1) in a weighing bottle. Dry in the oven (**2.2**) to a constant mass. Weigh the dried specimen accurately (m_2). Calculate the moisture content.

$$\text{Moisture content, per cent by mass} = \frac{m_1 - m_2}{m_1} \times 100$$

4.2 Determine the moisture content of other test specimen and calculate the average.

5 PROCEDURE

5.1 Preparation of test specimens

Draw from the test sample at least 2 test specimens each weighing about 5g. If the test sample is a yarn, cut test specimen into pieces of about 15 cm long. Form a separate bundle and tie each bundle loosely around the middle. If the test sample is a fabric, trim the test specimen parallel to the directions of warp and weft and pull out to form a fringe, 5 threads all around.

5.2 Method A (Severe method)

5.2.1 Weigh accurately a test specimen prepared as in **5.1**. Dip in a solution containing 5g of diastase (**3.1**) and 10g of sodium chloride (**3.2**) per litre, at 50 °C and at a pH of 6.5 to 7.7 (See Notes).

NOTES

1. Mass of solution should be 20 times the mass of the specimen.

2. This temperature and pH of desizing solution are optimum for bacterial diastase. If any other type of desizing enzyme is used, the temperature and pH should be as recommended by the supplier.

3. As many enzymatic desizing agents deteriorate in storage, care should be taken to check the desizing agent for its efficiency at the time of test.

5.2.2 If any doubt exists as to whether the size or finish has been removed completely, treatment with enzymatic solution should be repeated, the specimen being weighed again after drying at $105 \pm 3^{\circ}$ C; and percentage loss in mass is again calculated. If the percentage loss in mass has increased by not more than 0.25, complete desizing has been affected; and the second figure can be accepted as the final figure. If the percentage loss in mass has increased by more than 0.25, the desizing treatment should be repeated until the figure does not differ by more than 0.25 per cent.

5.2.3 Place the specimen in a 500-ml conical flask containing caustic soda solution **(3.3)** weighing 20 times the mass of the specimen. Boil for one hour. Add water to make up for the loss during boiling. At the end of one hour remove the specimen and wash thoroughly (without wringing) in hot water. Dip in acetic acid **(3.4)** for 5 minutes. Wash (without wringing) in cold water. Dry the specimen in the oven at $105 \pm 3^{\circ}$ C to constant mass. Weigh accurately.

5.3 Method B (Mild method)

5.3.1 Weigh accurately a test specimen prepared as in **5.1**. Extract the specimen with chloroform in a Soxhlet apparatus for one hour at a rate of 6 cycles per hour. Allow the chloroform to dry in air. Wash the specimen by alternate immersion in hot running water and wringing by hand 12 times in succession.

Immerse the specimen in 0.5 per cent aqueous solution of diastase (20 to 30 times the mass of the specimen) at 50° C and wring by hand. Repeat three times. Return the specimen to the solution and heat to 70° C. Allow to stand for 15 minutes. Wash well in hot running water. Squeeze and dry the specimen at $105 \pm 3^{\circ}$ C. Weigh accurately.

6 CALCULATION

6.1 Scouring loss, on dry basis per cent by mass

$$= \frac{\left[(m_1 - \frac{m_1 \times M}{100}) - m_2 \right] \times 100}{(m_1 - \frac{m_1 \times M}{100})}$$

where,

m_1 is the mass, in g, of the test specimen;
M is the moisture content, per cent by mass (See **4**) ; and
m_2 is the mass after drying, in g, of the test specimen after treatment.

6.2 Repeat the test with remaining test specimen and calculate the average scouring loss.

7 TEST REPORT

The test report shall include following information :

a) Type of material;
b) The method used;
c) Number of test specimens; and
d) Scouring loss, per cent by mass.

SRI LANKA STANDARDS INSTITUTION

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The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

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