IS 690 (1988): Method for Determination of Colour Fastness of Textile Materials to Sea Water [TXD 5: Chemical Methods of Test]

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Indian Standard

METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO SEA WATER

(First Revision)

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BUREAU OF INDIAN STANDARDS
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Indian Standard

METHOD FOR DETERMINATION OF COLOUR FASTNESS OF TEXTILE MATERIALS TO SEA WATER

(First Revision)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards on 20 May 1988, after the draft finalized by the Chemical Methods of Test Sectional Committee had been approved by the Textile Division Council.

0.2 This standard was first published in 1956 and has been revised to align it with ISO 105/E-1978 Textiles—Tests for colour fastness EO2 Colour fastness to see water, issued by the International Organization for Standardization (ISO) and also to incorporate changes in line with other standards on colour fastness tests.

0.3 Colour fastness of textile materials is of considerable importance to the consumer. The fastness depends not only upon the nature and depth of shade of the dyestuff used but also upon the nature of the fibre and the method of dyeing or printing employed; the same colouring matter, when used in dyeing or printing different fibres or when applied by different methods upon the same fibre, may give vastly different results. Formulation of standard methods of test for determining colour fastness of textile materials to different agencies likely to effect change in colour is, therefore, necessary.

1. SCOPE

1.1 This standard prescribes a method for the determination of colour fastness of textile materials of all kinds and in all forms to immersion in sea water.

2. PRINCIPLE

2.1 A specimen of the textile in contact with specified adjacent fabrics is immersed in sodium chloride solution, drained and placed between two plates under a specified pressure in a testing device. The specimen and the adjacent fabrics are dried separately. The change in colour of the specimen and the staining of the adjacent fabrics are assessed with grey scales.

3. SAMPLING

3.1 Sample to determine conformity of a lot of coloured textile material to a specification shall be selected so as to be representative of the lot.

3.2 Sample drawn in compliance with the relevant material specification or as agreed to between the buyer and the seller to evaluate colour fastness of the material in the lot shall be representative of the lot.

4. APPARATUS

4.1 Testing Device — consisting of a frame of stainless steel into which a weight-piece of mass 5 kg and a base of 11·5 cm × 6 cm is closely fitted, with glass or acrylic resin plates of the same size and of 0·15 cm thickness. In this case, the size of the composite specimen must be 10 cm × 4 cm.

NOTE 1 — Suitable testing devices are the hydrotest, the perspiration tester and the perspirometer. If the dimensions of the composite specimen differ from the size of 10 cm × 4 cm, such a weight piece has to be used so that a pressure of 12·5 kPa is applied to the specimen.

NOTE 2 — Other devices may be used provided the samer esults are obtained as with the apparatus described in **4.1.**

4.2 Air Oven — maintained at 37 ± 2°C.

4.3 Two Adjacent Fabrics — each measuring 10 cm × 4 cm, one piece made of the same kind of fibre as that of the textile to be tested or that predominating in the case of blends, the second piece made of the fibre as indicated below or in the case of blends, of the kind of fibre second in order of predominance, or as otherwise specified

If the First Adjacent Fabric is	*Second Piece to be*
Cotton	Wool
Wool	Cotton
Silk	Cotton
Linen	Wool
Viscose	Wool

Acetate or triacetate	Viscose
Polyamide	Wool or cotton
Polyester	Wool or cotton
Acrylic	Wool or cotton

4.4 Grey Scales — for evaluating change in colour and staining.

5. REAGENT

5.1 Sodium Chloride Solution — containing 30 g of pure sodium chloride per litre of distilled water.

NOTE — Pure sodium chloride shall mean sodium chloride that does not contain impurities which affect the test results.

6. PREPARATION OF COMPOSITE SPECIMEN

6.1 If the textile to be tested is fabric, place a specimen 10 cm × 4 cm between two adjacent fabrics (**4.3**) and sew along one of the shorter sides to form a composite specimen.

6.2 If the textile to be tested is yarn, knit or weave it into fabric and treat as in **6.1** or form a layer of parallel lengths of it between the two adjacent fabrics (**4.3**), the amount of yarn taken being approximately equal to half the combined mass of the adjacent fabrics and sew along two opposite sides to hold the yarn in place and to form a composite specimen.

6.3 If the textile to be tested is loose fibre, comb and compress an amount approximately equal to half the combined mass of the adjacent fabrics (**4.3**) into a sheet 10 cm × 4 cm. Place the sheet between the two adjacent fabrics, sew along all four sides to hold the fibre in palce and to form a composite specimen.

7. PROCEDURE

7.1 Wet each composite specimen thoroughly in separate container by immersion in sodium chloride solution (*see* Note) at room temperature. Pour off the solution and place the composite specimen between the two glass or acrylic resin plates measuring 11·5 cm × 6·0 cm × 1·5 cm under a pressure of 12·5 kPa. Keep the glass plates in position in the Perspirometer (or its equivalent) and place the apparatus in the air oven maintained at 37 ± 2°C for 4 hours. At the end of this period remove the specimen, separate the specimen and the two pieces of adjacent fabrics and dry them apart by hanging in air in shade at a temperature not exceeding 60°C with the three parts in contact only at the remaining line of stitching.

NOTE — Special care should be taken when wetting the specimen to see that it is uniformly saturated, in particular, when wool or material containing wool is to be wetted out, it should be kneaded thoroughly by hand with the flattened end of a glass rod, or by a mechanical device.

7.2 Evaluate the change in colour of the treated test specimen by the method prescribed in IS : 768 - 1982* and the degree of staining of the two pieces of adjacent fabrics by the method prescribed in IS : 769 - 1982†.

NOTE 1 — Treated test specimens and the pieces of adjacent fabrics should have cooled after drying and should have regained their normal moisture content before evaluation.

NOTE 2 — In cases of doubt in the assessment of colour fastness ratings by a single observer, the assessment should be done by at least three observers and the overall average rating should be reported.

8. REPORT

8.1 Report individually the numerical rating for change in colour of test specimen and the numerical ratings for staining of the two pieces of adjacent fabrics used in the preparation of the composite specimen.

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*Method for evaluating change in colour (*first revision*)-

†Method for evaluating staining (*first revision*).

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