

INTERNATIONAL
STANDARD

ISO
105-E10

Third edition
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Textiles — Tests for colour fastness —
Part E10:
Colour fastness to decatizing

Textiles — Essais de solidité des teintures —
Partie E10: Solidité des teintures au décatissage



Reference number
ISO 105-E10:1994(E)

ISO 105-E10:1994(E)**Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 105-E10 was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 1, *Tests for coloured textiles and colorants*.

This third edition cancels and replaces the second edition (ISO 105-E10:1987), of which it constitutes a technical revision.

ISO 105 was previously published in thirteen "parts", each designated by a letter (e.g. "Part A"), with publication dates between 1978 and 1985. Each part contained a series of "sections", each designated by the respective part letter and by a two-digit serial number (e.g. "Section A01"). These sections are now being republished as separate documents, themselves designated "parts" but retaining their earlier alphanumeric designations. A complete list of these parts is given in ISO 105-A01.

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Textiles — Tests for colour fastness —

Part E10: Colour fastness to decatizing

1 Scope

This part of ISO 105 specifies a method for determining the resistance of the colour of textiles to the action of steam, as employed in the decatizing of wool fabrics. Two tests, mild and severe, are given.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 105. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 105 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 105-A01:1994, *Textiles — Tests for colour fastness — Part A01: General principles of testing.*

ISO 105-A02:1993, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour.*

ISO 105-F:1985, *Textiles — Tests for colour fastness — Part F: Standard adjacent fabrics.*

3 Principle

A specimen of the textile is wrapped round a perforated cylinder, and steam passed through it for 15 min. The change in colour of the dried specimen is assessed by comparison with the grey scale. Correct application of the method is controlled by use of

a test-control specimen tested under identical conditions.

4 Apparatus

4.1 Suitable decatizing apparatus.

Such a device consists of an autoclave (see figure 1) having an approximate capacity of 20 litres (for example 260 mm in diameter and 400 mm high) with a safe operating pressure of up to 400 kPa and an adjustable heat source (electric or gas). In the middle of the cover is a threaded opening. Fitted in this opening so that it is suspended inside the autoclave, below the cover, is a perforated cylinder 20 mm in diameter and 160 mm high. The lower end of the cylinder is closed by a round piece of sheet metal of 200 mm in diameter. A regulating valve and a pressure gauge, both connected with the perforated cylinder, are mounted on the upper side of the cover. A safety valve and a thermometer are mounted separately in the cover.

NOTE 1 Other devices may be used provided that equivalent results are obtained.

4.2 Cotton blanket cloth, boiled off, napped on both sides, of mass per unit area about 400 g/m².

4.3 Two cotton adjacent fabrics, complying with section F02 of ISO 105-F, each measuring 40 mm × 100 mm.

4.4 Test control: wool cloth dyed with CI Mordant Brown 33 as follows.

Introduce a well-wetted-out pattern of wool cloth into a dye-bath at 40 °C containing 1 % CI Mordant

Brown 33 (Colour Index, 3rd edition), 10 % sodium sulfate decahydrate ($\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$) and 3 % to 5 % acetic acid (300 g/l), all percentages being calculated on the mass of the wool pattern. The liquor ratio is 40:1.

Raise the dye-bath to the boil in 30 min, and boil for a further 30 min. If necessary, exhaust by careful addition of 3 % to 5 % acetic acid (300 g/l). Boil for a further 15 min after addition of the acid. Cool the dye-bath by addition of cold water, and add 0,5 % potassium dichromate dissolved in water. Raise the dye-bath to the boil again and boil for 45 min. Remove the pattern, rinse in cold, running tap water and dry.

4.5 Grey scale for assessing change in colour, complying with ISO 105-A02.

5 Test specimen

5.1 If the textile to be tested is fabric, use a specimen 40 mm × 100 mm.

5.2 If the textile to be tested is yarn, knit it into fabric and use a 40 mm × 100 mm specimen, or form a layer of parallel lengths of it, place it between two cotton adjacent fabrics (4.3) and sew around all four sides to hold the yarn in place.

5.3 If the textile to be tested is loose fibre, comb and compress enough of it to form a layer 40 mm × 100 mm, place the sheet between two cotton adjacent fabrics (4.3) and sew around all four sides to hold the fibres in place.

5.4 Prepare a 40 mm × 100 mm specimen of the test-control dyeing (4.4).

6 Procedure

6.1 Prior to the first operation, i.e. without the test specimen or the test control, heat the apparatus (4.1) in order to prevent the condensation of water.

6.2 Carry out the operations described in 6.3 and 6.4 with the test specimens and the test control (4.4) in parallel.

6.3 Wrap a length of the cotton blanket cloth (4.2) three times around the perforated cylinder of the decatizing apparatus. Place the test specimen and the

test-control specimen around the wrapped cylinder and cover with three further wrappings of the blanket cloth.

Pass saturated, but dry, steam through the specimen for 15 min at one of the pressures given in table 1.

Table 1 — Decatizing conditions

Decatizing	Steam pressure kPa	Temperature of entering steam °C
Mild	147	111
Severe	245	127

6.4 Dry the specimens by hanging them in air at a temperature not exceeding 60 °C. Yarn or loose fibre should be removed from between the two pieces of cotton adjacent fabric before drying.

6.5 Assess the change in colour of the test control by comparison with the grey scale. If the change is not equal to the following:

mild decatizing: 4Y
severe decatizing: 3Y

the test has not been carried out correctly, and the operations described in 6.1 to 6.4 inclusive shall be repeated with a fresh test specimen and a fresh test-control specimen.

6.6 Assess the change in colour of the test specimen by comparison with the grey scale.

7 Test report

The test report shall include the following information:

- the number and year of publication of this part of ISO 105, i.e. ISO 105-E10:1994;
- all details necessary for identification of the sample tested;
- the numerical grey scale rating for the change in colour of the specimen;
- the severity of the test used, i.e. "mild" or "severe".

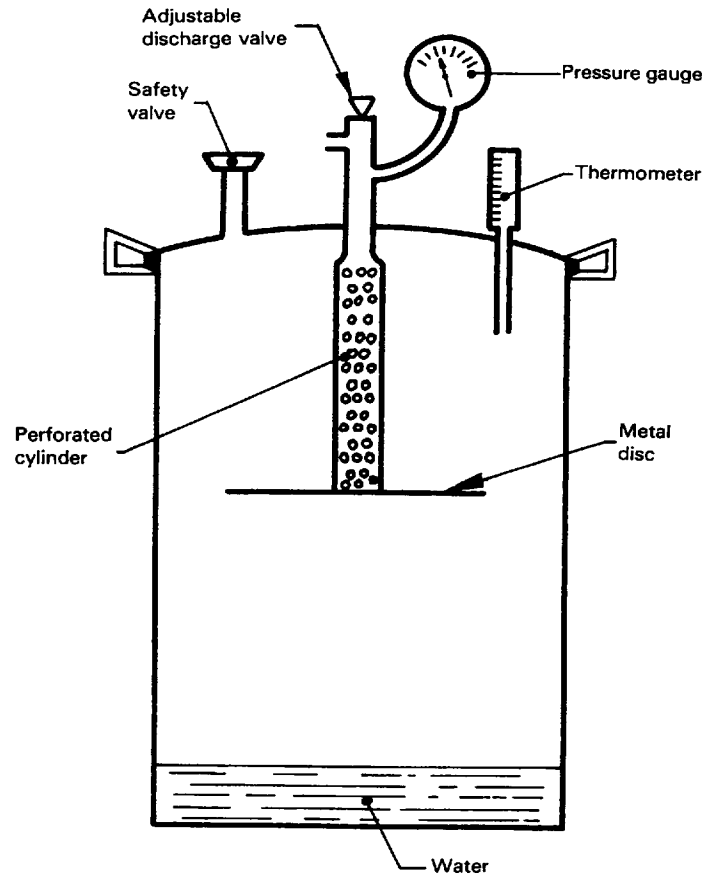


Figure 1 — Decatizing apparatus

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Descriptors: textiles, dyes, tests, chemical tests, water resistance tests, water vapor tests, determination, colour fastness, decating.

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