
**Textiles — Tests for colour fastness —
Part E06:
Colour fastness to spotting: Alkali**

Textiles — Essais de solidité des teintures —

Partie E06: Solidité des teintures aux alcalis

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Foreword

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The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 105-E06 was prepared by Technical Committee ISO/TC 38, *Textiles*, Subcommittee SC 1, *Tests for coloured textiles and colorants*.

This fourth edition cancels and replaces the third edition (ISO 105-E06:1989), which has been technically revised. It also incorporates Technical Corrigendum ISO 105-E06:1989/Cor. 1:2002.

ISO 105 was previously published in 13 "parts", each designated by a letter (e.g. "Part A"), with publication date 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 E06:

Colour fastness to spotting: Alkali

1 Scope

This part of ISO 105 specifies a method for determining the resistance of the colour of textiles of all kinds, and in all forms, to the action of dilute alkaline solutions.

Three tests differing in severity are provided. Any or all may be used, depending on the nature of the fibre.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

ISO 105-A05, *Textiles — Tests for colour fastness — Part A05: Instrumental assessment of change in colour for determination of grey scale rating*

ISO 105-E07, *Textiles — Tests for colour fastness — Part E07: Colour fastness to spotting: Water*

3 Principle

The specimens are steeped in or spotted with prepared reagents by means of simple laboratory equipment. The change in the colour of the textile, while it is still wet and after drying, is assessed either visually or instrumentally.

4 Reagents and materials

4.1 **Pipette or dropper.**

4.2 **Glass rod**, with rounded end.

4.3 **Glass beaker.**

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

4.5 **Sodium carbonate solution**, containing 100 g of anhydrous sodium carbonate (Na_2CO_3) per litre of water (4.8).

- 4.6 **Calcium hydroxide paste**, containing 1 g of calcium hydroxide $[Ca(OH)_2]$ mixed with 1 g to 2 g of water (4.8).
- 4.7 **Ammonium hydroxide**, solution containing 28 % of ammonium hydroxide (NH_4OH).
- 4.8 **Grade 3 water** (see ISO 105-A01).

NOTE See Table 1 for a list of the chemicals and pH levels of the reagents used in this method.

5 Test specimen

- 5.1 Prepare a test specimen as described in 5.2 to 5.4 for each alkali to be used.
- 5.2 If the textile to be tested is fabric, use a specimen measuring 40 mm × 100 mm.
- 5.3 If the textile to be tested is yarn, knit it into fabric and use a specimen measuring 40 mm × 100 mm, or make a wick of parallel lengths 100 mm long and about 5 mm in diameter, tied near both ends.
- 5.4 If the textile to be tested is loose fibre, comb and compress enough of it to form a sheet measuring 40 mm × 100 mm.

6 Procedure

6.1 Sodium carbonate

6.1.1 Place the specimen in a clean dry flat-bottomed dish. Spot the specimen at room temperature with the sodium carbonate solution (4.5) so that after working the solution into the specimen with the glass rod, a spot of diameter approximately 20 mm is formed. In the case of water-repellent fabrics, the amount of solution shall not exceed 0,5 ml.

6.1.2 Place the specimen on a flat surface and allow to dry at room temperature; brush it to remove the sodium carbonate residues.

6.1.3 If brushing is not enough to completely eliminate the whitish ring caused by spotting with sodium carbonate, rinse the specimen in a glass beaker for 1 min with 100 ml of Grade 3 water (4.8) at room temperature. Allow the specimen to dry at room temperature.

6.2 Calcium hydroxide

6.2.1 Spot the specimen at room temperature with the calcium hydroxide paste (4.6).

6.2.2 Place the specimen on a flat surface and allow to dry at room temperature; brush it to remove the calcium hydroxide residues.

6.2.3 If brushing is not enough to completely eliminate the whitish ring caused by spotting with calcium hydroxide, rinse the specimen in a glass beaker for 1 min with 100 ml of Grade 3 water (4.8) at room temperature. Allow the specimen to dry at room temperature.

6.3 Ammonium hydroxide

6.3.1 Steep the specimen for 2 min in ammonium hydroxide solution (4.7) at room temperature.

6.3.2 Place the specimen on a flat surface and allow to dry at room temperature without rinsing.

6.4 Assess the change in colour

Assess the change in colour of the specimen using either the grey scale or instrumentally (See ISO 105-A02 and ISO 105-A05) for each alkali used. Assess the change in colour of the wet spot after 10 min, if applicable.

6.5 Resistance to water spotting

It is recommended that the test for resistance to water spotting (see ISO 105-E07) also be carried out to ascertain that the change in colour is not due to the action of water alone.

7 Test report

The test report shall include the following:

- a) a reference to this part of ISO 105 (ISO 105-E06:2006);
- b) all details necessary for the identification of the sample tested;
- c) the numerical grey scale rating or instrumental assessment for change in colour of the specimen for each type of alkali used and for change when wet, if of interest;
- d) the result of the resistance to water spotting (6.5);
- e) any deviation, by agreement or otherwise, from the procedure specified.

Table 1 — pH levels of chemicals used

Chemical	pH
Ammonium hydroxide	13,5 – 13,7
Calcium hydroxide	12,3 – 12,5
Sodium carbonate	11,5 – 11,7

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