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Textiles — Tests for colour fastness —

Part D02: Colour fastness to rubbing: Organic solvents

Textiles — Essais de solidité des coloris —

Partie D02: Solidité des coloris au frottement: Solvants organiques

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 38, *Textiles*, Subcommittee SC 1, *Tests for coloured textiles and colorants.*

This fifth edition cancels and replaces the fourth edition (ISO 105-D02:1993), of which it constitutes a minor revision.

ISO 105 consists of many parts designated by a part letter and a two-digit serial number (e.g. A01), under the general title *Textiles — Tests for colour fastness*. A complete list of these parts is given in ISO 105-A01.

Textiles — Tests for colour fastness —

Part D02: Colour fastness to rubbing: Organic solvents

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, except loose fibre, to the combined action of rubbing and of organic solvents used in spot-cleaning, localized "spotting" carried out by hand.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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-A03, *Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining*

ISO 105-F09, *Textiles — Tests for colour fastness — Part F09: Specification for cotton rubbing cloth*

3 Principle

A specimen of the textile is rubbed with rubbing cotton impregnated with solvent. The change in colour of the specimen and the staining of the rubbing cotton cloth are assessed with the grey scales.

4 Apparatus and materials

4.1 Suitable testing device for determining the colour fastness to rubbing with organic solvents. Such a device shall be equipped with a finger of 16 mm diameter moving to and fro in a straight line along a track 100 mm on the specimen, with a downward force of 9 N.

NOTE 1 A suitable apparatus is described in Reference [2], Test Method 8. Other devices can be used, provided that the same results are obtained as with the apparatus described above.

The finger of the apparatus can be replaced by a moving hollow tube ending in a grille at its base. A plug of cotton is placed in this tube. The outside of the grille is covered with a sample of wool flannel.

With apparatus modified in this way, it is no longer necessary to immerse the rubbing cotton in the solvent (see 6.1), the dry rubbing cotton cloth is placed on the wool flannel at the end of the tube and 3 ml of the solvent are dropped on to the plug of cotton on the inside of the hollow tube. Then proceed as described in 6.2.

4.2 Rubbing cotton cloth, complying with ISO 105-F09 and cut into squares measuring 50 mm × 50 mm.

4.3 Grating, of stainless steel wire of 1 mm diameter and a width of mesh of about 20 mm.

4.4 Solvents, perchloroethylene, white spirit, solvent F or other petroleum hydrocarbon.

4.5 Grey scale for assessing change in colour, complying with ISO 105-A02, and grey scale for assessing staining, complying with ISO 105-A03.

5 Test specimens

5.1 If the textile to be tested is fabric, use two specimens measuring at least 50 mm × 140 mm (for each of the solvents). One specimen of each pair should have the long direction parallel to the warp yarns, the other parallel to the weft yarns.

5.2 If the textile to be tested is yarn, knit it into a fabric to provide specimens measuring at least 50 mm × 140 mm, or form a layer of parallel lengths by wrapping it lengthways on a glass plate of suitable dimensions.

6 Procedure

6.1 Wet the rubbing cotton cloth (4.2) by placing it on the grating (4.3) and dropping uniformly on it its own mass of appropriate solvent (see 4.4).

6.2 Place the rubbing cotton cloth, soaked with solvent, at the end of the finger of the apparatus (4.1) and rub it to and fro in a straight line, along a track 100 mm long on the specimen, 10 times in 10 s, with a downward force on the finger of 9 N.

Test warp and weft directions separately for each of the solvents (4.4).

6.3 Dry the rubbing cotton cloth by hanging it in air at a temperature not exceeding 60 °C.

6.4 Assess the change in colour of the specimen and the staining of the rubbing cotton cloth with the grey scales (4.5).

When assessing the staining of the rubbing cotton cloth, it is necessary to eliminate dyed fibres pulled out during rubbing and retained on the surface of the rubbing cotton cloth, consider only the coloration due to staining by the dyestuffs.

7 Test report

The test report shall include the following particulars:

a) the number and date of publication of this part of ISO 105, i.e. ISO 105-D02:2016;

b) all details necessary for the identification of the sample tested;

c) the numerical ratings for the change in colour of the test specimens and the staining of the rubbing cotton cloths, for the direction (warp or weft) showing heavier staining;

d) the type of solvent used according to 4.4.

Bibliography

[1] ISO 105-F01, *Textiles — Tests for colour fastness — Part F01: Specification for wool adjacent fabric*

[2] Technical Manual of the American Association of Textile Chemists and Colorists, Test Method 8, www.aatcc.org

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