

# INTERNATIONAL STANDARD

**ISO**  
**105-F10**

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## **Textiles — Tests for colour fastness —**

### **Part F10 :**

**Specification for adjacent fabric: Multifibre**

*Textiles — Essais de solidité des teintures —*

*Partie F10 : Spécification pour le tissu témoin: Multifibre*



Reference number  
ISO 105-F10:1989(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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 105-F10 was prepared by Technical Committee ISO/TC 38, *Textiles*.

ISO 105 was previously published in 13 "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.

Annex A forms an integral part of this part of ISO 105.

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## Textiles — Tests for colour fastness —

### Part F10 :

#### Specification for adjacent fabric: Multifibre

### 1 Scope

This part of ISO 105 establishes general requirements for undyed multifibre adjacent fabrics which may be used for the assessment of staining in colour fastness test procedures. The multifibre adjacent fabrics exhibit standardized staining properties.

### 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-A01:1989, *Textiles — Tests for colour fastness — Part A01: General principles of testing*.

ISO 105-A02:1987, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*.

ISO 105-A03:1987, *Textiles — Tests for colour fastness — Part A03: Grey scale for assessing staining*.

ISO 105-C02:1989, *Textiles — Tests for colour fastness — Part C02: Colour fastness to washing: Test 2*.

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

ISO 105-J02:1987, *Textiles — Tests for colour fastness — Part J02: Method for the instrumental assessment of whiteness*.

### 3 General requirements

3.1 Each component of the multifibre adjacent fabric shall be made from fibres having staining characteristics similar to those used in the corresponding single-fibre adjacent fabrics specified in ISO 105-F:1985, sections F01 to F05, F07 and F08. The staining characteristics of multifibre adjacent fabrics shall be determined using the method in annex A.

3.2 There are two types of multifibre adjacent fabric as described in table 1.

Table 1 — Multifibre adjacent fabrics

| Multifibre DW     | Multifibre TV   |
|-------------------|-----------------|
| Secondary acetate | Triacetate      |
| Bleached cotton   | Bleached cotton |
| Polyamide         | Polyamide       |
| Polyester         | Polyester       |
| Acrylic           | Acrylic         |
| Wool              | Viscose         |

Some colour fastness test procedures cannot be performed in the presence of wool and/or secondary acetate. In this case, type TV multifibre adjacent fabric shall be used in place of type DW.

NOTE 1 For sources of supply, reference should be made to national standards institutions.

**3.3** Fabrics of other constructions, but having the same width of strip and exhibiting the same staining characteristics as the multifibre fabric described in this part of ISO 105, may also be used, but such use shall be noted in the test report.

**3.4** Since there may be differences in test results when multifibre adjacent fabrics are used instead of single-fibre adjacent fabrics, the type of adjacent fabric used shall be indicated in the test report.

## 4 Characteristics of the fabrics

### 4.1 Material for the warp yarn

Fibre: bright filament polyester (not containing optical brightener)

Yarn: 15,5 tex/27 filament/R02  
400 turns/m Z twist

### 4.2 Material for the weft yarn

See table 2.

**Table 2 — Material for the weft yarn**

| Properties                     | Secondary acetate | Bleached cotton                   | Polyamide      | Polyester      | Acrylic        | Wool                    | Triacetate     | Viscose        |
|--------------------------------|-------------------|-----------------------------------|----------------|----------------|----------------|-------------------------|----------------|----------------|
| <b>Staple fibre</b>            |                   |                                   |                |                |                |                         |                |                |
| Lustre or grade                | bright            | "strict low middling" to "bright" | semi-dull      | semi-dull      | semi-dull      | Australian 64's quality | bright         | dull           |
| Tex per filament               | 0,333             | — <sup>1)</sup>                   | 0,333          | 0,17           | 0,28           | — <sup>2)</sup>         | 0,333          | 0,17           |
| Length, mm                     | 50,8              | 27 to 25,7                        | 38,0           | 38,0           | 38,0           | 82,5 ± 27               | 50,8           | 40,0           |
| <b>Yarn</b>                    |                   |                                   |                |                |                |                         |                |                |
| Linear density                 | 30 tex × 2 ply    | 30 tex × 2 ply                    | 30 tex × 2 ply | 30 tex × 2 ply | 30 tex × 2 ply | 30 tex × 2 ply          | 30 tex × 2 ply | 30 tex × 2 ply |
| Spin twist, turns/m            | 640 Z             | 570 Z                             | 670 Z          | 640 Z          | 640 Z          | 450 Z                   | 640 Z          | 510 Z          |
| Doubling twist, turns/m        | 400 S             | 590 S                             | 400 S          | 400 S          | 480 S          | 130 S                   | 400 S          | 400 S          |
| <b>Whiteness <sup>3)</sup></b> |                   |                                   |                |                |                |                         |                |                |
| x                              | 0,320 ± 0,003     | 0,318 ± 0,003                     | 0,320 ± 0,003  | 0,318 ± 0,003  | 0,318 ± 0,003  | 0,338 ± 0,003           | 0,320 ± 0,003  | 0,328 ± 0,003  |
| y                              | 0,338 ± 0,003     | 0,335 ± 0,003                     | 0,335 ± 0,003  | 0,336 ± 0,003  | 0,335 ± 0,003  | 0,335 ± 0,003           | 0,338 ± 0,003  | 0,345 ± 0,003  |
| Y                              | 80,0 ± 2,0        | 86,0 ± 2,0                        | 83,0 ± 2,0     | 80,0 ± 2,0     | 82,0 ± 2,0     | 65,0 ± 2,0              | 80,0 ± 2,0     | 82,0 ± 2,0     |
| W <sub>10</sub>                | 63 ± 5            | 76 ± 5                            | 71 ± 5         | 68 ± 5         | 72 ± 5         | — <sup>4)</sup>         | 63 ± 5         | 47 ± 5         |

1) Micronaire: 4,4 average.

2) Diameter: 22,22 µm.

3) D<sub>65</sub>, 10° observer, calculations in accordance with ISO 105-J02.

4) The whiteness value for this fibre will be included in a subsequent edition of this part of ISO 105.

### 4.3 Fabric construction

Width in the loom at the reed: 127 cm

Weave: 6/6 in the filling stripes  
1/1 in the cutting stripes

Number of warp 35,4 per centimetre  
threads: weft 29,5 per centimetre (average)

Each weft stripe measured in the warp direction shall be 1,5 cm in width. The cutting stripe shall be 0,5 cm of the spun polyester.

Weaving pattern:

#### Type DW

62 threads spun secondary acetate  
48 threads bleached cotton  
56 threads spun polyamide  
48 threads spun polyester  
44 threads spun acrylic  
60 threads worsted wool  
16 threads spun polyester — cutting stripe —

### 4.4 Preparation

It is recommended that the woven fabric be washed in a jig as follows:

Set bath at 70 °C with a non-ionic detergent (ethylene oxide condensate) and sodium tetraphosphate.

Run two ends. Drop bath.

Rinse two ends at 50 °C.

Rinse two ends in cold running water.

Dry at 93 °C.

Frame to 114 cm to 116 cm.

#### Type TV

62 threads spun triacetate  
48 threads bleached cotton  
56 threads spun polyamide  
48 threads spun polyester  
44 threads spun acrylic  
60 threads spun viscose  
16 threads spun polyester

## Annex A (normative)

### Method for establishing the consistency in staining between different production batches of adjacent fabric

#### A.1 Scope

This annex specifies a method of quality control for establishing the consistency in staining between different production batches of adjacent fabric.

#### A.2 Principle

Comparative staining tests are conducted on a sample of a reference batch and a sample of the new batch of the fabric. The staining of each of the adjacent fabrics is then compared with the grey scale for assessing change in colour.

#### A.3 Apparatus and reagents

**A.3.1 Apparatus and reagents**, as specified in ISO 105-C02.

**A.3.2 Samples of undyed reference adjacent fabric and adjacent fabric under test**, each measuring 40 mm x 100 mm.

**A.3.3** For staining polyamide, wool and silk: **Irgalan Orange RL-KWL** 250 % (CI Acid Orange 86). For staining cotton and viscose: **Solophenyl Blue GL** 230 % (CI Direct Blue 71). For staining diacetate, triacetate, polyamide and polyester: **Terasil Yellow 2GW** 200 % (CI Disperse Yellow 54). For staining polyester, diacetate, triacetate and polyamide: **Terasil Navy Blue BGLN** (CI Disperse Blue 130).

#### A.4 Procedure

**A.4.1** Place the sample of undyed reference fabric and the sample of undyed adjacent fabric under test (A.3.2) in separate containers and add to each the necessary amount of soap solution (see A.3.1) and appropriate dye solution (see clause A.7).

**A.4.2** Treat each fabric at  $50\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$  for 45 min.

**A.4.3** Remove each fabric, rinse twice in cold grade 3 water (see A.3.1) and then in cold, running tap-water for 10 min, then squeeze. Open out each fabric and dry by hanging in air at a temperature not exceeding 60 °C.

**A.4.4** Assess the staining of the reference adjacent fabric using the grey scale for assessing staining (see A.3.1) to ensure that the degree of staining is 3-4.

**A.4.5** Compare the staining of the reference adjacent fabric with that of the adjacent fabric under test using the grey scale for assessing change in colour (see A.3.1).

#### A.5 Assessment of results

The adjacent fabric under test is acceptable for its staining properties when the colour difference between the staining of the reference and that of the fabric under test is not greater than 4-5 as measured by the grey scale for assessing change in colour.

#### A.6 Test report

Report the staining of the adjacent fabric under test (see clause A.5).

#### A.7 Notes

The amount of dye used shall give a staining on the reference adjacent fabric of 3-4 whilst ensuring that there is dye left in the test liquor at the end of the test. The following concentrations of dye are given as a guide:

Irgalan Orange RL-KLW (250 %) : 0,025 g/l  
Solophenyl Blue GL (230 %) : 0,0015 g/l  
Terasil Yellow 2GW (200 %) : 0,002 g/l  
Terasil Navy Blue BGLN (100 %) : 0,100 g/l

The test shall be carried out separately with each dye.