International Standard 105/Z

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Textiles — Tests for colour fastness — Part Z: Colorant characteristics

Textiles — Essais de solidité des teintures — Partie Z: Caracteristiques des colorants

First edition — 1978-12-15
Updated and reprinted — 1982-09-01

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ISO 105-Z:1978
https://standards.iteh.ai/catalog/standards/sist/c85d1a53-e3b3-4316-a742-b25a4aac554e/iso-105-z-1978

UDC 677.016.47 **Ref. No. ISO 105/Z-1978 (E)**

Descriptors : textiles, dyes, tests, colour fastness, visual inspection, dyeing tests, wool, potassium dichromates, metals, iron sulphates, copper sulphates, ammonium sulphate.

Price based on 2 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

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.

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International Standard ISO 105/Z was developed by Technical Committee ISO/TC 38, *Textiles*.

It was submitted directly to the ISO Council, in accordance with sub-clause 5.10.1 of part 1 of the Directives for the technical work of ISO.

ISO 105-Z:1978
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This part of ISO 105 cancels and replaces group Z of ISO 105-1978, originally published as parts 13 and 14 of ISO Recommendation R 105/I-1959.

NOTE — International Standard ISO 105 is presented in the form of parts. Each of these parts corresponds to a group and is split up into its different component sections. This form facilitates the replacement of existing sections by successive editions as necessary.

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ISO 105/Z **Textiles — Tests for colour fastness —**
Part Z : Colorant characteristics

- **Z01** Colour fastness to metals in the dye-bath : Chromium salts
- **Z02** Colour fastness to metals in the dye-bath : Iron and copper

Textiles — Tests for colour fastness

Z01 Colour fastness to metals in the dye-bath : Chromium salts

1 SCOPE AND FIELD OF APPLICATION

This method is intended for determining the effect on the colour of a dye, of dyeing in the presence of hexavalent chromium salts. It is applicable to wool. An alternative method is specified in 6.3 to provide a milder test suitable for assessing the effect of chromium salts in such concentrations as might be found when shading.

2 PRINCIPLE

The difference in colour between dyeings made with and without potassium dichromate is assessed with the grey scale.

3 REFERENCES

ISO 105 :

Section A01, *General principles of testing.*

Section A02, *Grey scale for assessing change in colour.*

4 APPARATUS AND REAGENTS

4.1 Two pieces of undyed light wool cloth of a size suitable for laboratory dyeing.

4.2 Two dye-baths and solutions usual for the dye.

4.3 Potassium dichromate ($K_2Cr_2O_7$), 10 g/l solution.

4.4 Grey scale for assessing change in colour (see clause 3).

5 TEST SPECIMENS

See 4.1.

6 PROCEDURE

6.1 Make two dyeings of the dye at the standard depth of colour on the wool cloth using the normal method for the dye under examination at a liquor ratio of 40 : 1.

6.2 Method 1. On completion of the dyeing, add to one of the dye-baths sufficient potassium dichromate solution to give 1 % of $K_2Cr_2O_7$ on the mass of the wool. Maintain both baths at the boil for a further 60 min.

6.3 Method 2. On completion of the dyeing, add to one of the dye-baths sufficient potassium dichromate solution to give 0,2 % of $K_2Cr_2O_7$ on the mass of the wool. Maintain both baths at the boil for a further 60 min.

6.4 Compare the colour of the dyeing made in the presence of potassium dichromate with that of the dyeing made in its absence and assess the difference with the grey scale.

7 TEST REPORT

Report the dye used, the method and the strength of dyeing and the numerical rating of the change in colour.

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UDC 677.016.47 First edition — 1978-12-15

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Approved by member bodies of : Austria; Belgium; Bulgaria; Canada; Chile; Czechoslovakia; Denmark; France; Greece; Hungary; India; Ireland; Israel; Italy; Netherlands; New Zealand; Norway; Pakistan; Poland; Portugal; Spain; Sweden; Switzerland; United Kingdom; U.S.S.R.

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Textiles — Tests for colour fastness

Z02 Colour fastness to metals in the dye-bath : Iron and copper

1 SCOPE AND FIELD OF APPLICATION

This method is intended for determining the effect on the colour of a dye, of dyeing in the presence of metals (iron and copper or their salts) either used in the construction of dyeing machinery or resulting from water and steam used in dyeing.

2 PRINCIPLE

The difference in colour between dyeings made in the presence and in the absence of salts of the metal is assessed with the grey scale.

3 REFERENCES

ISO 105 :

Section A01, *General principles of testing.*

Section A02, *Grey scale for assessing change in colour.*

4 APPARATUS AND REAGENTS

4.1 Three pieces of undyed light wool cloth of a size suitable for laboratory dyeing.

4.2 Three dye-baths and solutions usual for the dye.

4.3 Copper(II) sulphate solution containing 0,2 % $CuSO_4.5H_2O$ on the mass of one piece of wool.

4.4 Ammonium iron(III) sulphate solution containing 0,5 % $(NH_4)_2SO_4.Fe_2(SO_4)_3 24H_2O$ on the mass of one piece of wool.

4.5 Grey scale for assessing change in colour (see clause 3).

5 TEST SPECIMENS

See 4.1.

6 PROCEDURE

6.1 Make three dyeings at the standard depth of colour on the wool cloth according to the usual method for the dye under examination. Before entering the fabric, add ammonium iron(III) sulphate solution to one of the dye-baths and copper(II) sulphate solution to another and bring the liquor ratio in each bath to 40 : 1.

6.2 Compare the colours of the dyeings made in the presence of copper(II) sulphate and of iron(III) sulphate with that of the dyeing made in their absence and assess the differences with the grey scale.

7 TEST REPORT

Report the dye used, the method and the strength of dyeing, the kind of metals used in the test and the numerical rating of the change in colour.

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