INTERNATIONAL STANDARD

**ISO 105-X02**

Fourth edition
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# Textiles — Tests for colour fastness —

# Part X02:
# Colour fastness to carbonizing: Sulfuric acid

*Textiles — Essais de solidité des teintures —*

*Partie X02: Solidité des teintures au carbonisage: Acide sulfurique*

Reference number
ISO 105-X02:1993(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-X02 was prepared by Technical Committee ISO/TC 38, *Textiles*, Sub-Committee SC 1, *Tests for coloured textiles and colorants*.

This fourth edition cancels and replaces the third edition (ISO 105-X02:1987), of which it constitutes a minor 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 X02:
Colour fastness to carbonizing: Sulfuric acid



## 1 Scope

This part of ISO 105 specifies a method for determining the resistance of the colour of textiles in all forms to the manufacturing operation designed to remove vegetable impurities by treatment with sulfuric acid at high temperatures. The method is mainly applicable to wool and textiles containing wool.

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

## 3 Principle

A specimen impregnated with sulfuric acid solution is dried, baked, rinsed and neutralized. The changes in colour after rinsing, neutralizing and drying are assessed with the grey scale.

## 4 Apparatus and materials

**4.1 Oven**, for drying specimens in air at 60 °C ± 2 °C and baking in air at 105 °C ± 2 °C.

**4.2 Sulfuric acid solution**, containing 50 g of concentrated sulfuric acid ($\rho$ 1,84 g/ml) per litre.

**4.3 Sodium carbonate solution**, containing 2 g of anhydrous sodium carbonate per litre.

**4.4 Test control**: A dyeing of CI Mordant Red 3 (Colour Index, 3rd Edition) treated with potassium dichromate.

The test control is prepared by entering a well wetted-out pattern of wool cloth at 40 °C into a dye-bath containing 1 % CI Mordant Red 3 (Colour Index, 3rd Edition), 10 % sodium sulfate decahydrate ($Na_2SO_4.10H_2O$) and 3 % acetic acid (300 g/l), all percentages being calculated on the mass of the pattern, at a liquor ratio of 40:1.

The dye-bath is raised to the boil in 30 min and boiled for a further 30 min. If necessary, the dye-bath is exhausted by careful addition of 1 % to 3 % acetic acid (300 g/l) or 1 % sulfuric acid ($\rho$ 1,84 g/ml), well diluted with water. The bath is boiled for a further 15 min after addition of the acid. The dye-bath is cooled down by addition of cold water, and 0,5 % potassium dichromate dissolved in water is added. The dye-bath is raised to the boil again and boiled for 30 min. The pattern is then removed, rinsed in cold, running tap-water and dried.