

INTERNATIONAL STANDARD

**ISO
12040**

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1997-03-01

Graphic technology — Prints and printing inks — Assessment of light fastness using filtered xenon arc light

*Technologie graphique — Impressions et encres d'imprimerie —
Évaluation de la solidité à la lumière au moyen d'une lampe à arc au xénon
munie d'un filtre*



Reference number
ISO 12040:1997(E)

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International Standard ISO 12040 was prepared by Technical Committee ISO/TC 130, *Graphic technology*.

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Introduction

The method for evaluating light fastness described in this International Standard using blue wool references is in technical conformity with the method given in ISO 2835. However, according to the latter, natural daylight shall be used to obtain a valid assessment of light fastness. This International Standard describes an accelerated test method by specifying the light source and filters for daylight simulation as well as exposure of the test samples to artificial daylight.

In addition, this International Standard is partly in agreement with ISO 105-B02. For more information on apparatus and test methods, ISO 105-B02 is recommended as a reference.

Color
Preview
Reference

▼ Voorbeeld

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Preview

Graphic technology — Prints and printing inks — Assessment of light fastness using filtered xenon arc light

1 Scope

This International Standard specifies a method for assessing the light fastness of prints and printing inks, by giving

- the general test requirements for prints;
- the special test requirements for inks.

This International Standard applies to all print substrates such as paper, board, metals (thin metal sheets and plate) and plastic films and to all printing processes.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard 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-A02:1993, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour.*

ISO 105-B02:1994, *Textiles — Tests for colour fastness — Part B02: Colour fastness to artificial light: Xenon arc fading lamp test.*

ISO 2834:1981, *Printing inks — Preparation of standardized prints for determination of resistance to physical and chemical agents.*

ISO 3664:1975, *Photography — Illumination conditions for viewing colour transparencies and their reproductions.*

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 light fastness of prints to filtered xenon arc light: Resistance of the print to the effects of a fixed light source (filtered xenon arc light) without direct influence from the weather.

3.2 light fastness of a printing ink: Resistance of a standard print assessed in accordance with the instructions given in this International Standard relating to prints.

4 Test methods

4.1 Principle

A test piece together with blue wool references is exposed to xenon arc light under specified conditions at the same time.

Light fastness is evaluated by noting on the scale of blue wool references the rating of that reference which has undergone a change similar to that of the test print.

4.2 Apparatus and materials¹⁾

4.2.1 Xenon arc lamp apparatus

The instrument chosen may be either air cooled or water cooled and shall be used as indicated by the manufacturer.

4.2.2 Blue wool references

The light fastness of prints is estimated by comparison with a standard range of eight blue dyes on wool cloth, their degree of light fastness being in regular steps. These dyes are largely unaffected by variation in temperature and humidity, and constitute an acceptable scale for the determination of the light fastness of all types of prints, whatever their colour, type and intensity.

The light fastness of prints is expressed as the number corresponding to one of the eight blue wool references. The range "1" denotes the lowest degree of light fastness and "8" the highest.

The eight ranges are as follows:

- | | | | |
|---|-----------------|---|-------------|
| 1 | Very poor | 5 | Good |
| 2 | Poor | 6 | Very good |
| 3 | Moderate | 7 | Excellent |
| 4 | Relatively good | 8 | Outstanding |

The range of the blue wool references is that established for textiles (see table 1). The blue wool references shall be protected from light before use.

Table 1

Light-fastness rating	Dye
1	Acid blue 104
2	Acid blue 109
3	Acid blue 83
4	Acid blue 121
5	Acid blue 47
6	Acid blue 23
7	Solubilized Vat blue 5
8	Solubilized Vat blue 8

The details shown in the column "Dye" correspond to the specifications given in the same column of the relevant table in ISO 105-B02.

1) Information on sources of apparatus and reference materials may be obtained by writing to the following address (and including a stamped addressed envelope):

Secretariat of ISO/TC 38/SC 1
 British Standards Institution (BSI)
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