



BSI Standards Publication

Imaging materials — Reflection colour photographic prints — Method for testing humidity fastness

National foreword

This British Standard is the UK implementation of [ISO 18946:2023](#). It supersedes [BS ISO 18946:2011](#), which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee CPW/42, Photography.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Imaging materials — Reflection colour photographic prints — Method for testing humidity fastness

*Matériaux pour l'image — Tirages photographiques en couleurs par
réflexion — Méthode d'essai de la solidité à l'humidité*



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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.

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 document 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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This document was prepared by Technical Committee ISO/TC 42, *Photography*.

This second edition cancels and replaces the first edition ([ISO 18946:2011](http://www.iso.org/iso/18946:2011)), which has been technically revised.

The main changes are as follows:

- Low humidity test has been removed, since the low humidity test was separated from [ISO 18946](http://www.iso.org/iso/18946) and published as [ISO 18949](http://www.iso.org/iso/18949).

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document addresses the methods and procedures for testing the humidity fastness of reflection colour photographic prints exposed to high humidity. This is of particular relevance to dye-based ink-jet prints or dye diffusion process prints^{[11][12][13][14][15][16][17]}.

Some types of colour photographic prints suffer from changes in image appearance when exposed to a high relative humidity environment. The observed changes relate to colour, tone and loss of sharpness caused by horizontal and vertical diffusion of colorants as a result of exposure to elevated humidity.

The elevated humidity can arise from:

- a) exposure to high relative humidity of the environment of the display area or storage space;
- b) trapped moisture as a result of stacking prints, or inserting them into albums, in a high relative humidity environment;
- c) trapped moisture as a result of stacking prints, or inserting them into albums, before sufficient dry time has elapsed.

NOTE For the investigation of cases b) and c), the “sealed bag” method within the thermal test [ISO 18936](#) can be adopted.

Therefore, humidity based on meteorological data and users’ behaviour was considered in determining the appropriate test conditions for the humidity fastness test. The test method stipulated in this document is validated for case a).

Image deterioration of dye-based prints caused by high humidity is often detectable by the following characteristics.

- Blur (sharpness loss), change of colour and/or tone is observed.
- The deterioration is observed in higher humidity, commonly over 80 % RH or over 90 % RH.
- The deterioration can occur in a relatively short time, even within one or two weeks.
- Higher density images, or images that contain more secondary or mixed colours, are generally more affected. The largest change is usually observed at the boundary of different colours, or with images that have contrasting background colours. The size of the higher density area also affects the deterioration because the solvent and water of the ink diffuses to the adjacent lower density area when the higher density area is small.

It is important to take into account these characteristics when determining the appropriate test chart and test conditions.

This document makes use of a checkerboard pattern that allows assessment of humidity-induced blur by means of a relatively simple colorimetric measurement^[12].

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