First edition
2011-12-15

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

Reference number
ISO 18946:2011(E)

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Published in Switzerland

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Foreword

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The main task of technical committees is to prepare International Standards. 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.

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ISO 18946 was prepared by Technical Committee ISO/TC 42, *Photography*.

Introduction

This International Standard addresses the methods and procedures for testing the humidity fastness of reflection colour photographic prints. Low and high humidity exposure are covered. This is of particular relevance to dye-based ink-jet prints or dye diffusion process prints[10][11][12][13][14][15][16].

Some types of colour photographic print 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.

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 International Standard 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.

It has also been observed that low relative humidities can accelerate the yellowing of certain types of inkjet papers. Indoor low humidities are common in colder climates as a result of heating air drawn in from the outdoors with very low dew points, and also in hot, dry climates in combination with air conditioning. In addition to D_{min} yellowing, very low humidities have also been shown to cause physical degradation to image-receiving layers; this phenomenon is outside the scope of this International Standard.

This International Standard makes use of a checkerboard pattern that allows assessment of humidity-induced blur by means of a relatively simple colorimetric measurement[11].