International

ISO 2469

Paper, board and pulps — Measurement of diffuse radiance factor (diffuse reflectance factor)

Papier, carton et pâtes — Mesurage du facteur de luminance énergétique diffuse (facteur de réflectance diffuse)

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This document was prepared by Technical Committee ISO/TC 6, *Paper, board and pulps*.

This sixth edition cancels and replaces the fifth edition (ISO 2469:2014), which has been technically revised.

The main changes are as follows:

— introduction of the method for calibrating to the CIE illuminant C and to the CIE standard illuminant D65, in addition to the procedure for calibration of the non-fluorescent part of the spectrum;

— addition of limit values for brightness and whiteness to check the performance of the calibration (as it is reported for non-fluorescence calibration);

— addition of effective residual ink concentration (ERIC number) to the list of optical properties based on reflectance and radiance measurements in the introduction;

— update of Annex C in order to reflect the revised version of ISO 4094;

— update of bibliography;

— editorial revision.

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.

The radiance factor depends on the conditions of measurement, particularly the spectral and geometric characteristics of the instrument used. The diffuse radiance factor as defined by this document is determined using instruments having the characteristics given in Annex A and calibrated with standards delivered in the framework of the organisation described in Annex B.

The diffuse radiance factor is the sum of the reflected radiance factor and the luminescent radiance factor, and the luminescent radiance factor of a luminescent (fluorescent) object is dependent on the spectral power distribution of the illumination. If adequately accurate measurements are carried out on fluorescent objects, the UV-content of the instrument illumination is adjusted to produce the same amount of fluorescence for a fluorescent reference standard as the selected CIE illuminant. The preparation of fluorescent reference standards to enable this adjustment to be made is described in Annex C. The use of these fluorescent reference standards is described in detail in the International Standards describing the measurement of the properties of the materials containing fluorescent whitening agents.

The spectral diffuse radiance factor or the weighted diffuse radiance factor applicable to one or several specified wavelength bands is often used to characterize the properties of pulp, paper and board. Examples of diffuse radiance factors associated with specified wavelength bands are the ISO brightness (diffuse blue radiance factor) and the luminance factor.

The diffuse radiance factor or diffuse reflectance factor is also used as the basis for calculating optical properties, such as opacity, colour, whiteness, effective residual ink concentration (ERIC number) and the Kubelka-Munk scattering and absorption coefficients. These various properties are described in detail in specific International Standards.