AS/NZS 1301.515:2017
ISO 2470-1:2016

AS/NZS 1301.515:2017

Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 515: Measurement of diffuse radiance factor (diffuse reflectance factor)—Indoor daylight conditions (ISO brightness)

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Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 515: Measurement of diffuse radiance factor (diffuse reflectance factor)—Indoor daylight conditions (ISO brightness)

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee PK-019, Methods of Test for Pulp and Paper, to supersede AS/NZS 1301.462s:2005, *Methods of test for pulp and paper,* Method 462s: *Measurement of diffuse blue reflectance factor (ISO brightness) of pulp, paper and paperboard.*

The objective of this Standard is to specify a method for measuring the diffuse blue reflectance factor (ISO brightness) of pulps, papers and boards.

This Standard is identical with, and has been reproduced from ISO 2470-1:2016, *Paper, board and pulps—Measurement of diffuse blue reflectance factor*—Part *1: Indoor daylight conditions (ISO brightness)*.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'this part of ISO 2470' should read 'this Australian/New Zealand Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
ISO		AS/NZS	
		1301	Methods of test for pulp and paper
186	Paper and board—Sampling to determine average quality	1301.417	Method 417s: Sampling to determine average quality
2469	Paper, board and pulps—Measurement of diffuse radiance factor (diffuse reflectance factor)	1301.510	Method 510: Measurement of diffuse radiance factor (diffuse reflectance factor)
3688	Pulps—Preparation of laboratory sheets for the measurement of diffuse blue reflectance factor (ISO brightness)	1301.466s	Method 466s: Preparation of laboratory sheets for the measurement of diffuse blue reflectance factor (ISO brightness)
		AS/NZS ISO	
7213	Pulps—Sampling for testing	7213	Pulps—Sampling for testing

Only normative references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the annex to which they apply. A 'normative' annex is an integral part of a Standard, whereas an 'informative' annex is only for information and guidance.

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INTRODUCTION

The diffuse reflectance factor (radiance factor) depends on the conditions of measurement, particularly the spectral and geometric characteristics of the instrument used. This part of ISO 2470 is therefore intended to be read in conjunction with ISO 2469 which defines the geometric characteristics of the instrument and also defines the photometric calibration procedure to be adopted.

The definition of ISO brightness is historically linked to the Zeiss Elrepho instrument having, as a light source, an incandescent lamp which excites fluorescence to only a limited extent. It is specified here that, in instruments of the abridged spectrophotometer or filter colorimeter type, the UV content of the illumination be adjusted to conform to the CIE illuminant C as defined by a fluorescent reference standard having an assigned value of ISO brightness as described in Annex B. Only if this is done can the property measured on a fluorescent material be called ISO brightness.

AUSTRALIAN/NEW ZEALAND STANDARD

Methods of test for pulp and paper

Method 515:
Measurement of diffuse radiance factor (diffuse reflectance factor)—
Indoor daylight conditions (ISO brightness)

1 Scope

This part of ISO 2470 specifies a method for measuring the diffuse blue reflectance factor (ISO brightness) of pulps, papers and boards.

This part of ISO 2470 is limited in its scope to white and near-white pulps, papers and boards. The measurement can only be made in an instrument in which the ultraviolet energy level of the illumination has been adjusted to correspond to the CIE illuminant C[6] using a fluorescent reference standard. The CIE illuminant C is taken to be representative of indoor daylight conditions because it contains a suitable proportion of UV radiation.[9]

NOTE The property called D65 brightness is measured with an instrument adjusted to correspond with CIE standard illuminant D65,[4] which has a much higher UV content than that specified in this part of ISO 2470. The measurement of D65 brightness is described in ISO 2470-2.[2]

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 186, *Paper and board — Sampling to determine average quality*

ISO 2469, *Paper, board and pulps — Measurement of diffuse radiance factor (diffuse reflectance factor)*

ISO 3688, *Pulps — Preparation of laboratory sheets for the measurement of diffuse blue reflectance factor (ISO brightness)*

ISO 4094, *Paper, board and pulps — International calibration of testing apparatus — Nomination and acceptance of standardizing and authorized laboratories*

ISO 7213, *Pulps — Sampling for testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
diffuse radiance factor
β

ratio of the diffusely reflected radiance of a body in a given direction to that of the perfect reflecting diffuser under specified conditions of irradiation

Note 1 to entry: For fluorescent (luminescent) materials, the specified conditions of irradiation in this part of ISO 2470 are CIE illuminant C and the diffuse radiance factor is strictly the total radiance factor, β, which is the sum of two components, the reflected radiance factor, β_R, and the luminescent radiance factor, β_L, so that:

$$\beta = \beta_R + \beta_L$$