AS/NZS 1301.560:2016
ISO 22754:2008

AS/NZS 1301.560:2016

Australian/New Zealand Standard™

Methods of test for pulp and paper

Method 560: Determination of the effective residual ink concentration (ERIC number) by infrared reflectance measurement

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee PK-019, Methods of Test for Pulp and Paper. It was approved on behalf of the Council of Standards Australia on 14 January 2016 and on behalf of the Council of Standards New Zealand on 17 December 2015.
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The following are represented on Committee PK-019:

Appita
Australian Forest Products Association
New Zealand Paper Forum
Scion

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This Standard was issued in draft form for comment as DR AS/NZS 1301.560:2015.

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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.

The objective of this Standard is to provide a method for determining the effective residual ink concentration by infrared reflectance measurement.

This Standard is identical with, and has been reproduced from ISO 22754:2008, *Pulp and paper—Determination of the effective residual ink concentration (ERIC number) by infrared reflectance measurement.*

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

(a) In the source text 'this International Standard' 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	Method of test for pulp and paper
186	Paper and board—Sampling to determine average quality	1301.417s	Method 417s: Sampling to determine average quality
2469	Paper, board and pulps—Measurement of diffuse radiance factor	1301.436	Method 436: Measurement of diffuse radiance 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)

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

The term 'informative' has been used in this Standard to define the application of the annex to which it applies. An 'informative' annex is only for information and guidance.

CONTENTS

INTRODUCTION

This International Standard provides a means of assessing the effective residual ink concentration (ERIC) in paper made from recycled fibres. The presence of residual ink influences the brightness and colour of pulp and of paper made from recycled fibre. The effect of the residual ink can be counteracted more easily if the effective concentration of the ink can be monitored. Brightness is not, however, an effective parameter for monitoring the deinking process, since brightness is affected by the presence not only of ink but also of other light-absorbing materials in the blue region of the spectrum such as lignin and dyestuffs. The ERIC method employs reflectance measurements in the infrared region of the spectrum where the light absorption coefficient of the ink is several orders of magnitude greater than the absorption coefficients of the fibre and other components, and this provides a sensitive means of estimating the concentration of ink [1]. This International Standard is based on the TAPPI method T 567 pm-97.

AUSTRALIAN/NEW ZEALAND STANDARD

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1 Scope

This International Standard specifies a method for the determination of the effective residual ink concentration (ERIC number) by infrared reflectance measurement.

This International Standard is applicable to all types of deinked, recycled pulp and to sheets of machine-made paper made from recycled pulp, where the residual ink is black. The method is applicable to materials available in sheet form only if the opacity at 950 nm is less than 97 %. The ERIC number obtained is dependent on the distribution of ink particle sizes, and the method is most effective for submicron particles [2]. The value obtained is reliable only if the test material is uniform in ink distribution, formation, and grammage such that presenting different parts of the sheet to the measuring aperture of the reflectometer produces very similar readings.

2 Normative references

The following referenced documents are indispensable for the application of this document. 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 536, *Paper and board — Determination of grammage*

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

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

ISO 14487, *Pulps — Standard water for physical testing*

3 Terms and definitions

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

3.1
diffuse reflectance factor
R
ratio of the radiation reflected by a body to that reflected by the perfect reflecting diffuser under the same conditions of diffuse illumination and normal detection

NOTE 1 The ratio is often expressed as a percentage.

NOTE 2 This International Standard prescribes diffuse irradiation and normal detection in an instrument calibrated in accordance with the provisions of this International Standard.