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**Paper, board and graphic  
technology — Determination of the  
coating strength in the inner fold**

*Papier, carton et technologie graphique — Détermination de la  
résistance du revêtement dans le pli intérieur*



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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 documents 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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 6 *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*, in collaboration with Technical Committee ISO/TC 130, *Graphic technology*.

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](http://www.iso.org/members.html).

## Introduction

When folding coated paper during post-press operations, the paper surface can crack in the fold and coating particles can be separated. In the final printed product, the cracking of coatings can cause aesthetic and technical disturbances. Separated particles can occur on both sides of the fold but only remain between sheets of the product, if separated from the inner fold. In case of a good contrast between particles and the printed surface, aesthetic quality problems result, which can cause customer complaints. Cracks can also occur on both sides of the fold but can only result in aesthetic quality problems, if both the fold is still present in the final product and in case of a good contrast between cracked fold and printed surface. Technical quality problems can occur, e.g. on thread-sewn products, if weakened coatings disturb the spine-gluing quality.

To improve the folding behaviour of paper and board, creasing is recommended. For woodfree coated papers (WFC), creasing is typically recommended for grammages of 170 g/m<sup>2</sup> and higher. Thereby, it should not be neglected that some post-press operations (e.g. folding of signatures) do not allow an effective creasing, and creasing cannot always achieve the desired improvement.

The coating strength in the fold can be determined both in the inner and outer side of a fold. This document contains a test method for the inner fold. This method has been developed in a research project<sup>[3]</sup> and is intended to be performed as general paper test to acquire knowledge on a material property and either as a print finishing quality prognosis or a quality acceptance test.

The test consists of four processes: folding of unprinted paper, separation of particles using an impact test device, image capturing of separated particles and image analysis.



# Paper, board and graphic technology — Determination of the coating strength in the inner fold

## 1 Scope

This document specifies a test method for the evaluation of the paper coating strength in the inner fold. The test method is intended for single or multiple coated papers up to a thickness of 150 µm that can be folded without creasing.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 187, *Paper, board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*

ISO 13655, *Graphic technology — Spectral measurement and colorimetric computation for graphic arts images*

## 3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

### 3.1

#### **inner fold**

fold on the inside of a folded sheet

### 3.2

#### **coating strength in the inner fold**

resistance of a paper coating against cracking and particle separation due to external forces

### 3.3

#### **machine direction**

##### **MD**

direction in a paper or a board parallel to the direction of travel of the web on the paper or board machine

[SOURCE: ISO 4046-3:2016, 3.79]

### 3.4

#### **cross direction**

##### **CD**

direction in a plane of the paper perpendicular to the machine direction

[SOURCE: ISO 4046-3:2016, 3.35]