

**Corrugated fibreboard - Determination of flat crush
resistance (ISO 3035:2011)**

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NATIONAL FOREWORD

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English Version

**Corrugated fibreboard - Determination of flat crush resistance
(ISO 3035:2011)**

Carton ondulé - Détermination de la résistance à la
compression à plat (ISO 3035:2011)

Wellpappe - Bestimmung des Flachstauchwiderstandes
(ISO 3035:2011)

This European Standard was approved by CEN on 31 October 2011.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN ISO 3035:2011) has been prepared by Technical Committee ISO/TC 6 "Paper, board and pulps" in collaboration with Technical Committee CEN/TC 172 "Pulp, paper and board" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2012, and conflicting national standards shall be withdrawn at the latest by May 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 3035:2011 has been approved by CEN as a EN ISO 3035:2011 without any modification.

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Introduction

Fibreboard shipping containers can be subjected to compressive forces in the thickness direction as part of the manufacturing process, as well as during shipment or storage. These forces can compress the flute structure and reduce the structural integrity (stacking strength) of the corrugated material. Resistance to this type of crushing is an important measure of the performance characteristics of the container.

Corrugated fibreboard — Determination of flat crush resistance

1 Scope

This International Standard specifies a method for the determination of the flat crush resistance of corrugated fibreboard used in the manufacture of shipping containers.

This International Standard is applicable to single-faced and single-wall (double-faced) corrugated fibreboard.

This International Standard is not applicable to double-wall (double-double-faced) corrugated fibreboard and to microflute corrugated fibreboard, since the end-point of the test is not clearly defined or observable.

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 187, *Paper, board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*

ISO 13820, *Paper, board and corrugated fibreboard — Description and calibration of compression-testing equipment*

3 Terms and definitions

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

3.1

flat crush

maximum crushing force, applied perpendicular to the surface of the fluting structure, sustained before complete collapse of the structure

3.2

collapse

point where the sidewalls of the flutes are no longer able to support load because they have suffered compression damage

NOTE At this point, the fluting profile appears similar to that of a mushroom (see Figure 2).

3.3

flat crush resistance

flat crush divided by the area of the test piece under the condition of test

NOTE The flat crush resistance is expressed in kilopascals.

4 Principle

A test piece of corrugated fibreboard is subjected to an increasing force applied perpendicularly to the surface by a compression tester having two flat and parallel platens, until the fluting collapses.

The maximum force sustained by the test piece is divided by the test piece area.