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Corrugated fibreboard - Determination of flat crush resistance (ISO 3035:2025)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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ICS 85.080.30

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EUROPEAN STANDARD

EN ISO 3035

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English Version

Corrugated fibreboard - Determination of flat crush resistance (ISO 3035:2025)

Carton ondulé - Détermination de la résistance à la compression à plat (ISO 3035:2025)

Wellpappe - Bestimmung des Flachstauchwiderstandes (ISO 3035:2025)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 3035:2025) 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of an identical text or by endorsement, at the latest by February 2026, and conflicting national standards shall be withdrawn at the latest by February 2026.

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

This document supersedes EN ISO 3035:2011.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

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Endorsement notice

The text of ISO 3035:2025 has been approved by CEN as EN ISO 3035:2025 without any modification.

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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 document 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).

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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.

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 the European Committee for Standardization (CEN) Technical Committee CEN/TC 172, *Pulp, paper and board*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 3035:2011) which has been technically revised.

The main changes are as follows:

- [5.1](#): NOTE has been deleted because beam deflection compression devices are not in the scope of ISO 13820:2021 anymore;
- [Clause 11](#) "Precision" has been added;
- precision data from Cepi-CTS have been updated.

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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.

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Corrugated fibreboard — Determination of flat crush resistance

1 Scope

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

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

This document 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 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 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 13820:2021, *Paper, board and corrugated fibreboard — Description and calibration of fixed platen compression-testing equipment*

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

flat crush

maximum crushing force, applied perpendicular to the surface of the fluting structure, sustained before complete *collapse* (3.2) 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 1 to entry: At this point, the fluting profile appears similar to that of a mushroom (see [Figure 2](#)).

3.3

flat crush resistance

flat crush (3.1) divided by the area of the test piece under the condition of test

Note 1 to entry: The *flat crush* (3.1) resistance is expressed in kilopascals.