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Corrugating medium — Determination of the edge crush resistance after laboratory fluting

Papier cannelure pour carton ondulé — Détermination de la résistance à la compression sur chant après cannelage en laboratoire

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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).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*.

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Introduction

This International Standard evaluates the ability of corrugating medium to contribute to the compression strength of a corrugated box. It is a procedure for measuring the edgewise compression strength of a laboratory-fluted strip of corrugating medium. The corrugated medium is fluted by passing it between heated rollers. Two different test procedures are then widely used.

a) The fluted corrugating medium is compressed immediately after fluting (i.e 20 s to 25 s after fluting).

b) The fluted corrugating medium is conditioned for 30 min to 35 min after fluting under standard laboratory test conditions before being compressed.

Procedure a) generally gives considerably higher results than those obtained with procedure b). The differences in results are claimed to be caused by the lower moisture content (and thus higher stiffness) of the unconditioned fluted corrugating medium.

Since considerable advantages are claimed for both procedures and both are widely used, this International Standard describes both procedures.

Test values and failure modes in this approach are expected to be different than those for ring crush method and short span compression test (SCT).

NOTE This test is sometimes referred to as CCT (corrugated crush test) or CFC (corrugated fluted crush test).

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Corrugating medium — Determination of the edge crush resistance after laboratory fluting

1 Scope

This International Standard specifies two methods for the determination of the edge crush resistance of a corrugating medium after laboratory fluting. The procedures are applicable to any corrugating medium to be used after fluting in the manufacture of corrugated fibreboard.

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

ISO 536, *Paper and board — Determination of grammage*

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
edge crush resistance
CCT
maximum edgewise compression force per unit length that a laboratory fluted test piece will withstand before onset of break under the test conditions specified in this International Standard

Note 1 to entry: Edge crush resistance is expressed in kilonewtons per metre (kN/m).

3.2
edge crush resistance index
edge crush resistance divided by the grammage

Note 1 to entry: The result is expressed in newton metres per gram (Nm/g).

4 Principle

The principle is as follows:

a) fluting of the paper by passing it between heated rollers and mounting in a holder with the flutes placed vertically;

b) application of a compressive force and determination of the maximum force per unit length.

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