Fifth edition
2013-08-01

Corrugated fibreboard — Determination of edgewise crush resistance (unwaxed edge method)

Carton ondulé — Détermination de la résistance à la compression sur chant (méthode sans enduction de cire)

Reference number
ISO 3037:2013(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

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. 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. 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.

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*.

This fifth edition cancels and replaces the fourth edition (ISO 3037:2007), which has been technically revised. Specifications for the compression testing machine have been replaced by reference to ISO 13820. Details of acceptable cutting devices have been moved to an informative annex and have been replaced by specifications of the quality of cut. In addition, precision data have been inserted in Annex B.

Introduction

A variety of methods for the determination of edgewise crush resistance are in use in different parts of the world. These can be classified into three groups as follows:

a) Those in which a carefully cut rectangular test piece is tested without any special treatment or modification (e.g. ISO 3037).

b) Those in which the edges of the test piece to which the force is applied are waxed, to prevent the test result being influenced by "edge effects" (e.g. ISO 13821, *Corrugated fibreboard — Determination of edgewise crush resistance — Waxed edge method*).

c) Those in which the test piece edges are not waxed but the shape of the test piece is such that the length is substantially reduced at a point midway between the loaded edges, in order to induce the failure to occur away from those edges (e.g. JIS Z 0403-2).

The dimensions of the test piece vary from one group to the other and, in group c), the methods vary in the shape and method of reducing the length, and in whether or not the test piece is held in a clamp during crushing.

The methods may not give the same numerical results, but it can be shown that most of them can be used to predict the top-to-bottom compression strength which will be achieved when the board is properly converted into a transport package.

This International Standard describes a method from group a). It is intended as a method for quality measurement and quality specification purposes and is selected because it correlates with the top-to-bottom compression strength of the final transport package and because it is the simplest and most operationally convenient method, an important factor when large numbers of tests need to be conducted. However, it does not measure the actual intrinsic compressive strength of the corrugated fibreboard, giving lower results than most of the methods in groups b) and c). This systematic difference is due to edge effects.

Other methods may be used for other purposes, particularly when the object of the test is to study fundamental structural characteristics of the package.

There are methods available for calculating the edgewise crush resistance from the compression strength of the component papers.