

INTERNATIONAL  
STANDARD

**ISO**  
**12048**

First edition  
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**Packaging — Complete, filled transport  
packages — Compression and stacking  
tests using a compression tester**

*Emballages — Emballages d'expédition complets et pleins — Essais de  
compression et de gerbage à l'aide d'une machine d'essai de compression*



Reference number  
ISO 12048:1994(E)

## 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10248 was prepared by Technical Committee ISO/TC 122, *Packaging*, Subcommittee SC 3, *Performance requirements and tests*.

This first edition cancels and replaces ISO 2872:1985 and ISO 2874:1974, which have been technically revised.

Annexes A and B of this International Standard are for information only.

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# Packaging — Complete, filled transport packages — Compression and stacking tests using a compression tester

## 1 Scope

This International Standard specifies a method for testing the resistance to compression of complete, filled transport packages and a method for carrying out a stacking test on complete, filled transport packages using the same apparatus.

The test may be used to assess the performance of a package in terms of its strength or the protection it offers to its contents when it is subjected to compressive forces. A test may be performed either as a single test to investigate the effects (deformation, collapse or failure) of compression or stacking, or as part of a sequence of tests designed to measure the ability of a package to withstand a distribution system that includes a compression or stacking hazard.

This test may also be used as a stacking test to investigate performance under particular conditions of loading, as, for example, when the bottom package in a stack rests on an open-decked pallet.

## 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2206:1987, *Packaging — Complete, filled transport packages — Identification of parts when testing*.

ISO 2233:—<sup>1)</sup>, *Packaging — Complete, filled transport packages — Conditioning for testing*.

## 3 Principle

The test package is placed between the platens of a compression tester and either:

- in the case of a compression test, a load is applied until failure occurs or predetermined values for load or displacement are reached; or
- in the case of a stacking test, a predetermined load is applied for a predetermined time or until failure occurs.

## 4 Apparatus

**4.1 Compression tester**, motor-driven, platen-type, capable of applying load through uniform movement of one or both platens at a relative speed of  $10 \text{ mm/min} \pm 3 \text{ mm/min}$ .

### NOTES

1 The comparison between results obtained from apparatus operated at other speeds (for example  $12,5 \text{ mm/min} \pm 2,5 \text{ mm/min}$ ) and results obtained at  $10 \text{ mm/min} \pm 3 \text{ mm/min}$  is not recommended.

2 For certain packagings, such as metal drums or wooden crates, lower speeds may be required to prevent load peaks in excess of the predetermined value.

### 4.1.1 Platens

Each platen shall be

— flat:

- with a tolerance of 1 part in 1 000 for surface areas  $< 1 \text{ m}^2$ ;
- for surface areas  $> 1 \text{ m}^2$ , such that when placed horizontally the difference in height between the lowest and highest points of the platen does not exceed 1 mm;

— dimensioned so as to extend over the whole area of that side of the test package or interposed devices with which it is in contact;

1) To be published. (Revision of ISO 2233:1986)