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# International Standard



# 2248

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

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## **Packaging — Complete, filled transport packages — Vertical impact test by dropping**

*Emballages — Emballages d'expédition complets et pleins — Essai de choc vertical par chute libre*

**Second edition — 1985-12-15**

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**Descriptors :** packing, transport packing, complete-and filled packages, tests, impact tests, drop tests.

## 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 2248 was prepared by Technical Committee ISO/TC 122, *Packaging*.

This second edition cancels and replaces the first edition (ISO 2248-1972) which has been technically revised as follows:

- a new clause on "Package preparation" has been added.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

# Packaging — Complete, filled transport packages — Vertical impact test by dropping

## 1 Scope and field of application

This International Standard specifies a method for carrying out a vertical impact test on a complete, filled transport package by dropping. It may be performed either as a single test to investigate the effects of vertical impact or as part of a sequence of tests designed to measure the ability of a package to withstand a distribution system that includes a vertical impact hazard.

## 2 References

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

ISO 2233, *Packaging — Complete, filled transport packages — Conditioning for testing.*

## 3 Principle

Raising of the test package above a rigid plane surface and releasing it to strike this surface (the "impact surface") after a free fall<sup>1)</sup>. The atmospheric conditions, the height of drop and the attitude of the package are predetermined.

## 4 Apparatus

**4.1 Lifting arrangement**, which will not damage the test package during either lifting or release.

**4.2 Means of holding the test package** prior to release in its predetermined attitude.<sup>2)</sup>

**4.3 Release mechanism**, to release the test package in such a way that its fall is not obstructed by any part of the apparatus before striking the impact surface (4.4).

**4.4 Impact surface**, horizontal and flat, massive enough to be immovable and rigid enough to be non-deformable under test conditions.

NOTE — In normal circumstances, the impact surface provided shall be

- integral with a mass at least 50 times that of the heaviest package to be tested;
- flat, such that no two points on its surface differ in level by more than 2 mm;
- rigid, such that it will not be deformed by more than 0,1 mm when an area of 100 mm<sup>2</sup> is loaded statically with 10 kg anywhere on the surface;
- sufficiently large to ensure that the test package falls entirely upon the surface.

In addition, the apparatus shall meet the requirements and tolerances of clause 7.

## 5 Package preparation

The test package shall normally be filled with its intended contents. However, simulated or dummy contents may be used, on condition that the dimensions and physical properties of such contents shall be as close as possible to those of the intended contents.

Ensure that the test package is closed normally, as if ready for distribution. If simulated or dummy contents are used, ensure that the normal method of closure is still employed.

## 6 Conditioning

The package shall be conditioned in accordance with one of the conditions described in ISO 2233.

1) In some circumstances, a completely free fall may not be possible; in such circumstances, the impact velocity shall be within 1 % of that which is achieved by a free fall.

2) The difference in behaviour of a sack, for example, suspended from the top or supported below in an end drop, could be significant. In such instances, the method of holding the package before dropping shall be described in the test report.