

# INTERNATIONAL STANDARD

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**2247**

Third edition  
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## **Packaging — Complete, filled transport packages and unit loads — Vibration tests at fixed low frequency**

*Emballages — Emballages d'expédition complets et pleins et charges  
unitaires — Essais de vibration à basse fréquence fixe*



Reference number  
ISO 2247:2000(E)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

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

International Standard ISO 2247 was prepared by Technical Committee ISO/TC 122, *Packaging*, Subcommittee SC 3, *Performance requirements and tests for means of packaging, packages and unit loads (as required by ISO/TC 122)*.

This third edition cancels and replaces the second edition (ISO 2247:1985), which has been technically revised.

Annex A forms a normative part of this International Standard.

## Introduction

It is the responsibility of the user of this International Standard to establish appropriate health and safety practice in accordance with relevant legislation.

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# Packaging — Complete, filled transport packages and unit loads — Vibration tests at fixed low frequency

## 1 Scope

This International Standard specifies methods to carry out vibration tests on complete, filled transport packages or unit loads using sinusoidal excitation at fixed frequency. These tests may be used to assess the performance of packages and unit loads in terms of the strength or the protection that they offer to their contents when subjected to low frequency vibration. These tests may be performed either as a single test to investigate the effects of low frequency vibration or as a part of a sequence of tests designed to measure the ability of a package or unit load to withstand a distribution system that includes a vibration hazard at low frequency or repetitive shocks.

## 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

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

ISO 2234, *Packaging — Complete, filled transport packages and unit loads — Stacking tests using static load.*

## 3 Term and definition

For the purposes of this International Standard, the following term and definition applies.

### 3.1

#### **test specimen**

a complete, filled transport package or unit load

## 4 Principle

The test specimen is placed on a vibration table and subjected to a vibration using an approximately sinusoidal excitation at a fixed low frequency. The atmospheric conditions, the duration of the test, the peak acceleration, the attitude of the test specimen and any method of restraint are predetermined.

NOTE When required, a load may be superimposed on the test specimen to simulate conditions at the bottom of a stack.