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# INTERNATIONAL STANDARD



# 2247

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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 Part VI : Vibration test

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## FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up 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.

International Standard ISO 2247 was drawn up by Technical Committee ISO/TC 122, *Packaging*.

It was approved in July 1971 by the Member Bodies of the following countries :

Australia	India	Spain
Austria	Ireland	Switzerland
Belgium	Israel	<del>Thailand</del>
Czechoslovakia	Italy	Turkey
Egypt, Arab Rep. of	Japan	United Kingdom
France	Netherlands	U.S.A.
Germany	Romania	U.S.S.R.
Hungary	South Africa, Rep. of	Yugoslavia

The Member Bodies of the following countries expressed disapproval of the document :

Norway  
Sweden

# Packaging — Complete, filled transport packages

## Part VI : Vibration test

### 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method of making a vibration test on a complete, filled transport package. This test may be used to assess the performance of a package in terms of its strength or the protection that it offers to its contents when it is subjected to vibration. It may be performed either as a single test to investigate the effects of vibration or as part of a sequence of tests designed to measure the ability of a package to withstand a distribution system that includes a vibration hazard.

NOTE — Other methods of vibration testing of packages are being examined and will be considered for inclusion at a later date.

There are methods in use which reproduce the vibrating environment, but it would be desirable to have a method more closely representative of the environment and if such a method were developed it would be scientifically preferable to the present procedure.

### 2 REFERENCES

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

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

ISO 2234, *Packaging — Complete, filled transport packages — Part III : Stacking test.*

### 3 PRINCIPLE

The package is placed on a vibration table and vibrated. The atmospheric conditions, the duration of the test and the attitude of the package are predetermined. When required, a load may be superimposed on the package to simulate conditions at the bottom of a stack.

### 4 APPARATUS

**Vibration table**, of sufficient size, rigidity and weight-carrying capacity, supported on a mechanism that will maintain the surface horizontal during vibration. The

difference in level between any two points on the surface of the table at rest must not exceed 2 mm.

The table may be equipped with

- 1) low fences to restrict sideways and endways movement during testing;
- 2) high fences or other means of maintaining a superimposed load in position on the package during testing.

Additionally the apparatus shall meet the requirements and tolerances of section 6.

### 5 CONDITIONING

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

### 6 PROCEDURE

The test shall be carried out if possible in the same atmospheric conditions as used for conditioning, or if not the test must commence within 5 min of removing the package from those atmospheric conditions.

Place the package in the predetermined attitude on the vibration table, with the centre of its lowest face within 10 mm of the centre of the table; the package may be fenced in but must not be secured to the table. If a superimposed load is required, the loading procedure shall comply with section 6 of ISO 2234.

Operate the table between 3 and 4 Hz for the predetermined period to give a peak acceleration of  $0.75 \pm 0.25 g$ . The movement shall be such that the vertical component is approximately sinusoidal and a rotary movement of the table is acceptable.

NOTE — The accuracy to 10 mm mentioned above shall not apply to vibrating tables when the entire plate moves in the same manner.

### 7 TEST REPORT

The test report shall include the following particulars :

- a) the number of replicate packages tested;