
International Standard



8318

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Packaging — Complete, filled transport packages — Vibration tests using a sinusoidal variable frequency

Emballages — Emballages d'expédition complets et pleins — Essai de vibration à fréquence sinusoïdale variable

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Foreword

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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 8318 was prepared by Technical Committee ISO/TC 122, *Packaging*.

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Packaging — Complete, filled transport packages — Vibration tests using a sinusoidal variable frequency

1 Scope and field of application

This International Standard specifies two methods for carrying out a vibration test on a complete, filled transport package using a sinusoidal variable frequency. These tests 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 vertical vibration. Each may be performed either as a single test to investigate the effects of vertical 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 — A vibration test for complete, filled transport packages using vibration at a fixed low frequency (of between 3 and 4,6 Hz) is given in ISO 2247.

2 References

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

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

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

ISO 2247, *Packaging — Complete, filled transport packages — Vibration test at fixed low frequency.*

3 Principle

Placing of the test package on a vibration table and vibration of it using a frequency varying at a constant rate between 3 and 100 Hz, which may be followed by vibration between $\pm 10\%$ of the principal resonant frequencies within the range from 3 to 100 Hz. The atmospheric conditions, the duration of the test, the peak acceleration, the attitude of the package and its method of restraint are predetermined. When required, a load may be superimposed on the package to simulate conditions at the bottom of a stack.

4 Apparatus

4.1 Vibration table, of sufficient size, rigidity and mass-carrying capacity, supported on a mechanism that will maintain the surface horizontal during vibration. The difference in surface level between the table extremities shall not exceed 10 mm.

The table may be equipped with

- low fences to restrict sideways and endways movement during testing;
- high fences or other means of maintaining a superimposed load in position on the test package during testing;
- means to simulate the method of restraining the package during transit.

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

4.2 Instrumentation, comprising accelerometers, signal conditioners and data display or storage devices to measure and control the accelerations at the test surface. The instrumentation system shall have a response accurate to within $\pm 5\%$ over the frequency range specified for the test.

NOTE — Instrumentation may also be desirable for monitoring the response of the containers and packaged items. Sensors may be used to record velocities, amplitude and frequencies of the contents in relation to the forcing vibrations of the vibration table and possibly those of the outer surfaces of the package.

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.