

New Edition of ASTM D999-07 for Vibration Test of Shipping Containers

The new edition of **ASTM D999-07 Standard Test Methods for Vibration Testing of Shipping Containers** has been recently approved and published in October 2007, which would replace the previous edition of ASTM D999-01.

This standard specifies vibration test methods of filled shipping containers, which may be used to assess the performance of a container, with its interior packing and means of closure, both in terms of its strength and of the protection it provides its contents when subjecting to vibration as if it experiences in transportation.



Same as ASTM D999-01, this new edition **ASTM D999-07** covers 4 different methods for vibration tests:

- *Method A1 – Repetitive Shock Test (Vertical Motion)*
- *Method A2 – Repetitive Shock Test (Rotary Motion)*
- *Method B – Single Container Resonance Test*
- *Method C – Palletized Load, Unitized Load, or Vertical Stack Resonance Test*

The major changes compared with the previous edition lie on Methods A1 and A2, which can be summarized as follows.

| Section | Changes |
|---|---|
| 4.5 Method A1 and A2, Repetitive Shock Tests | Add a Note 2 specifying that the test procedure is not intended for testing shipping containers at a frequency that causes the container to go into resonance. |
| 5.3 Metal Shim | Separately described in details under Section 5 Apparatus for the use of metal shim in Methods A1 and A2 for determining when the shipping container is leaving the testing platform. Dimensions of metal shim were also specified. Width: 50 mm (20 in.) minimum Thickness: 1.6 mm (1/16 in.) Length: 254 mm (10 in.) minimum In ASTM D999-01, a similar shim was mentioned in the test procedure 9.1.2 but not as explicitly addressed as in ASTM D999-07. |
| 6 Safety Precautions | Give an example of “dangerous condition”. |
| 7 Test Specimens | Highlight in Note 4 that water should be used as the standard test medium for those packaging intended to contain liquid dangerous goods (hazardous materials). |
| 9.1 Methods A1 and A2 – Repetitive Shock Tests | Specify in clause 9.1.1.1 for the correct positioning of shipping container. <ul style="list-style-type: none"> ▪ Method A1 – Place the shipping container in the center of the platform ▪ Method A2 – Place the shipping container near the backstop or fence, equidistant from each side of the platform. Specify in clause 9.1.1.3 that when restraining devices are used, there should be no severe horizontal impacting of containers against restraints. Specify in clause 9.1.2.2 & 10.1.16 that in case there requires adjustments to the test frequency (in order to maintain proper separation of container from platform due to the container movement or physical changes to the container), such adjustments should be recorded and reported. |

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