

**COMMITTEE OF EXPERTS ON THE TRANSPORT OF
DANGEROUS GOODS AND ON THE GLOBALLY
HARMONIZED SYSTEM OF CLASSIFICATION
AND LABELLING OF CHEMICALS**

Sub-Committee of Experts on the
Transport of Dangerous Goods

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PACKAGINGS (INCLUDING IBCs AND LARGE PACKAGINGS)

Vibration test

Submitted by the expert from Canada

1. A vibration test in accordance with ASTM D 999, method A1, is currently a requirement for UN IBCs approved by the competent authority of Canada as a stand-alone type test. Based on our experience with this test, we know that when it is used for design type approval, it is an effective and practical tool to weed out inadequate IBC designs before they can be used to transport dangerous goods. The ASTM D999 A1 test can be performed at modest per unit cost and without the need for highly sophisticated testing apparatus.
2. For the information of the Sub-Committee, section 9.1.2 of ASTM D 999 A1 is provided below to illustrate the test method that is required in Canada:

"Start the vibration of the platform at a frequency of about 2 Hz, and steadily increase the frequency until some portion of the test specimen repeatedly leaves the test surface. To ensure that the test specimen repeatedly receives a continuing series of repetitive shocks, a shim with a 1.6 mm (1/16-in) thickness and a width of 50 mm (2.0 in) shall be used to determine when the specimen is leaving the test platform by inserting it under the package, a minimum of 100 mm (4.0 in), and moving it intermittently along one entire length of the package."

The test method as described above has been performed in Canada for many years. We have found it to be clear, easily achieved and verifiable and it is challenging enough to discriminate effectively between sound designs and those that are inadequate.. In addition, in Canada we require that the test be done at a rated gross mass rather than with water.

Despite Canada's stringent requirements, we have many UN 31HA1 IBCs registered with Transport Canada that have fully satisfied our vibration test requirements.

Canada's requirements allow for flexibility to conduct the vibration test on another IBC of the same design outside the sequence. Canada's vibration test is conducted as a stand-alone test because it is a stringent test. In addition, the number of facilities where vibration test equipment is available is relatively limited and requiring the vibration test to come first within the sequence would cause significant logistics problems and increase costs for completing the series of design type tests.
