

Removable lid containers made of fibre**Sources**

- VPA 3 of July 2004 - Compression test
- DIN 6141 of Oct. 2000 - removable lid containers made of fibre
- EN 22 206 of Feb. 1993 - ready for dispatch packaging, nomenclature of planes, edges and corners
- DIN EN ISO 2233 of Nov. 2001 - ready for dispatch packaging, climatic pre-treatment for testing
- DIN EN ISO 2234 of Dez. 2002 - ready for dispatch packaging, stacking test with static load
- EN 22 248 of Feb. 1993 - ready for dispatch packaging, free fall

1. Standard requirements**1.1 Cleanliness**

Containers must be free of contaminations and foreign particles (e.g. paper or residual glue) inside and outside.

1.2 Processing

Layers must be glued free of wrinkle and delamination. Damages of border or lid, sharp cut edges on clamp ring, head ring, bottom and lid rim as well as head rings bulging out of hull are inadmissible.

Welding seam on border of head ring has to be free of misalignment. Beginning and ending of coil must overlap each other.

2. Sampling

Manufacturer and purchaser shall agree upon range of random sampling.

3. Climatic pre-treatment**3.1 Purpose**

By climatic pre-treatment of the specimen a defined and reproducible condition of the containers will be achieved.

3.2 Procedure

Specimen will be exposed to a defined climate based upon DIN EN ISO 22 233, preferably climate 7 (23°C/50%r.H.). Duration of acclimatisation, 24 hours preferably, is to be chosen according to testing aim.

Removable lid containers made of fibre**4. Tests****4.1 Dimensions****4.1.1 Purpose:**

This determination is fit for consistent and work-manlike ascertainment of dimensions of finished fibre drums.

4.1.2 Terms:

- a) outside height up to top edge of lid (h_3 according to DIN 6141)
- b) outside height up to top edge of border (h_2 according to DIN 6141)
- c) inside diameter of body (d_1 according to DIN 6141)
- d) diameter of fill opening (d_4 according to DIN 6141)
- e) Outside diameter measured on clamp ring, not on clamp lever closure (d_2 according to DIN 6141)
- f) Bottom thickness (s_1 according to DIN 6141)
- g) Lid thickness (s_2 according to DIN 6141)
- h) Body thickness (not to be taken in overlap zone)

4.1.3 Test devices:

Main dimensions: e.g. slide gauge, circometer, steel tape-measure

Wall thickness: e.g. slide gauge, micrometer

4.2 Mass**4.2.1 Purpose:**

Test is fit for ascertainment of tare weight.

With curtailments wall thickness and packaging performance can be concluded out of tare weight.

4.2.2 Terms:

- Body weight: container weight with fix mounted additional parts but without closure elements
- Total weight: container weight with all additional parts and closure elements

4.2.3 Test device:

Suitable is every test scale covering the samples weight range and having a measuring accuracy of at least 1 % of the predetermined measuring range.

4.2.4 Preparation:

Samples only have to be climatically pre-treated according to number 3, if by this means weight changes in measuring range of predetermined test scale can be expected.

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4.2.5 Procedure:
Weight of samples will be measured and recorded individually according to operating

4.3 Compression test

4.3.1 Purpose:
Test is fit for ascertaining the axial Compression resistance and thus to evaluate stacking ability of packaging during storage and transport.

4.3.2 Procedure:
Test will be carried out according to VPA 3.
Instructions of the scale.

4.4 Number of body layers

4.4.1 Purpose:
Test is fit for ascertaining the number of full hull windings for identification purposes. The results can be used for evaluation of performance and grade of conformance with preset values.

4.4.2 Test devices:
- Cutting tools which render possible smooth cut surfaces
- Enlarger

4.4.3 Procedure:
A test-piece of the body is taken from the container.

It must not be taken out of the overlap zone. Body layers are counted at a cut surface by use of a suitable enlarging device.

4.5 Stacking test

4.5.1 Purpose:
Test is fit for ascertaining the stacking suitability of similar packaging during storage and transport.

4.5.2 Short-time test:
Tests are carried out according to DIN EN ISO 2234 with min. 3 containers. Test duration is 24 hours.

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4.5.3 Long-term test:

Test to be carried out as described under 4.5.2. Differing from that test duration is 7 days. Climatic conditions have to stay the same during the whole test period.

4.6 Drop test

4.6.1 Purpose:

Test is fit for determination of resistance against impact stress on filled and closed packaging.

4.6.2 Terms:

- Impact spot: Predetermined spot of the test container with which it hits the impact plane.
- Height of drop: Height difference being passed by impact spot during drop.
- Impact angle: Angle formed by bottom plane or edge of packaging and impact plane during drop.

4.6.3 Test devices:

- Lifting facility (e.g. drop table) that allows to choose various drop heights as well as defined impact spots and angles.
- Impact plane consisting of a rigid, smooth plane with a defined finish (according to EN 22 248) placed horizontally below lifting facility.

4.6.4 Preparation:

Fill the according to number 3 climatically pre-treated containers with the predestined packaging good up to permissible/Predetermined weight and close it ready for dispatch with the original fittings. Packaging good substitutes may be used, which in their physical properties are as near as possible to the predestined packaging goods.

4.6.5 Procedure:

Tests are carried out based upon EN 22 248.

4.6.6 Drop testing:

- Submit specimen to test immediately after climatic pretreatment.
- Determine height of drop according to respective requirements.
- Choose impact angle so that sample's center of gravity is placed vertically above impact spot.
- Impact spots:
 - rim of lid at clamp lever, rim of bottom diagonally opposite clamp lever, body line at clamp lever
- Every sample is put to the test only once.

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- Evaluation:

After drop test there must not be any spilling of contents; no closure parts may be completely separated from container.

4.7 Tightness of weather-proof type

4.7.1 Purpose:

Test is fit for determination of resistance against spill of relaxed water out of closed packages. With the test the suitability for certain application purposes can be evaluated.

4.7.2 Tightness of closure zone: Containers with liquid tight closure zone filled with relaxed water up to nominal capacity and stored upside down for 10 min. at room temperature. No water may leak out between lid and body during storage.

4.7.3 Water permeability of body and body bottom joint:

Containers filled with relaxed water up to nominal capacity and stored standing on bottom for 5 hours at room temperature.

After storage there may not be any moisture stains on outer body surface; no water may leak out between bottom and body.

4.8 Test report

Test report has to state at least:

- Type and number of tested packages (e.g. pack specification number)
- Manufacturing date and/or order number
- Way of taking random samples
- Individual results and - if applicable - description of failure type with all observations of possible significance for evaluation
- Place, tester and test date.