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# FEFCO testing method No. 56

January 2015

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## Determination of the bottom bending of corrugated fibreboard trays

### 1. Scope

This Testing Method specifies the procedure for determining the bending of the bottom of corrugated fibreboard trays.

### 2. References

- FEFCO Testing Method no. 1: sampling procedure
- ISO 2206: Packaging - Complete, filled transport packages - Identification of parts when testing
- ISO 2233: Packaging - Complete, filled transport packages and unit loads - Conditioning for testing

### 3. Principle (see figure 1)

Placing of the test tray on two lateral supports.

Filling of the test tray with a predetermined load of actual or dummy contents. Measurement of the centre deflection of the bottom of the test tray after a predetermined time.

### 4. Apparatus

Two identical parallelepiped rigid blocks larger than the test tray, providing a predetermined width of vertical support of the extremities of the test tray and such as to allowing full deflection of the bottom of the test tray.

A dial gauge micrometre graduated in millimetres of sufficient throw allowing reading to the tenth of a millimetre.

### 5. Sampling

Unless otherwise specified, sample in accordance with FEFCO Testing Method 1.

### 6. Conditioning

Test trays shall be conditioned at the specified condition in accordance with ISO 2233.

### 7. Preparation of the tray

Erect and assemble the tray according to the procedure agreed upon.

### 8. Procedure

Place the predetermined sides of the test tray at the predetermined width of vertical support on the two blocks.

Apply and zero the dial gauge micrometre at the centre of the bottom of the test tray.

Fill the test tray with the predetermined load of actual or dummy contents.

After the predetermined time read the deflection of the bottom of the test tray indicated by the dial gauge micrometre.

Repeat the procedure for the predetermined number of replicates.

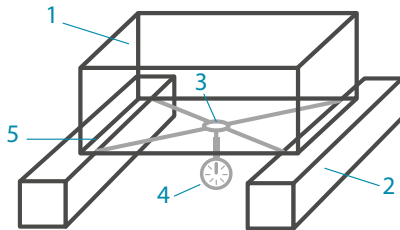
### 9. Test report

The test report shall at least include:

- Date and place of testing
- Reference to this testing method
- Number of replicates
- Full description of the tray and its dimensions
- Condition used for conditioning
- The attitude in which the tray was tested using the method of identification of ISO 2206
- Conformance of the test equipment



Figure 1: Test assembly



#### Keys

1. Test tray
2. Lateral blocks for vertical support
3. Measuring point
4. Dial gauge micrometre
5. Width of vertical support

- Deflections of the bottom of the trays in millimetres to the tenth of millimetres
- Arithmetic mean and standard deviation of the deflections rounded to one decimal place
- Any deviation from the procedure specified in this testing method
- Any observation which may assist in the correct interpretation of the results
- Name and signature of the operator

3. Width of support of the extremities of the tray: width of the imprint of the top bearing side of the tray (same bearing as in the stack)
4. Duration of the test before reading the deflection of the bottom of the tray under load: 10 minutes
5. Number of replicates: 3
6. Each National Association will determine the maximum mean of bottom deflection, BUT under no circumstance the maximum bottom deflection mean can exceed 15 mm

#### The following particulars are requested by CFQ Regulations for testing purposes:

1. The empty trays have to be filled with its corresponding products OR similar dummy products (water bottles or pockets, sand...) as per the National Association approved procedures. In any case, the products have to be distributed evenly on the box floor
2. The load has to be 1,5 times the nominal content weight



