Corrugated fibreboard boxes for export of horticultural produce— Specification

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Corrugated fibreboard boxes for export of horticultural produce— Specification

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Foreword

This Kenya Standard was prepared by the Paper and paper products Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards.

Kenya Bureau of Standards (KEBS) has established Technical Committees (TCs) mandated to develop Kenya Standards (KS). The Committees are composed of representatives from the public and private sector organizations in Kenya.

Kenya Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft Kenya Standards are circulated to stakeholders through the KEBS website and notifications to World Trade Organization (WTO). The comments received are discussed and incorporated before finalization of the standards, in accordance with the Procedures for Development of Kenya Standards.

Kenya Standards are subject to review, to keep pace with technological advances. Users of the Kenya Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

Packaging is a very vital factor in marketing, and the quality of packaging materials can adversely affect both the volume and value of the contents and especially in the field of horticultural products.

Corrugated fibreboard boxes are widely used for packaging, both in local trade and export. The appearance and performance of such boxes during handling, storage and in the overseas market is of crucial importance in the marketing of horticultural products. The boxes are not only supposed to be appealing to the customers, but they should also offer proper protection from damage during transportation, handling and storage of the horticultural produce.

This second edition cancels and replaces the first edition (KS 948:1999), which has been technically revised.

The main changes as compared to the previous edition is as follows

* Rearrangement of the title to read, “Corrugated fibreboard boxes for export of horticultural produce— Specification.”
* Addition of a clause on Normative references
* Revision of Table 1 title and content to include Edge crush resistance values.
* Deletion of Clauses 3.8 and 3.10
* Revision of clause 3.9 to "35g/m²." maximum
* Addition of a note under marking: "The above can be captured using a QR code or any other applicable technologies."
* Revision of clause 5 packaging to include an alternative method of packaging “palatized.”
* Deletion of Annex A

Corrugated fibreboard boxes for export of horticultural produce— Specification

# 1 Scope

# This Kenya Standard prescribes the requirements and methods of test for corrugated fibreboard boxes for export of horticultural produce

# 2 Normative references

# The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

# ISO 187, *Paper, board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples.*

# ISO 186, *Paper and board — Sampling to determine average quality*

# ISO 21067, *Packaging — Vocabulary*

# 1SO 3037 *Corrugated fibreboard — Determination of edgewise crush resistance (non-waxed edge method*

# ISO 535, *Paper and board — Determination of water absorptiveness — Cobb method*

# 3 Terms and definitions

# For the purpose of this standard, the terms and definitions given in ISO 21067 and the following shall apply:

# 3.1 manufacturer’s joint — That part of the box where the ends of the board are joined together, by taping, stitching or by gluing.

# 3.2 corrugated fibreboard — Board consisting of one (single-wall, double-wall and triple-wall), or more sheets of fluted papers stuck to a flat sheet of paper or board or between several liners (see Figures 1(a) to (c)).



FIG. 1(a) — SINGLE-WALL CORRUGATED FIBREBOARD



FIG. 1(b) — DOUBLE-WALL CORRUGATED FIBREBOARD



FIG. 1(c)— TRIPLE-WALL FIBREBOARD

**3.3** seam — The part of a box where the user in closing the box brings together or overlaps the edges of the outer flaps.

**4.** **REQUIREMENTS**.

**4.1 General**

The corrugated fibreboard shall not crack or delaminate on bending or creasing. The outer liner shall be hard sized and shall have good printability. The liners shall be firmly glued to the fluting.

The faces of the box shall not contain visible defects like tears, punctures or holes. The corrugated board shall not be swollen or bent.

**4.1.1 Construction** — The boxes shall be manufactured to the style and design of the buyer.

**4.1.2 Load Capacity** — In order for the manufacturer to produce a box to carry a predetermined load, and hence the box to meet a certain edge crush resistance, the buyer shall provide the manufacturer with the following information:

(i) dimensions of each unit to be packed.

(ii) mass of the filled box.

(iii) number of units, where applicable.

(iv) method of packing

(v) height of stacking and duration of storage under given humidity and temperature.

(vi) samples of the units to be packed, where applicable.

(vii) the type of internal fitments to be used if required.

**4.1.3 Blanks** — The blanks shall be properly creased and slotted so that when the box is assembled, there shall be slots of depth not more than 3 mm at the corners.

The flaps of the boxes shall be capable of being folded 180º along the line of the creasing without fracture of the board or liner.

**4.1.4 Manufacturer’s Joint** — The joint shall be made either by a lap or by butting the edges, by glueing or stitching. The adhesives used for the manufacturer’s joint shall be adequately resistant to humidity and temperature. When the joint is made by butting the edges, it shall be secured by adhesive tape along the complete length of the joint. The tape shall not be less than 50 mm wide.

 **4.1.5 Dimensions** — The dimensions of the box’s length, width and depth shall conform to the dimensions as agreed to between the manufacturer and the buyer and shall be the internal dimensions of the assembled box. The normal manufacturing tolerance on the individual internal dimensions of assembled/created box shall be ± 2 mm.

**4.1.6 Tray Covers** — Where boxes are provided with tray covers, lids, the covers shall be made of the corrugated fibreboard as agreed between the manufacturer and the buyer. The cover shall conveniently fit onto the box and shall form part of the box.

**4.1.7 Outer and Inner Liner** — The outer and inner liners when tested for water absorbency according to ISO 535 shall have a maximum increase in substance of 35 g/m2/1 minute per liner.

 **4.1.8 Inks** — Inks to be used in printing boxes for horticultural produce shall be free of heavy metals.

**4.1.9 Combined Substance of the Board** — The combined substance of the board shall not be less than 380 gsm for single wall and not less than 650 gsm for double wall.

**4.2 Specific Requirements.**

4.2.1 Corrugated fibreboard boxes used for export of horticultural products shall comply with the specific requirements given in Table 1 when tested in accordance with the method prescribed therein.

 **TABLE 1. EDGE CRUSH TEST FOR CORRUGATED BOXES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SL. NO | CARTON TYPE | SPECIFIC DETAILS | ECT  | Test Method |
|   | 2 Kg Beans Box | one-piece- | Single Wall | 6.8 | ISO 3037  |
|   | 2 Kg Beans Box | 2-Piece, Half Lid | Single Wall | 6.8 |  |
|   | 2 Kg Beans Box | 2-Piece, Fully Telescopic | Single Wall | 6.8 |  |
|   | 3 kg beans | 2-Piece, Half Lid | Single Wall | 6.0 |  |
|   | 3 kg beans | 2-Piece, Fully Telescopic | Single Wall | 6.0 |  |
|   | 6 kg Vegetable box |   | Single Wall | 6.0 |  |
|   | Standard Flower Box | Fully Telescopic | Double Wall | 7.0 |  |
|   | Zim Flower Box | Fully Telescopic | Double Wall | 7.0 |  |
|   | RSC Vegetable Box | Fully Telescopic | Double Wall | 11 |  |
|   | 4Kg Avocado Box | Hand Formed | Double Wall | 14 |  |
|   | 4Kg Avocado Box | Machine-Formed, Closed Corner | Double Wall | 14 |  |
|   | 10Kg Avocado Box | Hand/Machine Formed, Closed Corner | Double Wall | 14 |  |

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# 5 Packaging and Labelling

#### 5.1 Packaging

#### The boxes shall be packed flat in bundles, tied with twine or bands of adequate strength or palatized

#### 5.2 Labelling

#### Each box shall be legibly and indelibly marked with the following particulars:

#### date of manufacture, month and year.

#### manufacturer’s name and/or registered trademark, if any.

#### total combined grammage.

#### the name and address and/or trademark of the customer.

#### the name and nature of the produce to be or contained in the box.

#### country of origin.

#### NOTE: The above can be captured using QR code or any other applicable technologies.

#### 6. SAMPLING

#### Sampling shall be done in accordance with ISO 186.

#### 7. TEST METHODS

#### 7.1 The samples of boxes either in bundles or erected form, shall be conditioned before testing in accordance with ISO 187.

Bibliography

[1] KS 948:1999 specification for corrugated fibreboard boxes for export of horticultural produce