DRAFT TANZANIA STANDARD

TBS/CDC-10 (6259) P3 TEST LINER BOARD — SPECIFICATION

TANZANIA BUREAU OF STANDARDS
0 Foreword

This Draft Tanzania Standard is being developed by Stationery and Paper Products Technical Committee under supervision of the Chemicals Divisional Standards Committee and it is in accordance with the procedures of the Bureau.

Test liner board is a strong paper made mainly from recycled pulp or fibre.

This Draft Tanzania Standard is the first edition of Test liner board – Specification.

This draft Tanzania Standard has been prepared with assistance drawn from the following documents:

- IS 1763: 2018 Specification for substances of paper and pulp board, published by India Bureau of Standards

For the purpose of deciding whether a particular requirement of this Tanzania Standard is complied with, the final value observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with TZS 4.
Test liner board – Specification

1 Scope

This draft Tanzania Standard specifies the requirements, sampling and test methods of test liner board used to manufacture corrugated board boxes.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.”

TZS 4: Rounding off numerical value
TZS 79: Paper – Determination for bursting strength
TZS 81: Method for the determination of grammage (basic mass)
TZS 80: Paper – Sampling methods for testing
TZS 82: -ISO 187, Paper board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples
TZS 83: -ISO 287; Paper and board — Determination of moisture content of a lot — Oven-drying method
TZS 423: -ISO 535: Paper and board — Determination of water absorptiveness- cobb method
TZS 748-2: - ISO 1924-3, Paper and board — Determination of tensile properties — Part 3: Constant rate of elongation method (100 mm/min)
TZS 891: -ISO 534; Paper and board — Determination of thickness, density and specific volume
ISO 6588-1: Paper, board and pulps — Determination of pH of aqueous extracts — Part 1: Cold extraction
ISO 12192: Paper and Board - Determination of compressive strength – Ring Crush method
3 Terms and definitions

For the purpose of this draft Tanzania Standard the following definitions shall apply:

3.1 bursting strength

maximum uniformly distributed pressure, applied at right angles to its surface, that a test piece of paper or board will stand, under specified test conditions

3.2 Liner

any paper or paper board intended for covering another paper or paper board material to become part of finished product.

3.3 Test liner

any liner made almost entirely from recycled pulp.

3.4 Grammage (substance)

the mass of unit area of paper or board determined by the specified method of test and expressed in grams per square meter and conditioned in accordance with TZS 82/ISO 187.

3.5 nominal grammage (substance)

the value of the mass per unit area used for reference purposes (i.e. when purchasing material)

3.6 actual grammage (substance)

the value of the mass per unit area determined by testing

3.7 sizing

the addition of materials in the pulp stock or on the surface of the sheet (surface sizing) in order to increase paper resistance to the spontaneous penetration of aqueous liquids and its resistance to the surface spreading of such liquids.

3.8 cross direction (CD)

direction in the paper that is at right angles to the machine direction

3.9 machine direction (MD)

direction in a paper or a board parallel to the direction of travel of the web on the paper or board machine

3.10 defective

set of test pieces that fails in one or more respects to comply with the relevant requirements of the standard

3.11 lot

one or more nominally identical package of paper, the paper having been made on the same equipment under essentially the same conditions, from one manufacturer, and submitted at any one time for inspection and testing
4 Requirements

4.1 General requirements

4.1.1 Test liner board shall be made from 100% recycled fibre or in combination of any other material that will ensure compliance with the requirements given in Table 1. It is also known as non-virgin kraft liner board.

4.1.2 The surface shall be machine glazed (MG) or machine finished (MF). The surface should also be receptive to printing. Shall be resistant to scuffing.

4.1.3 The papers shall be free from fibre bundles, tears, shives, foreign matter, specks, holes, blemishes, creases and other visible defects and shall be uniform in texture.

4.1.4 The paper shall be of reasonably good formation or uniform formation, thickness and substance.

4.1.5 The surface of the paper shall be such as to accept the adhesives commonly used in the manufacture of corrugated board.
4.2 Specific requirements

4.2.1 Test liner shall be manufactured as per preferred substances given in Table 1.

4.2.2 If a substance not given in Table 1 is required, it shall be agreed upon between the purchaser and the supplier and shall be selected so that it conforms to the steps of increment given below:

<table>
<thead>
<tr>
<th>Range of substance</th>
<th>Steps of increment of substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>g/m²</td>
<td>g/m²</td>
</tr>
<tr>
<td>110 - 150</td>
<td>10</td>
</tr>
<tr>
<td>Above 150</td>
<td>25</td>
</tr>
</tbody>
</table>

4.2.3 The minimum allowable grammage for test liner shall be 100 g/m² and a tolerance of ± 5 percent shall not be permitted on the nominal substance for 100 g/m² when tested in accordance with TZS 81.

4.2.4 Test liner board shall comply with the relevant requirement given in Table 1 when tested in accordance with the method specified therein.
### Table 1- Specific requirements for Test liner board

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Characteristics</th>
<th>Requirements</th>
<th>Test method (see clause 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Product range (Nominal grammage, g/m²)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100 110 120 130 140 150 175 200 225 250 275 300</td>
<td>TZS 81</td>
</tr>
<tr>
<td>i.</td>
<td>Grammage, g/m², ± 5%</td>
<td>6 - 8</td>
<td>TZS 83</td>
</tr>
<tr>
<td>ii.</td>
<td>Moisture content, %, m/m</td>
<td>5.0</td>
<td>ISO 6588-1</td>
</tr>
<tr>
<td>iii.</td>
<td>pH, Min</td>
<td>2.0</td>
<td>ISO 12192</td>
</tr>
<tr>
<td>iv.</td>
<td>R.C.T, KN/m, CD, Min</td>
<td>1.3</td>
<td>ISO 12192</td>
</tr>
<tr>
<td>v.</td>
<td>Bulk, cc/g</td>
<td>210.5 242.2 284.4 313.8 323.6 333.4 353.0 372.7 411.8 451.1 480.5 588.4</td>
<td>TZS 79</td>
</tr>
<tr>
<td>vi.</td>
<td>Burst Strength, KPa, Min</td>
<td>50</td>
<td>TZS 423</td>
</tr>
<tr>
<td>vii.</td>
<td>Burst Index, KPa.m²/g, Dry, Min</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>viii.</td>
<td>Burst Index, KPa.m²/g, Wet, Min</td>
<td>1.3</td>
<td></td>
</tr>
<tr>
<td>ix.</td>
<td>Cobb 60 seconds, g/m², 27°C, Top side, Max</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>x.</td>
<td>Cobb 60 seconds, g/m², 27°C, Wide side, Max</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>
5 Dimensions

The size of the rolls or sheets shall be as agreed between the purchaser and the supplier. The permissible tolerance on the size shall be in accordance with clause 4 of TZS 63.

5.1 Joints

All joints shall be joined properly using a suitable adhesive. A suitable, nontoxic and environmentally friendly adhesive shall be used and shall be adequately resistant to moisture and climatic conditions. There shall be not more than three joints in a roll.
6 Sampling

6.1 Sampling methods shall be carried out as prescribed in TZS 80.

6.2 Number of Tests

Each of the rolls/packages selected from the lot shall first be examined for the requirements given in 4 and 5. Then a sheet of suitable size from rolls shall be cut, taking at least the top three layers. Test pieces shall then be cut from sheets for testing requirements mentioned in 4.1, 4.2 and 5. Tests for these characteristics except pH shall be conducted individually on each of the sample sheet. A roll or sheet not meeting the requirements for any one or more of these characteristics shall be considered as defective. Test for pH shall be conducted on composite sample.

6.3 Criteria for conformity

A lot shall be declared as conforming to the requirements of this standard if the requirements in clause 4 are satisfied and if the number of defective roll and sheets does not exceed the acceptance number. This acceptance number shall depend on the size of the sample and shall be equal to 0 if the sample size is less than 13. It shall be equal to 1 if the sample size is greater than or equal to 13. A roll or sheet not meeting the requirements for any one or more shall be considered as defective.

7 Tests methods

Samples of test liner board shall be conditioned in accordance with TZS 82/ISO 187.

8 Packaging and marking

8.1 Packaging

8.1.1 Packaging requirements will vary according to the roll’s diameter and width. Test liner board shall be packed in rolls on a core of 75 to 100 mm inside diameter and in length equivalent to the width of paper, with a wooden or plastic plug at each extending to a minimum of 75 mm into the core.

8.1.2 Test liner board shall be packaged in suitable material that protects it from dust, moisture and dirt during transportation, storage and normal use.

8.2 Marking

8.2.1 Each roll shall be legibly and indelibly marked with the following:

- Description and the paper grammage (actual)
- Batch number or code number;
- Machine direction;
- Month and year of manufacture;
- Diameter and width of roll;
- Weight in Kg of the roll including the mass of the core and plugs;
- Country of origin/manufacturer; and
- Name and physical address of the manufacturer or local distributor and registered trademark.