TANZANIA STANDARD

Textiles — Method for determination of absorbency of absorbent textile materials

TANZANIA BUREAU OF STANDARDS

Foreword

This Draft Tanzania Standard is being developed by the Sampling and Test Methods Textiles Technical Committee under supervision of the Textile and Leather Divisional Standards Committee and it is in accordance with the procedures of the Bureau.

In the preparation of this Draft Tanzania Standard, assistance has been obtained from the following standard:

IS 2369: 2022 *Method for determination of absorbency of absorbent textile materials*; published by Indian Standards Institution

In reporting the result of a test or analysis made in accordance with this standard if the final value, calculated or observed is to be rounded off, it shall be done in accordance with TZS 4 *Rounding off numerical values.*

1. Scope

This Draft Tanzania Standard specifies a method for determination of absorbency of absorbent textile materials, such as cotton gauze, bandages and cotton wool.

2. Normative references

For the purpose of this Draft Tanzania Standard the following references shall apply:

TZS 3, *Atmospheric conditions for testing*

TZS 4, *Rounding off numerical values*

ISO 2859-1 *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

3. Principle

The test specimen of specific area and specific volume is placed on the surface of water. The time taken by the specimen to absorb water and sink in it completely, is a measure of the absorbency of the test specimen. The shorter the time taken by the specimen to sink in water completely, the grater is its absorbency.

4. Sampling

Sampling plan shall be done in accordance with ISO 2859-1.

5. Conditioning of test specimens and atmospheric conditions for testing

5.1 Conditioning for test specimens

5.1.1 Prior to test, the test specimens shall preferably be conditioned to moisture equilibrium in a standard atmosphere 65 ± 2% relative humidity and 27°C ± 2°C temperature in accordance to TZS 3

5.1.2 When the test specimens have been left in such an atmosphere for 24h in such a way as to expose, as far as possible, all portions of the specimens to the atmosphere, they shall be deemed to have reached moisture equilibrium.

5.2 Atmospheric conditions for testing

The test shall preferably be carried out in the standard atmospheric conditions (see 5.1.1)

6. Apparatus

6.1 Wide-bore glass tube – Open at both ends

6.2 Glass plunger – Solid or closed at the bottom

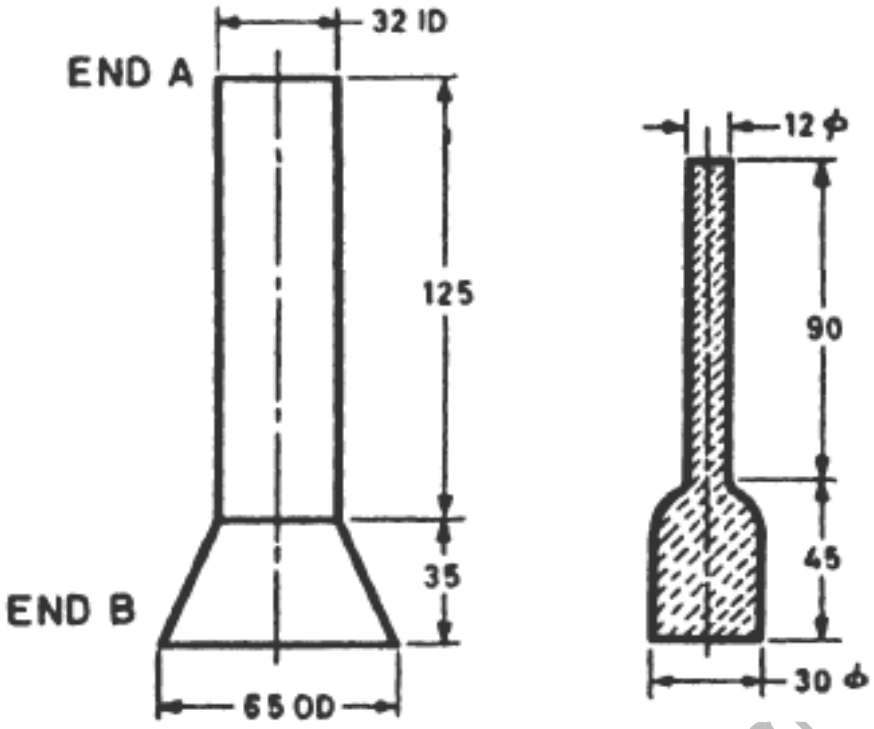
6.3 Glass trough – Of suitable size, preferably 20 x 15 x 50 cm.

6.4 Retort stand – With a clamp.

6.5 Stop-watch – Reading correct to 0.1 second.

6.6 Two glass plates – 10 x 10 cm and 0.65 ± 0.15 cm thickness.

6.7 A pair of forceps



Wide-bore glass tube **Glass plunger**

All dimensions in millimetres.
Fig. 1: Wide-Bore Glass Tube (with funnel end B) and Glass Plunger

7. Reagents

Distilled water, maintained at 27° ± 2°C

8. Procedure

8.1 Method 1 – **Cotton gauze or bandage –like material (Exposing specific area to water)**

8.1.1 From each roll or bundle in test sample, draw five (5) test specimens each from a single layer and weighing 1g.

8.1.2 Take one test specimen. Fold in to a square of 5x5 cm. place it between the glass plates. Place 1kg weight one the glass plate for 100 min. Remove the weight and the top glass plate.

Place the test specimen gently on the surface of water with a pair of forceps. Start the stopwatch when the test specimen touches the surface of water. Stop the stopwatch when the test specimen disappears under the surface of water. Note the time taken.

8.1.3 Repeat the procedure given in 8.1.2 with the remaining test specimens.

8.1.4 Calculate average time, in seconds, taken by the test specimens to sink in water.

8.2 Method II – Cotton wool- like material (Exposing specific volume to water)

8.2.1 From each roll or bundle in the test sample, draw five (5) test specimens each weighing 1 g.

8.2.2 Take one test specimen. Hold the wide-bore glass tube vertical on a flat surface with the funnel end B at the top. Transfer the test specimen to the tube. Insert the plunger and gently compress the test specimen to a volume of 20 ml.

8.2.3 The tube may be graduated. If not, the test specimen may be compressed to a length of 25 mm in the tube which gives a volume of 20 ml.

8.2.4 Pour the distilled water in the glass through so that the level of water is 70 mm below the top of the trough.

8.2.5 Clearance of 70 mm from the top is necessary to prevent or minimize the air draught action on the test specimen when it is dropped on the surface of the water.

8.2.6 Fix the glass tube with the test specimen inside the tube on the stand in such a way that the funnel end B is 5 mm above the surface of water in the trough. Insert the plunger from the end A and push slowly the test specimen when it is dropped on the surface of the water. Start the stopwatch when the test specimen touches the surface of water. When the test specimen touches the surface of water. Stop the stop-watch when the test specimen just disappears under the surface of water.

8.2.7 The test specimen should disappear under the surface of the water when completely saturated with water.

8.2.8 Repeat the procedure given in 8.2.2 to 8.2.6 with remaining test spacemen.

8.2.9 Calculate the average time in seconds, taken by the test specimen to sink in water.

9. Report

Report the method followed and the average time taken (see 8.1.4 or 8.2.9) as the absorbency of the absorbent material in the lot in terms of seconds.