DEAS 252:2021

ICS 59.080.01

DRAFT EAST AFRICAN STANDARD

Textile fabrics — Method for determination of water repellency of fabrics by cone test

EAST AFRICAN COMMUNITY

Second Edition 2021

Copyright notice

Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

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

The committee responsible for this document is Technical Committee EASC/TC 061, Textiles, textile products and accessories.

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

This second edition cancels and replaces the first edition (EAS 252:2007), which has been technically revised. The main changes compared to the previous edition are as follows:

— A clause on normative references has been added; and

— A formula for expression of results has been added

Textile fabrics — Method for determination of water repellency of fabrics by cone test

1 Scope

This Draft East African Standard prescribes a method for determining the water repellency of fabrics by cone test.

This document is generally applicable for testing heavy types of proofed fabrics used as covers for wagons, shelters, etc, where pools of water may collect during use due to depressions formed by the uneven level of the cover.

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 139, *Textiles — Standard atmospheres for conditioning and testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions shall apply.

water repellency
characteristic of a fabric to resist wetting

4 Principle

Specimen of the fabric is folded to form a cone and kept in a wire cone kept in glass funnel. A specified amount of water is poured into the cone and left to stand for a fixed time. The assessment is made on the basis of:

a) Wetting of the outer exposed surface, and

b) Amount of water leaked out of the cone.

5 Atmospheric conditions for conditioning and testing

The test specimens shall be conditioned and tested in accordance with ISO 139 i.e. a relative humidity of 65 % ± 2 % and temperature of 20 °C ± 2 °C. In case of fabric heavier than 270 g/m^2 the minimum conditioning period shall be 48 h.

6 Preparation of test specimen

Take a specimen of 30 cm x 30 cm form the conditioned test sample and fold it in the form of a cone without creasing the folds. (See Figure 1 (a) or (b)). Prepare at least three test specimens.

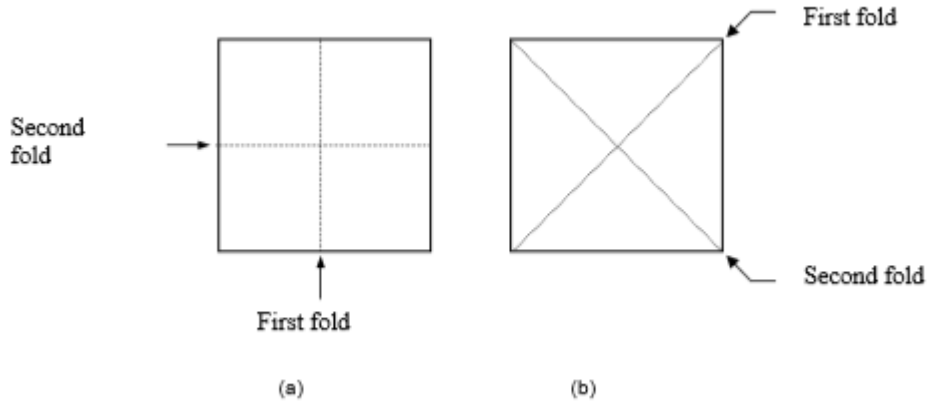

Figure 1 — Folding of specimen

7 Apparatus

7.1 Glass or metal funnel – of 60° angle and sufficient size.

7.2 Wire cone – Typical sketch of the wire cone is given in Figure 2.

7.3 Glass rod

7.4 Conical flask – For collecting water under the glass funnel.

7.5 Stand – For holding the cone assembly.

7.6 Measuring cylinder

7.7 Water – Distilled water maintained at a temperature of the testing atmosphere (see clause 5)

7.8 Weighing balance

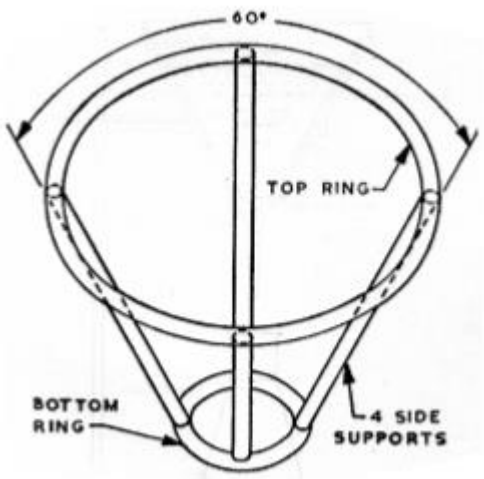

Figure 2 — Typical wire cone

8 Procedure

8.1 Weigh the conditioned test specimen to an accuracy of 0.01 g (dry mass m_1).

8.2 Take a test specimen and prepare a fabric cone (see clause 6), place it in the wire cone and in turn place them (fabric cone in wire cone) in the glass (or metal) funnel. Mount the assembly on the stand (see figure 3). Place a conical flask below the glass funnel. Pour slowly 400 ml of water from the sides with the help of a glass rod and let it stand for 24 h. At the end of the test period remove the water container from below and also pour out the water from the cone assembly immediately.

8.3 Weigh the specimen to an accuracy of 0.01 g, and record as the wet mass m_2

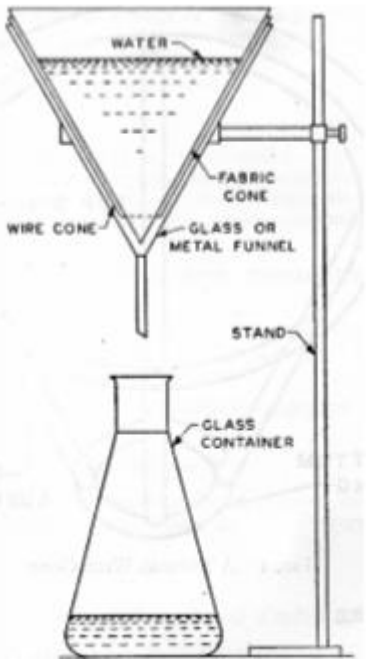

Figure 3 — Assembly of apparatus

8.4 Determine the amount of water (in millilitres) collected in the container and also visually assess the area of wetting of the outer surface of the fabric cone coming into contact with the surface of the wire cone (that is, ignoring the presence of water within the folds of the fabric cone).

8.5 Repeat the test with the remaining test specimens.

9 Expression of results

Calculate the water absorption W, expressed as a percentage by mass, from the following equation:

$$W = \frac{m_2 - m_1}{m_1} \times 100$$

Where;

m_1 is the mass, in grams, of the specimens prior to testing;

m_2 is the mass, in grams, of the specimens after testing

10 Criteria of assessment

Assessment of the effectiveness of proofing of the sample shall be made on the basis of limits laid down in the material specification for

a) amount of penetrated water collected in millilitres (see 8.2),

b) water absorption, expressed as a percentage, and

c) amount of water wetting of outer surface (see 8.2).

11 Test report

The test report shall indicate the following information:

a) type of fabric;

b) number of test specimens tested;

c) assessment rating:

   i) average amount of penetrated water collected in millilitre;

   ii) water absorption, expressed as a percentage; and

   iii) amount of wetting of outer surface.

Bibliography

EAS 252:2007, Textile fabrics — Method for determination of water repellency of fabrics by cone test