Specification for Mosquito Nets

Part 1:

Untreated nets
TECHNICAL COMMITTEE REPRESENTATION

The following organizations were represented on the Technical Committee:

Technical University of Kenya,
Government Chemist Department
Kenya Agriculture and Livestock Research Organization (KALRO)
Africa PVC Industries
Nairobi University — Department of Food Science
Environment Institute of Kenya,
Moi University — Department of Industrial and Textile Engineering
Tarpo Industries Ltd.,
Agroz Ltd Arusha
BUMA Holdings
One Acre Fund
Kenyatta University
A Plus Industries Ltd
Ministry of Agriculture
National Cereals and Produce Board (NCPB)
Redblum Industries Ltd
Government Chemist
National Public Health Laboratory
Moi University — Department of Industrial and Textile Engineering
Kenya Bureau of Standards — Secretariat

REVISION OF KENYA STANDARDS

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specification for mosquito nets

Part 1:

Untreated nets

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KS 1739-1:2020

This Kenya Standard has been prepared by the Technical Committee on Knitted Fabrics and Netting under the guidance of the Textile Industry Standards Committee, and it is in accordance with the procedures of the Bureau.

KS 1739 consists of the following parts, under the general title; Specification for mosquito nets

KS 1739-1 Untreated mosquito nets
KS 1739-2 Treated mosquito nets which was withdrawn and replaced with KS EAS 455:2019

This Third edition cancels and replaces the second edition (KS 1739-1:2005) which has been technically revised.

In the preparation of this standard reference was made to the following documents:

- CKS 161— Specification for Mosquito nets (single-bed size).

Acknowledgement is hereby made for the assistance derived from this
Introduction

That prevention supersedes cure in matters of health management, is a fact that cannot be overemphasized. Mosquito nets are particularly useful in the prevention of malaria.

Mosquito nets when properly constructed and employed do prevent contact between the mosquito, a vector for the malaria-causing pathogen Plasmodium, and a sleeping person. While it may be difficult to monitor how individuals use mosquito nets, it is absolutely necessary that the construction of the same meets the basic requirements for a high quality net, especially if the nets are intended for use in a malaria-prone tropical zone which Kenya falls. Studies carried out around the Lake Victoria basin suggested that the Anopheles mosquito is most active between 10.00 p.m. and 4.00 a.m. a time when most people are asleep and therefore most vulnerable to the mosquito.
Specification for mosquito nets

Part 1:

Untreated nets

1. Scope

This part one of Kenya Standard specifies requirements, test methods and sampling for untreated mosquito nets.

2. Normative references

The following referenced documents 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.

3. Terms and definition

For the purpose of this standard, the definitions in KS 08-1305: Part 1\(^1\) shall apply along with the following:

3.1 untreated mosquito net

a mosquito net that has not been subjected to insecticide treatment.

3.2 suspension mechanism

the accessories fixed to the top (roof) of a net to provide for means of hanging the net at a clearance from the ground.

3.3 top ring

where included, this is a circular, triangular, rectangular or other shape of thick metallic wire or other suitable material tied, or otherwise fixed to the underside of the roof of the net so as to provide the suspended part of the net with its shape.

3.4 sheeting border

a lace of woven or knitted fabric stitched or integrated around the lower extremity of the net.

3.5 height

the length of the net, when freely suspended under its own weight, from the top ring to the seam of the sheeting border with netting body fabric on its shortest side.

3.\(\frac{1}{2}\) height

half the length of the dimension on 3.5.

3.7
4. Requirements

4.1 Visual examination

The netting shall be free of defects arising from knitting and workmanship.

4.2 Sheet border

4.2.1 Where provided, the sheeting border shall have colourfastness rating of 4 or better.

4.2.2 The sheeting border shall have strength parameters that are at least equivalent to those of the body fabric.

4.3 Seams/stitching

4.3.1 When visually examined the seams shall be of even tension and the loose ends shall be securely and neatly fastened off.

4.3.2 The nets shall be made with lock stitch. The number of stitches per decimeter shall be 22 to 35 and shall be made from suitable sewing thread.

4.4 Fire safety

The fabrics used in the construction of mosquito nets shall not propagate fire when laces of any of the component fabrics from it are ignited at one end.

5. Specific requirements

5.1 The untreated mosquito net shall meet the physical requirements as specified in Table 1 and 2

5.2 The colorfastness requirements of untreated mosquito net shall be as specified in Table 3

Table 1: Synthetic netting fabric

<table>
<thead>
<tr>
<th>SL No.</th>
<th>Characteristic</th>
<th>Requirement, min</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mesh per cm²</td>
<td>23</td>
<td>Annex A</td>
</tr>
<tr>
<td>2</td>
<td>Mass/unit area, g/m²</td>
<td>25</td>
<td>KS ISO 3801</td>
</tr>
<tr>
<td>3</td>
<td>Bursting strength at</td>
<td></td>
<td>KS 631</td>
</tr>
</tbody>
</table>

Test area of 10 cm²
Table 2: Round mesh cotton netting

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Requirement</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mesh per cm² min</td>
<td>23</td>
<td>Annex A</td>
</tr>
<tr>
<td>Mass/unit area, g/m² min</td>
<td>60</td>
<td>KS ISO 3801</td>
</tr>
<tr>
<td>Bursting strength, kPa, min</td>
<td>100</td>
<td>KS 08-631 Clause 5.3</td>
</tr>
<tr>
<td>Scouring loss, % Max</td>
<td>10</td>
<td>KS 265</td>
</tr>
</tbody>
</table>

Table 3 Colourfastness requirements for untreated mosquito nets

<table>
<thead>
<tr>
<th>Agency</th>
<th>Numerical rating (min)</th>
<th>Test method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Change in color</td>
<td>Staining</td>
</tr>
<tr>
<td>Light</td>
<td>5</td>
<td>—</td>
</tr>
<tr>
<td>Washing</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

5.3 Dimensions

5.3.1 Circular mosquito nets

5.3.1.1 Circular mosquito nets shall comply with the dimensional requirements of Table 4

Table 4: Circular mosquito nets

<table>
<thead>
<tr>
<th>Size</th>
<th>Top ring diameter cm, min.</th>
<th>Top fabric diameter (when the ring is inside), min.</th>
<th>Height, cm</th>
<th>Circumference, cm at ½ H min</th>
<th>Bottom Circumference cm, min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domed shape cover net</td>
<td>-</td>
<td>-</td>
<td>50</td>
<td>115</td>
<td>230</td>
</tr>
<tr>
<td>X small</td>
<td>40</td>
<td>33</td>
<td>120</td>
<td>170</td>
<td>300</td>
</tr>
<tr>
<td>Single</td>
<td>47</td>
<td>40</td>
<td>200</td>
<td>350</td>
<td>700</td>
</tr>
<tr>
<td>Double</td>
<td>47</td>
<td>40</td>
<td>200</td>
<td>400</td>
<td>800</td>
</tr>
<tr>
<td>Large</td>
<td>53</td>
<td>46</td>
<td>200</td>
<td>450</td>
<td>900</td>
</tr>
</tbody>
</table>

5.3.2. Rectangular mosquito nets
5.3.2.1 Rectangular mosquito nets shall comply with the dimensional requirements of Table 5

<table>
<thead>
<tr>
<th>Size</th>
<th>Width cm min.</th>
<th>Length, CM min.</th>
<th>Height CM min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-small</td>
<td>70</td>
<td>120</td>
<td>90</td>
</tr>
<tr>
<td>Single</td>
<td>90</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Double</td>
<td>150</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Large</td>
<td>180</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Double decker</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small</td>
<td>90</td>
<td>180</td>
<td>210</td>
</tr>
<tr>
<td>Double</td>
<td>150</td>
<td>180</td>
<td>210</td>
</tr>
<tr>
<td>large</td>
<td>180</td>
<td>180</td>
<td>210</td>
</tr>
</tbody>
</table>

6 Marking

The following information shall be indelibly marked on the cloth label securely stitched at the top corner:

i) manufacturer’s name and/or registered trade mark;

ii) size of the net, including, overall length (cm) x overall width (cm) x overall height (cm) or circumference;

iii) shape of net;

iv) care instructions;

v) recommended bed size.

7 Packaging

7.1 Outside packaging

The following information shall be legibly and indelibly marked on the outside packaging of individual nets:

i) manufacturer’s name and/or registered trade mark;
ii) size of the net, including, overall length (cm) x overall width (cm) x overall height (cm) or circumference;

iii) shape of net;

iv) care instructions;

vi) recommended bed size.

vii) Country of manufacture

8 Sampling

7.1 Lot

The quantity of mosquito nets delivered to a consignee against the same despatch note shall constitute a lot.

7.2 Sampling shall be in accordance with Table 6. The acceptance quality level (AQL) shall not exceed 2.5%.

Table 6 — Sampling

<table>
<thead>
<tr>
<th>Number of units in the lot</th>
<th>Number of units selected</th>
<th>Method of selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5</td>
<td>All</td>
<td>All</td>
</tr>
<tr>
<td>6 to 99</td>
<td>5</td>
<td>at random</td>
</tr>
<tr>
<td>100 to 399</td>
<td>(n^{1/2}20)</td>
<td>at random</td>
</tr>
<tr>
<td>400 to more</td>
<td>20</td>
<td>at random</td>
</tr>
</tbody>
</table>

\(^{a})\) In deciding the number of units to be selected, any remainder of less than 20 units shall be ignored.

7.3 The nets selected shall be intact and in good external condition.

8 Packing

The mosquito nets shall be packed in visible, water-resistant packaging material to protect them from soiling while permitting visual examination.
Annex A
(normative)

Determination of the number of meshes per cm²

A.1 Test specimen
Samples shall be taken from a netting fabric roll and shall measure at least 1 m².

A.2 Conditions for testing
Test shall be conducted in ambient conditions.

A.3 Apparatus
Pick (magnifying) glass.

A.4 Procedure
A.4.1 Lay the test sample on a smooth table and mark out 10 positions evenly spaced out on the sample’s surface.

A.4.2 Place the pick glass on each of the 10 positions and in such a manner as to have one edge of the glass form a tangent to a row of meshes either on the baser or bias of the fabric.

A.4.3 Count the number of meshes seen through the pick glass lens for each of the 10 positions.

A.5 Calculation
A.5.1 Average number pf meshes = total number of meshes
A.5.2  Average number of meshes/cm² = Average meshes seen through the pick glass ÷ Area under observation.

\[\frac{\text{Average number of meshes}}{2.5 \times 2.5}\]

\[\frac{\text{Average number of meshes}}{6.25}\]