**भारतीय मानक ब्यूरो**

**BUREAU OF INDIAN STANDARDS**

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*भारतीय मानक* मसौदा

# वस्त्रादि - उच्च घनत्व पॉलीइथलीन मोनोफिलामेंट का गोल जाली का मच्छरदानी का कपड़ा - विशिष्टी

(आई एस 10054 का *दूसरा पुनरीक्षण*)

Draft *Indian Standard*

# Textiles — High Density Polyethylene (HDPE) Monofilament Mosquito Netting, Round Mesh —Specification

( *Second Revision* of IS 10054 )

**ICS 59.080.30**



Last date for receipt of comment is 01 July 2024

Textiles Protective Clothing Sectional Committee, TXD 32

FOREWORD

(*Formal clauses will be added later*)

This standard was originally published in 1981 and was subsequently revised 1996. The present revision has been made in the light of experience gained since last revision and to incorporate the following major changes:

a) Method for identification of polyethylene has been incorporated in the standard.
b) Packaging clause has been modified.
c) Marking clause has been updated.
d) Method of test for count of yarn has been incorporated.
e) References to Indian Standard given in Annex A has been updated.

For the purpose of deciding whether a particular requirement of this 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 IS 2 ‘Rules for rounding off numerical values (revised)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

## 1 SCOPE

**1.1** This standard prescribes constructional details and other requirements of HDPE monofilament mosquito netting, round mesh.

**1.2** This standard does not specify the general appearance, feel, shade, etc, of the netting.

## 2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standards indicated in Annex A.

## 3 MANUFACTURE

### 3.1 Yarn

The monofilament yarn used for the manufacture of the netting shall be made out of HDPE of designation HDPE LAN A50 T012, or HDPE LAN A57 T012, or HDPE LAN A50 T022 or HDPE LAN A57 T022 according to IS 7328. However, the density of the material used shall not be more than 955 kg/ $m^3$ at 27°C and the melt flow rate (MFR) - 190/50 of the material shall be between 1.3 to 2.4 g/10 min. The filament shall be uniform and reasonably free from defects.

### 3.2 Netting

The shade of the netting shall be as agreed to between the buyer and the seller and the netting shall be free from knitting and other defects.

## 4 REQUIREMENTS

### 4.1 Construction

The netting shall comply with the requirements specified in Table 1. The linear density of filament is given for guidance only.

**Table 1 Particulars of HDPE Monofilament Mosquito Netting, Round Mesh**
(*Clause* 4.1)

| Sl No. | Linear Density of Filament | Number of Holes per $cm^2$ | Mass, $g/m^2$ | Bursting Strength, *Min* N (or $kgf/m^2$) | Width, cm | Length, m |
|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| i) | 18 to 19 tex (or 160 to 170 denier) | 16 to 20 | 80 ± 5% | 83 (or 8.5) | 122 or as agreed ±1 | As agreed |
| Method of test | IS 3442 | Annex B | IS 1964 | IS 1966 | IS 1954 | |

**4.2 Colour Fastness**

The colour fastness rating of netting shall comply with the requirements specified in Table 2.

**Table 2 Colour Fastness**
(*Clause* 4.2)

| Sl No. | Colour Fastness Rating | Requirement | Method of Test |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| i) | Light (change in colour), *Min* | 5 | IS/ISO 105-B01 or IS/ISO105-B02 |
| ii) | Washing, Test 2 (change in colour and staining), *Min* | 4 | IS/ISO 105-C10 |

**1.3** The Polyethylene in the monofilament Mosquito Netting shall be identified by the method prescribed in IS 667.

**5 MARKING**

**5.1** The netting shall be marked with the following:

a) Name of the material;
b) Width and length of the piece;
c) Source of manufacture; and
d) Year of manufacture

**5.2 BIS Certification Marking**

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

## 6 PACKING

Each roll or bundle of mosquito netting shall be packed in low density polyethylene film of 60 gm thickness (150 gauge) or any other suitable material as agreed to between the buyer and the seller. The rolls or bundles shall again be packed in bales or cases. The packaging shall be roadworthy, airworthy and seaworthy.

## 7 SAMPLING

### 7.1 Lot

The number of pieces of mosquito netting delivered to a buyer against one despatch note shall constitute a lot.

**7.2** For assessing the conformity of the lot to the requirements of the standard, the samples as given in Table 3 shall be drawn at random from the lot for inspection. To ensure the randomness of selection, methods given in IS 4905 shall be followed.

**Table 3 Sample Size**
(*Clause* 7.2)

| Sl No. | Number of Pieces in the Lot | Number of Pieces to be Inspected for | | |
|---|---|---|---|---|
| | | Length, Width and Number of Holes | Mass and Bursting Strength | Colour Fastness |
| (1) | (2) | (3) | (4) | (5) |
| i) | Up to 100 | 8 | 3 | 2 |
| ii) | 101 to 150 | 13 | 5 | 2 |
| iii) | 151 to 300 | 20 | 5 | 2 |
| iv) | 301 and above | 32 | 8 | 3 |

**7.3** The lot shall be considered as conforming to the requirements of this standard if all the samples meet the requirements specified in the standard.

## ANNEX A

(*Clause* 2)

## LIST OF REFERRED STANDARDS

| *IS No.* | *Title* |
|---|---|
| IS 667 : 1981 | Methods for identification of textile fibres (*first revision*) |
| IS 1954 : 1990 | Determination of length and width of woven fabrics — Methods (*second revision*) |
| IS 1964 : 2001 | Textiles — Methods for determination of mass per unit length and mass per unit area of fabrics (*second revision*) |
| IS 1966 (Part 1) : 2022 | Textiles — Bursting properties of fabrics Part 1: Hydraulic method for determination of bursting strength and bursting distension (*third revision*) |
| IS 3442 : 2023 | Textiles — Method for determination of crimp and linear density of yarn removed from fabric (*second revision*) |
| IS 4905 : 2015 | Random sampling and randomization procedures (*first revision*) |
| IS 7328 : 2020 | Specification for Polyethylene Material for Moulding and Extrusion (*third revision*) |
| IS/ISO 105-B01 : 2014 | Textiles — Tests for colour fastness — Part B01 Colour fastness to light: Daylight |
| IS/ISO 105-B02 : 2014 | Textiles — Tests for colour fastness — Part B02 Colour fastness to artificial light: Xenon arc fading lamp test |
| IS/ISO 105-C10 : 2006 | Textiles — Tests for colour fastness — Part C10 Colour fastness to washing with soap or soap and soda |

## ANNEX B

(*Table* 1)

## MEASUREMENT OF NUMBER OF HOLES

### B-1 APPARATUS

#### B-1.1 Template

a) A metal plate of about 0.5 mm thickness with a square hole of 2 cm × 2 cm cut accurately in the centre.

OR

b) A rigid transparent plastic sheet with a square of 2 cm × 2 cm marked in the centre.

### B-2 METHOD

Lay the netting flat without stretching on a flat surface of contrast colour. Count the number of holes in the square marked on/cut in the template in such a way that holes of more than half in size are counted as full hole and holes which are less than half in size are ignored. Divide the number of holes thus counted by 4. Count the number of holes at 5 different places and calculate the average.