***भारतीय मानक***

***Indian Standard***

**IS 13717 : 2024**

**Doc.No: TXD 08 (24943)**

***वस्त्रादि — वर्दी के लिए पॉलिएस्टर सूती मिश्रित खादी (पॉलीवस्त्र) की***

***सूटिंग — विशिष्टि***

*( पहला* पुनरीक्षण )

**Textiles — Polyester Cotton Blended Khadi (Polyvastra) Suttings for Uniform — Specification**

( *First Revision )*

ICS 59.080.30

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भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

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**October 2024 Price Group X**

Handloom and Khadi Sectional Committee, TXD 08

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Handloom and Khadi Sectional Committee had been approved by the Textiles Division Council.

Polyester blended suitings are being increasingly used by the organized consumers like DGS&D, Ministry of Defence, Railways, P&T, etc for making uniforms. Polyvastra is a polyester-cotton blended fabric which is being produced in the khadi sector under the aegis of Khadi Village Industries Commission. In simple terms, Polyvastra is a smart choice for uniforms because it combines the strengths of natural and synthetic fibers, making it perfect for the demands of today's workplaces.Top of Form

This standard was first published in 1993. The standard has been revised to incorporate the following changes:

1. Marking clause has been modified;
2. References to standards have been updated;
3. Method of test for count of yarn along with its tolerance has been specified;
4. Method for determination of heat shrinkage of fabric has been modified; and
5. Sampling clause has been modified.

The composition of the Committee responsible for the formulation of this standard is given in Annex D.

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 : 2022 ‘Rules for rounding off numerical values (*second* *revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Indian Standard*

TEXTILES — POLYESTER COTTON BLENDED KHADI (POLYVASTRA) SUTTINGS FOR UNIFORM — SPECIFICATION

*( First Revision )*

**1 SCOPE**

**1.1** This standard prescribes constructional particulars and performance requirements of polyester cotton blended khadi (polyvastra) suitings for making uniforms.

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

**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 these standards.

**3 MANUFACTURE**

**3.1** The hand spun yarn shall be used in the manufacture of the fabric.

**3.2** The fabric shall be woven on handloom with uniform construction having firm and straight selvedges.

The fabric shall be well singed, heat set and fully shrunk.

**4 REQUIREMENTS**

**4.1** The cloth shall conform to the requirements specified in Table 1.

**4.2** The cloth shall be free from major flaws (defects) which shall not exceed 15 per 100 metres length. A list of major flaws (defects) is given in Annex B (*see* *also* IS 14466). The allowance for providing extra length of cloth in lieu of flaws (defects) not exceeding the permissible limits may be as agreed to between the buyer and the seller.

NOTE **—** The number of defects shall be determined on all pieces under test and converted into number of defects per 100 metre length.

**Table 1 Requirements of Polyester Cotton Blended Khadi (Polyvastra) Suitings for Uniforms**

(*Clause* 4.1)

| **Sl No.** | **Characteristic** | **Requirement** | **Method of Test, Ref to** |
| --- | --- | --- | --- |
| (1) | (2) | (3) | (4) |
| i) | Approximate count of warp and weft yarns (for guidance only) | 20tex × 2(30s/2) ± 5 percent | IS 3442 |
| ii) | Blend composition, percenta) Polyesterb) Cotton | 67 ± 533 ± 5 | IS 3416 |
| iii) | Threads/dma) Warpb) Weft | 260 ± 5 percent190 ± 5 percent | IS1963 |
| iv) | Mass, g/m2 | 190 ± 5 percent | IS 1964 |
| v) | Length, m | As agreed | IS 1954 |
| vi) | Width, cm | 70 ± 2  |
| vii) | Breaking load on 5.0 cm **×** 20cm strip, *Min*a) Warp wayb) Weft way | 840 N610 N | IS 1969 (Part 1) |
| viii) | Crease recovery angle, *Min*(initially and after three repeated washings, etc) | 240° | IS 4681 (Part 2) |
| ix) | Pilling (after 5 h test) | 4 or better | IS 10971 (Part 1) |
| x) | Relaxation shrinkage, percent, *Max*a) Warp wayb) Weft way | 22 | IS 2977 |
| xi) | *p*H value of the aqueous extract | 6.0 to 8.5 | IS 1390  |
| xii) | Water soluble matter, percent, *Max* | 1 | IS 3456 |
| xiii) | Colour fastnessa) Lightb) Washing Test 3 (After 4 washings)1) Change in colour 2) Staining on fabricc) Perspiration d) Rubbing | 5 or better4 or better4 or better4 or better4 or better | IS/ISO 105-B01 or IS/ISO 105-B02IS/ISO 105-C10IS/ISO 105-E04IS/ISO 105-X12 |
| xiv) | Heat shrinkage, percent, *Max* | 2.0 | Annex C |

**4.3 Sealed Sample**

If in order to illustrate or specify the indeterminable characteristics, such as general appearance, lustre, feel and shade of the cloth a sample has been agreed upon and sealed, the supply shall be in conformity with the sample in such respect.

The custody of the sealed sample shall be a matter of prior agreement between the buyer and the seller.

**5 SAMPLING**

**5.1** The quantity of polyester cotton blended khadi cloth of the same variety delivered to a buyer against a despatch note shall constitute a lot.

**5.2** To ascertain the conformity of the lot to the requirements of this standard, samples shall be drawn and inspected from each lot separately.

**5.3** The number of pieces to be selected at random for inspection shall be in accordance with Table 2.

**Table 2 Sample Size and Permissible Number of Non-Conforming Pieces**

(*Clause* 5.3)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl No.** | **Lot Size** | **Sample Size** | **Permissible No. of Non-Conforming Pieces** | **Sub Sample Size** |
| (1) | (2) | (3) | (4) | (5) |
| i) | Up to 90 | 5 | 0 | 3 |
| ii) | 91 to 150 | 8 | 0 | 3 |
| iii) | 151 to 500 | 13 | 1 | 5 |
| iv) | 501 to 1 200 | 20 | 1 | 5 |
| v) | 1 201 to 10 000 | 32 | 2 | 8 |
| vi) | 10 001 to 35 000 | 50 | 3 | 8 |
| vii) | 35 001 to 500 000 | 80 | 5 | 13 |
| viii) | 500 001 and above | 125 | 7 | 13 |

**5.4 Number of Tests and Criterion for Conformity**

|  |  |  |  |
| --- | --- | --- | --- |
| *Sl No.* | *Characteristic*(*s*) | *No. of Tests* | *Criterion for Conformity* |
| (1) | (2) | (3) | (4) |
| i) | Count, threads/dm, length, width and freedom from defects | According to co1 (3) ofTable 2 | Permissible number of non-conforming piece does not exceed the corresponding number given in co1 (4) of Table 2 |
| ii) | Colour fastness, breaking load, mass, blend composition, relaxation shrinkage, crease recovery angle, pilling, water soluble matter, *p*H value and heat shrinkage  | According to co1 (5) of Table 2 | All the test specimens meet the relevant requirements |

**6 MARKING**

**6.1** The cloth shall be suitably marked or labelled with the following information:

1. Name of the material, namely, polyvastra suiting;
2. Composition, namely, polyester 67 percent and cotton 33 percent;
3. Manufacturer's name, initials or trade-mark;
4. Length and width;
5. Count of warp and weft yarn;
6. Indication of the source of manufacture; and
7. Other declarations required as per law in force.

**6.2 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 product may be marked with the Standard Mark.

**7 PACKING**

Unless otherwise agreed between the buyer and the seller, the cloth shall preferably be packed in bales or cases in conformity with the procedure laid down in IS 1347 or IS 293.

**ANNEX A**

(*Clause* 2)

**LIST OF REFERRED STANDARDS**

|  |  |
| --- | --- |
| *IS No.* | *Title* |
| 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 |
| IS/ISO 105-E04 : 2013 | Textiles — Tests for colour fastness: — Part E04 Colour fastness to perspiration (*first revision*) |
| IS/ISO 105-X12 : 2016 | Textiles — Tests for colour fastness: — Part X12 Colour fastness to rubbing (*first revision*) |
| IS 293 : 1980 | Code for seaworthy packaging of cotton yarn and cloth (*third revision*) |
| IS 1347 : 1972 | Specification for inland packaging of cotton cloth and yarn (*first revision*) |
| IS 1390 : 2022/ ISO 3071 : 2020 | Textiles — Determination of *p*H of aqueous extract (*third revision*) |
| IS 1954 : 2024/ISO 22198 : 2006 | Textiles — Fabrics — Determination of width and length (*third* *revision*) |
| IS 1963 : 1981 | Methods for determination of threads per unit length in woven fabrics (*second revision*) |
| IS 1964 : 2001 | Textiles — Methods for determination of mass per unit length and mass per unit area of fabrics (*second revision*) |
| IS 1969 (Part 1) : 2018/ ISO 13934-1 : 2013 | Textiles — Tensile properties of fabrics: Part 1 Determination of maximum force and elongation at maximum force using the strip method (*fourth revision*) |
| IS 2977 : 1989 | Fabrics (other than wool) — Method for determination of dimensional changes on soaking in water (*first revision*) |
| IS 3416 : 2024/ ISO 1833-11 : 2017 | Textiles — Quantitative chemical analysis — Mixtures of certain cellulose fibres with certain other fibres (method using sulphuric acid) (*third revision*) |
| IS 3442 : 2023 | Textiles — Method for determination of crimp and linear density of yarn removed from fabric (*second revision*) |
| IS 3456 : 2022 | Method for determination of water-soluble matter of textile materials (*first revision*) |
| IS 4681 : 1981**IS 4681 (Part 2) : 2024 / ISO 2313-2 : 2021** | Method for determination of recovery from creasing of textile fabrics by measuring the angle of recovery (*first revision*) **Textiles** — **Determination of the recovery from creasing of a folded specimen of fabric by measuring the angle of recovery Part 2 Method of the vertically folded specimen (*second revision*)** |
| IS 6359 : 2023 | Method for conditioning of textiles (*first revision*) |
| IS 10971 (Part 1) : 2022/ ISO 12945-1 : 2020 | Textiles — Determination of fabric propensity to surface pilling fuzzing or matting Part 1: Pilling box method (*second revision*) |
| IS 14466 : 1997/ ISO 8498 : 1990 | Fabrics — Description of defects — Vocabulary |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

**ANNEX B**

(*Clause* 4.2)

**LIST OF MAJOR FLAWS**

1. One or more ends missing in the body of the material throughout its length, more than three ends missing at a place and running over 60 cm, or prominently noticeable double and running throughout the piece;
2. Undressed snarls noticeable over a length exceeding 5 percent of the length of the piece;
3. Smash definitely rupturing the texture of the fabric;
4. Hole, cut or tear;
5. Reed marks prominently noticeable over a length exceeding 5 percent of the piece;
6. Defective or damaged selvedge noticeable over a length exceeding 5 percent of the length of the piece;
7. Skewing of more than three percent on weft. Weft crack or two or more missing picks across the width of the fabric;
8. Warp or weft bar due to the difference in raw material, count, twist, lustre, colour, shade or spacing of adjacent groups of yarns (starting mark);
9. More than two adjacent ends running parallel, broken or missing and extending beyond 10 cm;
10. Noticeable warp or weft float in the body of the fabric;
11. Noticeable oil or other stain in the fabric;
12. Oily weft in the fabric;
13. Prominently noticeable slub;
14. Conspicuous broken pattern;
15. Gout due to foreign matter, usually lint or waste woven into the fabric;
16. Prominent selvedge defect;
17. Significant shading or listing in fabrics having a gradual change in tone or depth of shade of fabric (excluding selvedge or border running parallel to the selvedge);
18. Coloured flecks;
19. Blurred or dark patch;
20. Patchy, streaky or uneven dyeing;
21. Dye bar; and
22. Fuzzy appearance.

**ANNEX C**

(*Table* 1)

**METHOD FOR DETERMINATION OF HEAT SHRINKAGE OF FABRIC**

**C-1** Cut a sample of fabric measuring 30 cm **×** 30 cm and bring it to moisture equilibrium by conditioning in standard atmospheric conditions of 67 percent ± 2 percent RH and 27 °C ± 2 °C temperature (*see* IS 6359). Mark a square of 25 cm ×25 cm on the sample. Make four reference points on each side of the square at 5 cm intervals so that by including the sides of the square, six determinations can be made in warp and weft direction. Make two slits of 1.25 cm from opposite edges of the fabric and pass a rod through the slits. Mount the sample in the ventilated oven by means of the rod so that air circulates freely around the sides of the sample. Bring the oven to a temperature of 160 °C ± 4 °C before the sample is inserted into the oven and the sample shall remain in the oven for 16 s. Then withdraw the sample and remove it from the rod, lay in on a flat smooth surface and allow it to cool. Measure the distance between each pair of marks to the nearest millimeter and record the change in the dimensions. Determine the average of the readings in the warp and weft directions separately and express it as a percentage of the original length.

**ANNEX D**

(*Foreword*)

**COMMITTEE COMPOSITION**

Handloom and Khadi Sectional Committee, TXD 08

| *Organization* | *Representative(s)* |
| --- | --- |
| Weavers Service Centre, Delhi | Shri Vishesh Nautiyal **(*Chairperson*)** Shri Vikas Kumar (*Alternate*) |
|  |  |
| Central Pollution Control Board, New Delhi | Shri P. K. Mishra Shri Rishabh Srivastav (*Alternate*) |
|  |  |
| CRPF, New Delhi | Shri D. P. Upadhyay Shri Sanjeev Kumar Singh (*Alternate*) |
| Department of Handlooms & Textiles, Chennai | Shri Thiru R. Raghunath Shri Thiru K. Munusamy (*Alternate*) |
| Fabindia, New Delhi | Representative  |
| Flag Foundation of India, New Delhi | Shri Ashim Kohli  |
| Gandhigram Rural Institute, Dindigul | Dr B. Senthil Kumar |
| Haryana Khadi Gramodyog Sangh, Karnal | Shri Pawan Garg  Shri R. S. Yadav (*Alternate*) |
| ICAR - Central Institute for Research on Cotton Technology, Mumbai (CIRCOT) | Dr Sujata Saxena  Dr A. S. M. Raja (*Alternate*) |
| Indian Institute of Handloom Technology, Jodhpur | Dr J. Sivagnanam |
| Indian Institute of Handloom Technology, Salem | Dr P. Thennarasu |
| Indian Institute of Handloom Technology, Varanasi  | Dr Amin Hirenbhai Navinbhai  Shri Jitender Tak (*Alternate*) |
| Indian Institute of Technology, Delhi  | Dr Bipin Kumar  Dr Wazed Ali (*Alternate*) |
| Indo Tibetan Border Police, New Delhi  | Shri Uttam Kumar Shri Anand Kumar (*Alternate*) |
| Jan Sewa Ashram, Aligarh | Shri R. K. Sharma Shri Akhilesh Kumar Awasthi (*Alternate*) |
| Karnatka Khadi Gramodyog Samyuktha Sangha, Hubli | Shri K. V. Pattar Shri Shivananda S. Mathapati (*Alternate*) |
| Khadi and Village Industries Commission, Mumbai | Shri Vijaysridhar Dr Sentil Kumar C. B. (*Alternate*) |
| Khadi Dyers & Printers, Mumbai | Shri D. N. Bhatt Shri V. D. Joshi (*Alternate*)  |
| Khadi Gramodyog Mandal, Rampur | Shri Rakesh Chaudhary  Shri Prince Chaudhary (*Alternate*) |
| Kshetriya Khadi Gramodyog Samiti, Dausa  | Shri R. K. Singh |
| Madhya Bharat Khadi Sangh, Gwalior | Shrimati Neelu Mekle  Shri Harish Mekle (*Alternate*)  |
| Mahatma Gandhi Institute for Rural Industrialization, Wardha | Shri Mahesh kumar Dr Tapan Ranjan Kar (*Alternate*) |
| Metpalli Khadi Gramodyog Pratisthan, Metpalli | Shri G. Madhav  |
| Ministries of Defence (DGQA), New Delhi | Shri Arvind Compathane Shri N. Senthil Kumar (*Alternate*)  |
| Ministries of Health, New Delhi | Representative  |
| National Handloom Development Corporation Ltd, Gautam Budh Nagar | Dr Sakthivel Perumal Samy  Shri Jitendra Tolambiya (*Alternate*) |
| Northern India Textile Research Association, Ghaziabad | Dr M. S. Parmar  Shri Sanjeev Shukla (*Alternate*) |
| Northern Railways, New Delhi | Shri Sanjeev Kumar Jain Shri Rajesh Kumar (*Alternate*) |
| Office of the Development Commissioner for Handlooms, New Delhi | Shri Siddharth Singh  Shri Vinay Kumar (*Alternate*) |
| Orient Processes Pvt Ltd, Guwahati | Shri Robin Chandra Goswami Shri Raj Buragohain (*Alternate*) |
| Rastriya Khadi Gramodyog Federation, Moradabad | Shri Anil Kumar Singh  Shri Kuldeep Singh (*Alternate*) |
| Swastik Gramodyog Samiti, Delhi | Shri M. L. Pathak  Shri Abhishek Dixit (*Alternate*) |
| The Cotton Textiles Export Promotion Council (TEXPROCIL), Mumbai | Dr Siddhartha Rajagopal  Shri Rajesh Satam (*Alternate*) |
| The Handloom Export Promotion Council, Chennai | Dr M. Sundar  Shri N. Sreedhar (*Alternate*) |
| The Tamil Nadu Handloom Weavers Cooperative Society Ltd, Chennai | Shri T. N. Venkatesh, I. A. S.  Shri K. Kathiresan (*Alternate*) |
| BIS Directorate General | Shri J. K. Gupta, Scientist ‘E’/ Director and Head (Textiles) [Representing Director General (*Ex-officio*)] |

*Member Secretary*

Shri Swapnil

Scientist ‘B’/Assistant Director

 (Textiles), BIS