भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

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भारतीय मानक मसौदा

वस्त्रादि – वर्दी के लिए पॉलिएस्टर सूती मिश्रित खादी (पॉलीवस्त्र) की सूटिंग – विशिष्टि

(*आई एस 13717 का पहला पुनरीक्षण*)

Draft Indian Standard

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

(*First Revision of IS 13717*)

ICS 59.080.30

Handloom and Khadi Sectional Committee, TXD 08	Last date for receipt of comment is 12 May 2024

FOREWORD

(*Formal clauses will be added later*)

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.

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

a) Marking clause has been modified;
b) References to Indian Standards have been updated;
c) Method of test for count of yarn along with its tolerance has been specified; and
d) Sampling clause has been modified.

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.

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 editions of the standards indicated in Annex A.

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**.**

3.2.1 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* IS14466). 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.	Characteristics	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Approximate count of warp and weft yarns (for guidance only)	20 tex × 2 (30s/2) ± 5 percent	IS 3442
ii)	Blend composition, percent a) Polyester b) Cotton	 67 ± 5 33 ± 5	IS 3416
iii)	Threads/dm a) Warp b) Weft	 260 ± 5 percent 190 ± 5 percent	IS 1963
iv)	Mass, g/m^2	190 ± 5 percent	IS 1964
v)	Length, m	As agreed	IS 1954
vi)	Width, cm	70 ± 2	
vii)	Breaking load on 5.0 × 20 cm strip, *Min* a) Warp way b) Weft way	 840 N 610 N	IS 1969 (Part 1)
viii)	Crease recovery angle, *Min* (initially and after three repeated washings, etc)	240°	IS 4681
ix)	Pilling (after 5 hrs test)	4 or better	IS 10971 (Part 1)
x)	Relaxation shrinkage, percent, *Max* a) Warp way b) Weft way	 2 2	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 fastness a) Light b) Washing Test 3 (After 4 washings) 1) Change in colour 2) Staining on fabric c) Perspiration d) Rubbing	 5 or better 4 or better 4 or better 4 or better 4 or better	 IS/ISO 105-B01 or IS/ISO 105-B02 IS/ISO 105-C10 IS/ISO 105-E04 IS/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.

4.3.1 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 1200	20	1	5
v)	1201 to 10000	32	2	8
vi)	10001 to 35000	50	3	8
vii)	35001 to 500000	80	5	13
viii)	500001 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) of Table 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:

a) Name of the material, namely, polyvastra suiting;
b) Composition, namely, polyester 67 percent and cotton 33 percent;
c) Manufacturer's name, initials or trade-mark;
d) Length and width;
e) Count of warp and weft yarn;
f) Indication of the source of manufacture; and
g) 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 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	Methods for determination of *p*H value of aqueous extracts (*third revision*)
IS 1954 : 1990	Determination of length and width of woven fabrics — Methods (*second 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 : 1988	Method for quantitative chemical analysis of binary mixtures of polyester fibres with cotton or regenerated cellulose (*second revision*)
IS 3442 : 2023	Textiles method for determination of crimp and linear density of yarn removed from fabric
IS 3456 : 2022	Method for determination of water-soluble matter of textile materials (*first revision*)
IS 4681 : 1981	Method for determination of recovery from creasing of textile fabrics by measuring the angle of recovery (*first revision*)
IS 6359 : 2023	Method for conditioning of textiles *(First Revision*)
IS 10971 (Part 1) : 2022	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
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
IS/ISO 105-X12 : 2016	Textiles — Tests for colour fastness — Part X12 Colour fastness to rubbing (*first revision)*

ANNEX B

(*Clause* 4.2)

LIST OF MAJOR FLAWS

a) 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;
b) Undressed snarls noticeable over a length exceeding 5 percent of the length of the piece;
c) Smash definitely rupturing the texture of the fabric;
d) Hole, cut or tear;
e) Reed marks prominently noticeable over a length exceeding 5 percent of the piece;
f) Defective or damaged selvedge noticeable over a length exceeding 5 percent of the length of the piece;
g) Skewing of more than three percent on weft. Weft crack or two or more missing picks across the width of the fabric;
h) 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);
j) More than two adjacent ends running parallel, broken or missing and extending beyond 10 cm;
k) Noticeable warp or weft float in the body of the fabric;
m) Noticeable oil or other stain in the fabric;
n) Oily weft in the fabric;
p) Prominently noticeable slub;
q) Conspicuous broken pattern;
r) Gout due to foreign matter, usually lint or waste woven into the fabric;
s) Prominent selvedge defect;
t) 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);
u) Coloured flecks;
w) Blurred or dark patch;
y) Patchy, streaky or uneven dyeing;
z) Dye bar; and
aa) Fuzzy appearance.

ANNEX C

(*Table* 1)

METHOD FOR DETERMINATION OF HEAT SHRINKAGE OF FABRIC

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. 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.