भारतीय मानक ब्यूरो
भारतीय मानक मसौदा

वस्त्रादि - केप्स और बारिश कोट के लिए पानी विकर्षक कपडे - विशिष्टि
(आई एस 2422 का *चौथा पुनरीक्षण*)

BUREAU OF INDIAN STANDARDS
Draft *Indian Standard*

Textiles —Water Repellent Fabric for Capes and Rain Coats — Specification
(*Fourth Revision* of IS 2422)

ICS 59.080.30 ; 59.080.40

Last date for receipt of comment is 24 May 2025

FOREWORD

(*Formal clauses will be added later*)

Water repellent fabrics used for raincoats are specially treated to resist the penetration of water, keeping the wearer dry during wet conditions.

This standard was first published in 1963 and subsequently revised in 1979, 1985 and 2015. This standard is being revised again to incorporate the following major changes in the standard:

a) Incorporated a new variety of polyester based water repellent fabric.
b) The requirement of rot proofing has been made applicable only for variety 1, 2 and 3.
c) The requirement for water repellent finish has been deleted.
d) The requirement of pH has been modified.
e) All the references have 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 particulars of four varieties of the water repellent fabric for capes and raincoats.

1.2 This standard does not specify general appearance, feel, shade, etc, of the cloth (*see* also 4.3).

2 REFERENCES

2.1 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 Yarn

The yarn used in the manufacture of the cloth shall be satisfactory in evenness and reasonably free from neps and other spinning defects.

3.2 Cloth

The cloth shall be free from dressing and filling materials and from substances liable to cause subsequent tendering. The dyed cloth shall be free from stains, streaks, patches and specks.

3.2.1 The water repellent treatment shall be imparted by treating the cloth with a suitable composition. The treated cloth shall be free from streakiness and objectionable flaws. The water repellent mixture shall not contain any ingredient which is liable to damage the treated cloth.

3.2.2 For variety 1, 2 and 3, the treated cloth shall be given rot-proofing treatment with copper napthenate for O. G. shades or zinc napthenate for khaki and other shades as specified in Table 2 with class A process as specified in IS 11662.

3.2.3 The cloth when visually examined shall be reasonably free from spinning, weaving and processing defects.

4 REQUIREMENTS

4.1 The constructional particulars of the cloth shall conform to those given in Table 1, except the count of warp and weft yarn which has been given for guidance only.

4.2 The colour fastness ratings (applicable for dyed fabric only) and other requirements of the cloth shall conform to those given in Table 2.

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 respects.

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

5 MARKING

5.1 The cloth shall be marked with the following:

a) Name of the material;
b) Blend composition in descending order (in case of blended fabric);
c) Length and width of the piece;
d) Manufacturer's name, initials or trade-mark, if any; and
e) Year of manufacture.

5.2 At the other end of the piece, the cloth shall be marked with an identification mark.

5.3 BIS Certification Marking

Each water repellent fabric may also be marked with the Standard Mark.

5.3.1 The use of the Standard Mark is governed by the provisions of Bureau of Indian Standards Act, 2016 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers and same may be obtained from the Bureau of Indian standards.

Table 1 Constructional Particulars of Fabric, Water Repellent

(*Clause* 4.1)

	Characteristic	Variety	Tolerance	

Sl No.		Variety 1 (Based on cotton and its blends)	Variety 2 (Based on cotton and its blends)	Variety 3 (Based on cotton and its blends)	Variety 4 (Polyester based)	Percent	Method of Test
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	Approximate linear density of yarn (For guidance only)						
	a) Warp	42 tex × 2 ($14^s/2$)	16.4 tex × 2 ($36^s/2$)	9.8 tex × 2($60^s/2$)	100 D	—	—
	b) Weft	42 tex × 2 ($14^s/2$)	19.7 tex × 2 ($30^s/2$)	13.4 tex × 2($44^s/2$)	300 D	—	—
ii)	Ends/ dm	240	510	670	480	± 5	IS 1963
iii)	Picks/dm	180	300	350	190	± 5	IS 1963
iv)	Mass including water repellent and rot proofing content, g/m^2, *Min*						IS 1964
	a) Dyed Fabric	410	340	257	260	—	
	b)Scoured/Bleached fabric	390	317	241	-	—	
v)	Breaking load on 5 × 20 cm strips N, *Min*						IS 1969 (Part 1)
	a) Warp	1 000	2 310	2 230	1000	—	
	b) Weft	900	1 695	1 515	900	—	
vi)	Length, m, *Min*	36 or as agreed	36 or as agreed	36 or as agreed	36 or as agreed	—	IS 1954
vii)	Width, cm	75 or as agreed	91 or as agreed	91 or as agreed	91 or as agreed	± 2	IS 1954

Table 2 Requirements of Fabric, Water Repellent

(*Clause* 4.2)

Sl No.	Characteristic	Requirement	Method of Test, Ref to Annex IS No.
(1)	(2)	(3)	(4)
i)	Colour fastness rating of dyed fabric to: a) Light b) Washing: Test C (3) 1) Change in colour 2) Staining of adjacent fabrics	 5 or better 4 or better 4 or better	 IS/ISO 105-B02 IS/ISO 105-C10
ii)	*p*H value	5.5 to 7.5	IS 1390
iii)	Shrinkage or elongation, *Max*	4 percent	IS 2977
iv)	Blend composition (for blended fabrics)	as agreed ± 3 units	IS 1564 IS 1889 (Part 4) IS 2005 IS 2176 IS 2177 IS 3416 IS 3421
v)	Water resistance:		
	a) Bundesmann test:		IS 392
	1) Percentage absorption of water, Max	60 percent	
	2) Water penetration, Max (wetting of underside permissible)	1 ml	
	b) Cone test		IS 7941
	1) Amount of penetration	No leakage	
	2) Amount of wetting of outer surface	No wetting (sweating inside the fold permissible)	
vi)	Rot Proofing agent, percent (For variety 1, 2 and 3 only)		IS 3522

	a) Copper content	0.5 to 0.8	
	b) Zinc Content	0.8 to 1.0	

6 PACKING

6.1 The cloth shall be packed in bales or cases in conformity with the procedure laid down in IS 1347 or in IS 293 as required.

7 SAMPLING

7.1 The scale of sampling and criteria for conformity as given in IS 3919 shall be followed in respect of the physical characteristics, namely, ends and picks, mass, breaking load, length and width of cloth.

7.2 The scale of sampling and criteria for conformity as given in IS 5463 shall be followed in respect of chemical characteristics, namely, colour fastness, pH value, shrinkage or elongation, proofing content, water resistance of cloth and blend composition (in case of blended fabrics).

ANNEX A

(*Clause* 2)

LIST OF REFERRED STANDARDS

IS No.	*Title*
IS 105-C10 : 2006	Textiles — Tests for colour fastness — Part C10 Colour fastness to washing with soap or soap and soda
IS 293 : 1980	Code for seaworthy packaging of cotton yarn and cloth (*third revision*)
IS 392 : 1989	Textiles — Determination of water absorption and penetration of fabrics using Bundesmann type apparatus (*third revision*)
IS/ISO 105-B01 : 2014	Textiles — Test for colour fastness Part B01: Colour fastness to light: daylight
IS 1347 : 1972	Specification for inland packaging of cotton cloth and yarn (f*irst revision*)
IS 1390 : 2022	Textiles — Determination of pH of aqueous extracts (*third revision*)
IS 1564 : 2024	Textiles — Quantitative Chemical Analysis — Mixtures of Triacetate or Polylactide with Certain Other Fibres (Method Using Dichloromethane) (Second Revision)
IS 1889 (Part 4) : 1979	Method for quantitative chemical analysis of binary mixtures of regenerated cellulose fibre and cotton — Part 4 Sulphuric acid method (*first revision*)
IS 1954 : 2024	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	Textiles – Tensile properties of fabrics – Part 1 Determination of maximum force and elongation at maximum force using the strip method (*fourth revision*)
IS 2005 : 2024	Textiles — Quantitative Chemical Analysis — Mixtures of Polyamide with Certain Other Fibres (Method Using Formic Acid) (*Second Revision*)
IS 2176 : 2023	Textiles — Quantitative Chemical Analysis — Mixtures of Acetate with Certain Other Fibres (Method Using Acetone) (*Second Revision*)
IS 2177 : 2024	Textiles — Quantitative Chemical Analysis — Mixtures of Acetate and Triacetate Fibres (Method Using Acetone) (*Second Revision*)
IS/ISO 105-B02 : 2014	Textiles – Tests for colour fastness – Part B02 Colour fastness to artificial light: Xenon arc fading lamp test
IS 2977 : 1989	Fabrics (other than wool) — Method for determination of dimensional changes on soaking in water (*first revision*)
IS 3416 : 2024	Textiles — Quantitative Chemical Analysis — Mixtures of Certain Cellulose Fibres with Certain Other Fibres (Method Using Sulphuric Acid) (Third Revision)
IS 3421 : 2024	Textiles — Quantitative Chemical Analysis — Mixtures of Certain Cellulose Fibres with Certain Other Fibres (Method Using Sulfuric Acid) (*Second Revision*)
IS 3522 (Part 1) : 1989	Methods for estimation of common preservatives on textiles — Part 1 (*first revision*)
IS 3919 : 1966	Methods for sampling cotton fabrics for determination of physical characteristics
IS 4910 (Part 3) : 2023	Tyre yarns, cords and tyre cord fabrics made from man-made fibres — Methods of test: Part 3 Load and elongation characteristics (*second revision*)
IS 5463 : 2024	Methods for sampling of cotton fabrics for chemical tests (*first revision*)
IS 6359 : 2023	Method for conditioning of textiles (*first revision*)
IS 7941 : 1976	Method for determining the water repellency of fabrics by cone test
IS 11662 : 2024	Preservative treatment of textiles - Code of Practice