

Draft QRs/Specification Shirt Angola Cloth

0.0 FORWARD

0.1 This specification has been prepared by CAPF sub-group committee.

0.2 This specification will be used by the CAPF.

0.3 This specification would be used for manufacture, quality assurance and procurement of the item.

0.4 This specification holds good only for the supply order for which it is issued.

0.5 The Quality Assurance Authority reserves the right to amend or modify the specification as and when required.

0.6 The Quality Assurance Authority is the competent authority to grant concessions, if any, in respect of any clause contained in this specification.

0.7 For the purpose of deciding whether a particular requirement of this specification is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS: 2-1960 (Reaffirmed 2006). The number of significant places retained in the rounded off value should be the same as that of the specified value in this specification.

1.0 SCOPE

1.1 The specification prescribes the requirement of 'Shirt Angola' cloth.

1.2 This specification does not specify the design/pattern and stitching of shirt from the 'Shirt Angola' cloth.

1.3 This specification does not specify general appearance, feel etc. of the 'Shirt Angola' cloth.

2.0 MANUFACTURE AND FINISH

2.1 The “Shirt Angola” cloth shall have 2/2 Twill. It shall be manufactured from yarn made from uniform blend of wool (Grade of wool top: 64s, see NOTE) and polyester. For guidance the count of the yarn used in warp and weft may be 15 Nm. The selvages shall be firm and straight. The cloth shall be ‘Heat set’ and fully shrunk. The blend composition of the cloth shall conform to the requirements given in the Table 1.

Note: When the fibres removed from the cloth are used for determining fineness grade, the value observed may fall in the next coarse grade that is 62s.

2.2 If required by the CAPF(User), the cloth shall be rendered moth proof by suitable chemicals as per the methods specified in IS 11662.

2.3 The cloth should be supplied in the width minimum 150 cm. The length of each piece shall be 40 meters or as agreed between supplier and purchaser(User).

2.4 Freedom from Defect: The “Shirt Angola” cloth shall be free from major flaws (defects). The cloth when visually examined shall not have more than one objectionable flaw per 8 meters length. A list of major flaws (defects) is given in Appendix A of IS: 4125.

2.5 All objectionable flaws shall be marked by means of a thread sewn in the selvedge opposite to the flaw and an allowance of 10 cm shall be given for each such flaw. Only one selvedge shall be used for tagging.

2.6 Dyeing shall be done at the ‘top’ stage, that is before blending and the dyeing shall be uniform. It shall be free from dyeing defects such as uneven dyeing.

3.0 REQUIREMENTS

3.1 The “Shirt Angola” cloth shall conform to the requirements given in Table 1. Specification for colour of the “Shirt Angola” cloth shall be as given in Table 2.

3.2 Sealed Sample: In order to illustrate or specify the indeterminate characteristics such as general appearance, luster, feel and colour, a sample has been agreed upon and sealed; the supply shall be conformity with the sample in such respects.

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

4.0 MARKING

Each piece of cloth shall be marked with the following:

- (a) Name of the material, namely “Shirt Angola” Cloth material.
- (b) Composition, namely, Wool and Polyester percent to be marked on every alternate meter of the cloth at a height not exceeding 2.5 cm from the selvedge.
- (c) Length and width;
- (d) Manufacturer’s name, initials or trade-mark;
- (e) Any other information required by the law in force and/or by the buyers.

5.0 PACKAGING & PACKING

The “Shirt Angola” cloth shall be packed in polyethylene or polypropylene bags and or in box, as required by the buyer (see IS 2194 and IS 2195).

6.0 SAMPLING AND CRITERIA FOR CONFORMITY

6.1 The number of pieces to be selected at random from a lot for inspection shall be according to col. 1 and 2 of Table 3. To ensure randomness of selection, procedure given in IS: 4905 shall be followed.

6.2 The sampling procedure detailed in 6.2 to 6.4 shall give desired protection to the buyer and the seller, provided that the lot submitted for inspection is homogeneous. To achieve this, the manufacturer shall maintain a system of process control at all stages of manufacturing ensuring the “Shirt Angola” cloth tendering by him

for inspection to comply with the requirements of this standard in all respects.

6.3 Lot: The number of pieces of cloth of same composition and constructional particulars delivered to a buyer against a dispatch note shall constitute a lot.

6.3.1 The conformity of a lot to the requirements of this specification shall be determined on the basis of the tests carried out on the samples selected from the lot.

6.4 The number of pieces to be tested at criterion for conformity for each of the characteristics shall be as follows:

Characteristics	No. of Samples	Criterion for conformity
i) Visual inspection for freedom from major flaws (defects)	According to col 2 of Table 3	All the pieces of cloth selected according to col 2 of Table 3 shall be visually examined. Permissible number of non-conforming pieces not to exceed corresponding number given in col 3 of Table 3.
ii) Construction, Ends, picks, mass, length and width	According to col 2 of Table 3	All specimens shall satisfy the relevant requirements as given in this specification.
iii) Blend composition, shrinkage, breaking strength, tearing strength, colour fastness, pH etc.	According to col 4 of Table 3	All specimens shall satisfy the relevant requirements as given in this specification.

7.0 TERMINOLOGY

For the purpose of this specification the definitions given in IS 11206 shall apply

Table 1 : Requirements of “Shirt Angola” Cloth

S/N	Characteristics	Requirements	Test Method
01	Composition % Wool Polyester	50±3 50±3	
02	End/dm (Minimum)	185	
03	Picks/dm (Minimum)	160	
04	Mass, g/m ²	265±10	
05	Breaking strength, Newton (Minimum) Wrap-wise Weft-wise	900 800	
6	Colour fastness to washing Change in colour Staining on adjacent fabric	4 or better 4 or better	
07	Colour fastness to perspiration Change in colour Staining on adjacent fabric	4 or better 4 or better	
08	Colour fastness to rubbing Dry Wet	4 or better 4 or better	
09	Colour fastness to Dry cleaning Change in colour Staining of the solvent	4 or better 4 or better	
10	Colour fastness to light	5 or better	
11	Dimensional change due to relaxation, both directions, percentage, maximum	1.0	
12	pH value of the aqueous extract	5.0-7.0	

13	Pilling (after 5 hours of test), Minimum	4	
14	Colour difference (ΔE)	≤ 1.2	

Table -2 : Specification of colour of “Shirt Angola” Cloth

(AATCC Test method 173 : 2009 & AATCC Evaluation Procedure 7:2009)

Colour	Olive-Khaki		
System	CIE LCH		
Illuminant Observer	D65		
Standard Observer	10 Degree		
Testimulus Values	X	Y	Z
	8.936	8.997	5.682
LCH	L	C	H
	35.979	14.951	76.348
CMC (I:C)	2:1		
Colour difference, ΔE_{cmc}	≤ 1.2		

Interpretation of Results:

- i) If ΔE_{cmc} is less than or equal to 1.2, then sample is acceptable.
- ii) If ΔE_{cmc} is greater than 1.2, then sample is unacceptable.

Note-1: Absorbance/reflectance/transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between samples of same type i.e. identical fabric construction parameters and filament/fibre composition.

Note-2: Test should be carried out after proper conditioning as per AATCC 173 using diffuse (sphere) geometry spectrophotometer.

Table 3: Sample size and permissible number of non-conforming
“Shirt Angola Cloth”

Lot Size	Sample size	Permissible number of non-conforming pieces	Sub-sample size
Up to 5	2	0	1
6-20	3	0	1
21-50	5	0	2
51-150	8	0	3
151-300	13	1	5
301 and above	20	1	5