

JSS 8305-32:2003

Mashu CM

RAKSHA MANTRALAYA

MINISTRY OF DEFENCE

JOINT SERVICES SPECIFICATION

ON

FABRIC NYLON POLYURETHANE COATED 105 GSM WHITE

(DS CAT No. 8305 - 003 728)

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MINISTRY OF DEFENCE, 'H' BLOCK, DHQ PO
NEW DELHI - 110 011**

(i)

LIST OF MEMBERS ASSOCIATED WITH FORMULATION OF THE STANDARDS

1. This Joint Services Specification has been approved by Dr. Ram Gopal Sc 'G', Director, Directorate of Materials, R&D Organisation, Chairman, Material Standardisation Sub Committee and members of the Sub Committee during the 33rd Material Standardisation Sub Committee meeting held on 05 Mar 2002.

2. The following members have been present / consulted in approving the document.

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0. FOREWORD

- 0.1 This specification has been prepared by Material Standardisation Sub Committee on the authority of Standardisation Committee, Ministry of Defence.
- 0.2 This specification has been approved by the Ministry of Defence and is mandatory for use by the Defence Services.
- 0.3 This specification is prepared based on Defence Materials and Stores Research & Development Establishment, Kanpur specification No. DMSRDE/T&GS/93/405(a) on Fabric Nylon Polyurethane Coated 105 GSM White.
- 0.4 This specification would be used for manufacture, quality assurance and procurement of the item.
- 0.5 Quality Assurance Authorities for the item covered by this specification are CQA (T & C), Kanpur for army, DQA(N), New Delhi for Navy and Director General, Directorate General of Aeronautical Quality Assurance, 'H' Block, DHQ PO, New Delhi - 110 011 for Air Force. Enquiries regarding this specification shall be addressed to the Quality Assurance Authority named in the tender or contract. Other enquiries shall be referred to :-
- The Director,
Director of Standardisation,
Ministry of Defence,
'H' Block, DHQ PO,
New Delhi - 110 011
- 0.6 Copies of this specification can be obtained on payment from:-
- Directorate of Standardisation,
Standardisation Documents Centre,
Room No. J-13 'J' Block,
DHQ PO, New Delhi - 110 011.
- 0.7 This specification holds good only for the supply order for which it is issued.

1. **SCOPE**

1.1 This specification covers the requirements of Single Texture Fabric Nylon Polyurethane Coated 105 GSM White for Wind Cheaters, Poncho, Extreme Cold Weather Clothings (outer) or similar end uses.

2. **RELATED SPECIFICATIONS**

2.1 Reference is made in this specification to :

IS 390 : 1975 Method for determining the water repellency of fabrics by water spray test
(First Revision)
Reaffirmed 1997

IS 667 : 1981 Methods for identification of textile fibres
(First Revision)
Reaffirmed 1993

IS 2818 (Part 2) : 1971 Specification for Indian Hessian: Part II, 305 and 229 g/m at 16 percent contract regain.
(First Revision)
Reaffirmed 1995
(Amendment 1)

IS 7016 (Part 1) : 1982 Methods of test for coated and treated fabrics :
Part I : Determination of Roll characteristics
(First Revision)
Reaffirmed 1998

IS 7016 (Part 2) : 1981 Methods of test for coated and treated fabrics :
Part 2 Determination of breaking strength and extension at break.
(First Revision)
Reaffirmed 1998

IS 7016 (Part 4) : 1987 Methods of test for coated and treated fabrics:
Part 4 Determination of Resistance to damage by flexing
(First Revision)
Reaffirmed 1994

✓ IS 7016 (Part 7) : 1986 ✓ Methods of test for coated and treated fabrics: Part 7
Determination of resistance to penetration by water
(First Revision)
Reaffirmed 1991

✓ IS 7016 (Part 8) : 1975 ✓ Methods of test for coated and treated fabrics :
Part 8 Accelerated ageing
Reaffirmed 1991

BS EN 25978:1993 Rubber or plastics – coated fabrics.
Determination of blocking resistance.

2.2 Copies of the Indian Standards are obtainable on payment from :

Bureau of Indian Standards,
Manak Bhawan,
9, Bahadur Shah Zafar Marg,
New Delhi – 100 002

or
their regional branch offices

2.3 Copies of the British Standard BS EN 25978 are obtainable on payment from :

Book Supply Bureau,
A-68, South Extension (Part 1)
New Delhi – 110 049

3. STANDARD PATTERN

3.1 A standard pattern held by the AHSP may be referred by the manufacturer while manufacturing the store. The coated fabric shall conform to the sealed pattern in appearance, finish, whiteness and in all other respects not defined in this specification.

4. MATERIAL

4.1 The coated fabric shall be manufactured from the following materials:-

(a) Basic Fabric- The basic fabric shall be woven from continuous filament yarns of nylon 6 or 66 weighing 90 ± 5 g/m². The basic fabric shall be properly bleached and finished before coating operation. Fluorescent brightener/optical whitening agents shall not be used.

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(b) Coating Material - There shall be continuous solid layer of suitably formulated flexible polyurethane elastomer (polyether type polyol and aliphatic isocyanate) on one side in white shade/transparent, free from tackiness and topped on both sides for water repellency.

5. MANUFACTURE, WORKMANSHIP AND FINISH

5.1 The fabric shall be clean, evenly woven in plane weave and free from any weaving defects and stains and should lay flat when spread. The selvages of the fabric shall be straight, even and well made and shall not be thicker than the average thickness of the fabric. The fabric shall be thoroughly desized, scoured and heat set. The fabric shall then be given a primer treatment (if required) and then uniformly coated on one side with polyurethane elastomer based compound. The coated layer shall have high adhesion to base fabric and shall be free from pin holes, embedded foreign matter, surface irregularity, wrinkles or any other coating defects. The finished fabric shall be sufficiently pliable and free from tackiness and any objectionable odour.

6. DIMENSIONS

6.1 Width and roll length – Width and roll length of the coated fabric shall be decided by the purchaser according to requirement of the end store.

7. MARKING

7.1 Before despatch, each bundle shall be legibly marked with indelible marking ink showing the following details:-

- (i) Nomenclature and DS cat. No. of the store.
- (ii) Quantity packed.
- (iii) Lot and serial number.
- (iv) Month and year of packing.
- (v) Name and trade mark of the manufacturer.
- (vi) Name and address of the consignee.
- (vii) Inspection Note No. and date.
- (viii) A/T No. and date.

8. PRE-INSPECTION OF STORES / CONSIGNMENT

8.1 Manufacturers/contractors must satisfy themselves that the stores are in accordance with the terms of the contract and fully conform to the required specification by carrying out a thorough pre-inspection of each lot before actually tendering the same for inspection to the Quality Assurance Officer nominated under the terms of the contract. A declaration by the contractor that a necessary pre-inspection has been carried out on the stores tendered will be submitted along with the challan. The declaration will also indicate the method followed in carrying out pre-inspection showing the features checked / tested and will have the test certificate attached to the challan/declaration.

8.2 If the Quality Assurance Officer finds that pre-inspection of the consignments as required above has not been carried out, the consignment is liable for rejection.

8.3 The stores shall be inspected at the supplier's premises for satisfactory performance and proper packaging before dispatch to the destinations.

8.4 In addition to above, requirements as mentioned in the contract shall also apply.

9. QUALITY ASSURANCE

9.1 The manufacturer shall be fully responsible for the performance of all inspection requirements as specified herein and shall ensure compliance with specified requirements by the following methods.

9.1.1 The manufacturer shall carry out inspection of materials, in the course of manufacture to ensure that the specified requirements are being met and that the necessary standard of workmanship and process control is being maintained.

9.1.2 The manufacturer shall prepare a quality assurance plan to be applied to the total process of producing the specified type of product. The Quality Assurance plan shall be approved by the Quality Assurance Authority.

9.1.3 The manufacturer's quality control organisation shall apply this quality assurance plan during production and maintain records thereof.

9.1.4 Quality Assurance plan shall also list the tests that are to be carried out on final product.

9.2 Requirements

9.2.1 Examination of samples, taken from any portion of a consignment shall show that the finished fabric conforms to the requirements given below when tested according to the methods mentioned against each:-

Sl. No.	Particulars	Requirements	Method of tests
1.	Mass 'gsm' (a) Coated fabric (b) Coating content	105 + 10 -5 10 (Min)	IS:7016 (Pt-1)
2.	Nature of fibre	Polyamide	IS:667
3.	Nature of Coating	Polyurethane (aliphatic)	Appendix 'B'
4.	Breaking strength 'N' (5x20cm between grips) (a) Warp (b) Weft	800 (Min) 400 (Min)	IS:7016(Pt 2)
5.	Tear strength 'N' (Revised single rip method) (a) Through Warp (b) Through Weft	20 (Min) 20 (Min)	-do-
6.	Waterproofness (Pressure head test 30 cm for 30 minutes) (a) Leakage 'ml' (b) Wetting of outer surface	Nil No wetting	IS:7016(Pt 7)
7.	Water repellency (Spray rating) (Uncoated side)	80	IS : 390
8.	Resistance to accelerated ageing at 70 ± 1°C for 168 hours	There shall not be any softening, stiffening, tackiness, discolouration and objectionable odour	IS:7016(Pt 8)
9.	Resistance to low temperature (at -40°C for 6 hours)	No appreciable stiffness No cracking	Appendix 'A'
10.	Blocking	Separation without damage to surface on lifting of weight piece	BS EN 25978

11.	Resistance to damage by flexing (after 30,000 cycles)	There shall not be any wrinkling, cracking, flaking etc.	IS:7016 (Pt4)
12.	Separation of PU film	On fraying threads in warp and weft directions up to 5 mm after cutting the fabric from any portion there shall not be left a continuous PU film on the areas where from the threads have been removed	-

10. SAMPLING

10.1 The quantity offered against one despatch note shall constitute a lot.

10.2 The number of samples shall be as per the following table:-

Lot size (No. of rolls)	Sample size (Non destructive test)	Sub sample size (destructive test)
0 to 50	8	3
51 to 100	13	4
101 to 150	20	5
151 to 300	32	6
301 to 500	50	7
501 and above	80	10

11. CRITERIA FOR CONFORMITY

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

11.2 All samples when tested for physical and chemical tests as per relevant specifications shall conform to stipulated standards.

12. WARRANTY

12.1 The store supplied against an order shall be deemed to bear a warranty of the contractor against defective materials/workmanship and performance for a period of 6 months from the date of receipt of the stores at consignees depot. If during the period the stores supplied are found by the consignee to be so defective, the same shall be replaced immediately with serviceable store without any charges or cost.

13 PACKAGING

- 13.1 The material shall be supplied in the form of rolls.
- 13.2 It shall be packed in neat and dry condition. A tag showing nomenclature of the store, manufacturer's name and trade mark, month and year of manufacture, meterage and lot number shall be securely attached at one end of the roll. Each roll shall be kept in polyethylene or polypropylene bag of suitable size.
- 13.3 Suitable number of rolls shall be suitably tied with twine jute 3 ply to form a bundle. The bundle shall then be wrapped with one layer hessian cloth (IS 2818 Pt 2). The bundle shall be stitched with twine jute 3 ply. Care shall be taken to avoid any damage to the coated fabric while stitching.

14. DEFENCE STORES CATALOGUE NUMBER

- 14.1 The fabric shall bear the Defence Stores Catalogue Number before it is supplied/accepted in the Defence Services. The DS Cat Number for this fabric is 8305 - 003 728

15. SUGGESTIONS FOR IMPROVEMENT

- 15.1 Any suggestions for improvement in this document may be forwarded to the
Director,
Directorate of Standardisation,
Ministry of Defence,
DHQ PO, 'H' Block,
New Delhi - 110 011.

Appendix 'A'

RESISTANCE TO LOW TEMPERATURE

On exposure at -40°C for 6 hours, the coated fabric shall remain flexible and coating shall not crack when folded sharply keeping coated surface outwards.

Appendix 'B'

IDENTIFICATION OF POLYURETHANE

Approx 5 gm of sample is dissolved / swollen in 5 ml glacial acetic acid by warming for several minutes. To this 0.1 gm p-demethyl-amino benzaldehyde is added. The solution is further warmed for 2-3 minutes. The solution turns yellow indicating presence of polyurethane.