 Prepared By: <i>Dev Kishan Bairwa</i> Dev Kishan Bairwa Sc 'B', TG(TE)	<i>P K Mallik</i> P K Mallik, Sc 'D', TG(TE)	Specification No. ADRDE/SPECN/1985/29(a)		Revision no: 1 Dated: 20/06/2019
		Reviewed By: <i>Gaurav Singh</i> Gaurav Singh Sc 'E', DII, TG(TE)	Issue: 02 Dated:	Page 1 of 10

Government of India
 Ministry of Defence

Specification
 For

Fabric Nylon 230 gsm


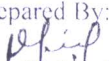
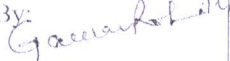
Approved by

[Signature]
 25/6/19

Group Director
 Technology Group (Textile Engineering)




Aerial Delivery Research and Development Establishment
 Ministry of Defence
 Post Box No. 51
 Station Road
 Agra Cantt - 282 001

		Specification No. ADRDE/SPECN/1985/29(a)		Revision no: 1
Prepared By:		Reviewed By:		Dated: 20/06/2019
Dev Kishan Bairwa Sc 'B', TG(TE)	P K Mallik, Sc 'D', TG(TE)	Gaurav Singh Sc 'E', DI, TG(TE)	Issue: 02 Dated:	Page 2 of 10



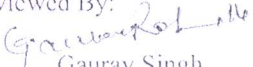
RECORD OF AMENDMENTS

Amendment No.	Sub heading to which amendment pertains and details of amendment	Authority	Incorporated by: Name & Rank in Block letters	Initials
1	Clause No. 2.1 Add: IS: 3456 - Method for determination of water soluble matter of textile materials	Director ADRDE	GD, TG(TE)	
2	Clause No. 11.5 For: The amount of water soluble matter when determined by the method given in IS: 758 shall not exceed 0.5% by mass. Amendment: The amount of water soluble matter when determined by the method given in IS: 3456 shall not exceed 0.5% by mass.	Director ADRDE	GD, TG(TE)	

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 Prepared By: Dev Kishan Bairwa Sec 'B', TG(TE)	 P K Mallik, Sec 'D', TG(TE)	Specification No. ADRDE/SPECN/1985/29(a)		Revision no: 1 Dated: 20/06/2019
		 Reviewed By: Gaurav Singh Sec 'E', DH, TG(TE)	Issue: 02 Dated:	Page 4 of 10

Fabric Nylon 230 gsm

0. FOREWORD


- 0.0 This specification is the revision of Specn no. ADRDE/SPECN/1985/29 for Fabric Nylon 230 gsm undyed.
- 0.1 This specification has been prepared by a special committee at ADRDE and approved by the Group Director, Technology Group (Textile Engineering), ADRDE, Agra.
- 0.2 This specification would be used for manufacture, inspection and procurement of Fabric Nylon 230 gsm against Defence requirements.
- 0.3 In case of any discrepancy between this specification and any sample or pattern, this specification shall be taken as correct.
- 0.4 Enquiries regarding this specification in relation to any contractual conditions should be addressed to the Inspection Authority named in tender or contract. Other enquiries will be referred to the issuing authority, Director, ADRDE, Agra.
- 0.5 Whenever a reference to any other specification occurs in this specification, it shall be taken as a reference to the latest version of that specification.
- 0.6 Copies of this specification can be obtained on payment from:
- i. The Director,
A.D.R. & D.E., P.B. No. 51, Station Road,
Agra Cantt. - 282 001
 - ii. Concerned Inspectors and Inspection Authority.
- 0.7 IS specifications quoted in this specification may be obtained directly from B.I.S., Manak Bhawan, 9, Bahadur Shah Zafar Marg, New Delhi - 110 002 or its offices located in the country

1. SCOPE

- 1.1 This specification covers the requirement of fabric Nylon for parachutes for certain illuminating ammunitions and other allied uses.

2. RELATED SPECIFICATIONS

- 2.1 Reference is made in this specification to:
- i. IS: 1954 Methods for determination of length and width of fabrics.
 - ii. IS: 7702 Method for determination of thickness of woven and knitted fabrics.
 - iii. IS 1315 Method for determination of linear density of yarn.
 - iv. IS: 1963 Method for determination of threads per unit length in woven fabrics.
 - v. IS: 1964 Method for determination of weight per square meter and weight per meter of fabrics.
 - vi. IS: 1969 Methods for determination of breaking load and elongation at break of woven textile fabrics.
 - vii. IS: 1390 Method for determination of pH value of aqueous extracts of Textiles (cold method).
 - viii. IS: 3456 Method for determination of water soluble matter of textile materials.

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- ix. IS: 3243 Method for determination of Air Permeability
- x. IS: 4905 Method for random sampling

2.2 All specifications referred to in this specification for any tender or contract, shall mean the current edition on the date of such tender or contract.

3. STANDARD PATTERN

3.1 The standard pattern, held by the DIRECTOR, ADRDE, Agra Cantt, shall constitute the standard as regards any particulars or properties not noted/defined in this specification.

4. MATERIAL

4.1 The basic material shall be of Nylon 6 or 66. The yarn for both warp and weft shall be bright multifilament of high tenacity. Any yarn twist (warp & weft) is acceptable, provided all requirements for this specification are met.

5. MANUFACTURE

- 5.1 The fabric shall be woven in "Mock Leno Weave" as per Appendix 'A'.
- 5.2 Nylon yarn used in the manufacture of the fabric shall be of good quality that will ensure the compliance of the fabric with the requirement of this standard.
- 5.3 The fabric shall not be more than one year old from the date of manufacture to the date of delivery. A certificate to this effect shall be provided by the manufacturer/contractor at the time of delivery.

6. DIMENSION, MASS AND OTHER DETAILS




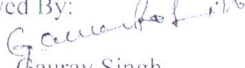
6.1 The fabric shall conform the essential particulars given in Appendix 'B'.

7. WORKMANSHIP AND FINISH

- 7.1 The fabric shall be free from weaving flaws, stains and other processing defect.
- 7.2 The selvedge of the fabric shall be straight compact even and will have the same tension as the remainder of the fabric.
- 7.3 the fabric shall be given a preliminary scour, sufficient to removing sizing and other contaminations at a temperature which will not cause fixation of the same into the fabric or results in permanent setting of the fabric. After this, it shall be heat set at appropriate temperature to achieve dimensional stability in the finished cloth.

8. MARKING

8.1 Each piece, prior to being offered for inspection, shall legibly be marked by the supplier with his name, initials or recognized trade mark, the year of manufacture, brief

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nomenclature, DS Cat. number of the store and length of the piece along with the number of flags contained in the piece.

9. **QUALITY**

9.1 On examination of sample taken from any portion of consignment, shall show that the fabric conforms to the requirements of clause 6 above.

10. **PRE-INSEPTION OF STORES/CONSIGNMNET**

10.1 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 inspecting officer nominated under the terms of the contract. A declaration by the contractor that 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.

10.2 If the Inspecting officer finds that pre-inspection of the consignment as required above has not been carried out, the consignment is liable for rejection.

11. **SAMPLING**

11.1 The manufacturer / supplier shall tender stores duly numbered and arranged in such a way that all the units are easily accessible to the Inspector.

11.2 The inspector shall draw samples from the bulk lot at random using technique of simple random sampling as given IS: 4905.

11.3 Unless otherwise specified the fabric shall bein continuous length without joints of not less than 80m. shorter cuts are allowed in accordance with the following schedule.

75 % of the total supply in length of 80 m or above


15 % of the total supply in length of 40 m or above

10 % of the total supply in length of 10 m or above

11.4 The air – permeability of the fabric when determined at 25 cm water head pressure on a suitable high pressure porosity instrument as per method prescribed in appendix 'B' of IS: 3243 shall be 480 to 600 cm³/cm²/S (16 to 21 ft³/ft²/S) for any individual reading. One individual reading down to 4560 or upto 630 cm³/cm²/S (15 or upto 21 ft³/ft²/S) may be permitted. A total of 20 readings shall be taken on a piece length of 80m and proportionally for smaller length. The average air – porosity shall be remain between 480 to 600 cm³/cm²/S (16 to 20 ft³/ft²/S).

11.5 The fabric shall contain no sizing or weighting material of any description. The amount of water soluble matter when determined by the method given in IS: 3456 shall not exceed 0.5% by mass.

11.6 The pH value of the finished cloth shall be within the range of 6.0 to 8.5 when tested as specified in IS: 1390 (cold method).

 Prepared By: <i>[Signature]</i> Dev Kishan Bairwa Sc 'B', TG(TE)		Specification No. ADRDE/SPECN/1985/29(a) Reviewed By: <i>[Signature]</i> Gaurav Singh Sc 'E', DII, TG(TE)		Revision no: 1 Dated: 20/06/2019
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P K Mallik, Sc 'D', TG(TE)				

12. **CRITERIA FOR CONFORMITY**

12.1 All the sample units drawn as per clause 11.2 above shall be tested /examined to the relevant requirement/specification. The lot shall be considered to be in conformity with the specification requirement otherwise not.

13. **INSPECTION**

13.1 On examination, material found not to conform to this specification requirement may be rejected.
 13.2 Inspection shall be carried out as per IPS for parachute fabric no. ADRDE/IPS/014

14. **WARRANTY**

14.1 The stores supplied, shall be deemed to bear a warranty of the contractor against defective material, poor workmanship and performance for a period of twelve months from the date of receipt of the stores at consignee's depot. If, during the period, the stores supplied are found by the consignee to be defective, the same shall be replaced immediately with serviceable stores by the contractor at site, free of any charge or cost.

15. **PACKAGING**


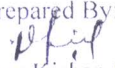

15.1 Each roll/piece shall be wrapped with polythene 150 gauge and secured at two ends by line cotton (0.32 cm) to form a unit pack. The appropriate number of such packs shall then be wrapped with paper craft wrapping and placed in case wood packing provided with lines water proof bag. The gross mass of the box shall not exceed 40 kg. The empty spaces, if any shall be filled in with cushioning material to prevent any movement of the contents inside the case wood packing and the top lid case shall be nailed with care so that the nails do not pierce in to the contents of the case wood packing. The case wood packing shall be made secure by fastening with metal hoops or metal wire

15.2 Packing material used shall be of best trade quality and previously approved by inspecting officer.

15.3 In order for delivery to a local inspection depot the fabric shall be delivered in firms returnable packs and after inspection the acceptable supplies shall be packed by the inspection depot authorities as per para - 14.1 above.

15.4 Before dispatch, each case wood packing (CWP) shall be legibly and indelibly marked, showing following details:

- a) Nomenclature of the store
- b) Quantity packed in each CWP.
- c) Serial no. of the CWP.
- d) Month and year of packing.
- e) Name and trade mark of the manufacturer.
- f) Gross mass of each CWP in Kg.

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- g) Name and address of the consignee.
h) Inspection note, number and date.

16. **DEFENCE STORES CATALOGUE NUMBER**

16.1 Not yet allotted.

17. **SUGGESTION FOR IMPROVEMENT**

17.1 Any suggestion for improvement of this document may be forwarded to the Director, ADRDE, Agra Cantt - 282 001.



Prepared By:
Dev Kishan Bairwa
Dev Kishan Bairwa
Sc 'B', TG(TE)

P K Mallik
P K Mallik,
Sc 'D', TG(TE)

Specification No. ADRDE/SPECN/1985/29(a)

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Dated: 20/06/2019

Reviewed By:
Gaurav Singh
Gaurav Singh
Sc 'E', DH, TG(TE)




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APPENDIX 'A'

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X			X				
	X	X		X			X
X			X		X	X	
				X			X
				X			X
X			X		X	X	

MOCK LENO WEAVE PATTERN

	Specification No. ADRDE/SPECN/1985/29(a)		Revision no: 1 Dated: 20/06/2019
	Prepared By:  Dev Kishan Bairwa Sc 'B', TG(TE)	Reviewed By:  Gaurav Singh Sc 'E', TG(TE)	Issue: 01 Dated:

APPENDIX 'B'

Width cm	Mass, max g/m ²	Thickness under 200 g/cm ² pressure, max mm	Linear Density of yarn both ways Tex*	Suggested Threads/dm		Breaking Load (5X20 cms between grip), min		Air Permeability under 10" WHP Cm ³ /Cm ² /S	Weave
				Warp	Weft	Warp	Weft		
92±1	230	0.6	23.3x2	210-220	210-220	2700	2700	540 ± 60	Mock Leno (Appendix 'A')

*Tolerance of (-)3% to (+)8%