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Supersedes Specn No. PROV/S/4369/FWP PV /TC-11/1(a)

sealed vide

Dc No.

8593-TC

29.8.13

GOVERNMENT OF INDIA
MINISTRY OF DEFENCE
DGQA ORGANISATION

SPECIFICATION

FOR

DS CAT NO. NIV

FABRIC 410 GSM O G WP PV DOPE DYED
RIP STOP 148 CM

ISSUED BY

CONTROLLER
CONTROLLERATE OF QUALITY ASSURANCE
TEXTILES AND CLOTHING
POST BOX NO. 294
KANPUR 208 001

Specification received from COA (T&C), Kanpur.
on dated 05.12.2013.

Price: Rs.

Year: 2013

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05/12/13

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1. INTRODUCTION

1.1 This specification containing 12 pages is the property of the Government of India , Controller, Controllerate of Quality Assurance (Textiles & Clothing), Post Box No. 294, Kanpur

1.2 This specification is liable to amendment at any time and therefore applicable only to specific inquiry made at any time. For any subsequent inquiry, a fresh copy of the specification is to be obtained.

1.3 The Controller, Controllerate of Quality Assurance (Textiles & Clothing), Kanpur is the Authority Holding Sealed Particulars and any queries pertaining to this should be referred to him.

1.4 This is a restricted document and therefore, should not be communicated to any one who is not authorized to receive it.

1.5 Any deviation from this specification will not be resorted to without the explicit written sanction of the Inspection Authority viz. The Controller, Controllerate of Quality Assurance (Textiles & Clothing), Kanpur or his authorized representative.

1.6 RESPONSIBILITY FOR SAFETY: - Nothing shall relieve the manufacture of his responsibility for the safe custody of drawings and other paper particulars and specification issued to him for the particular contract till the contract is completed. Manufacturer will also be responsible for maintenance of secrecy of the information contained in these documents.

1.7 Unauthorized departures from this specification may involve rejection of the store which will be inspected during and after manufacture and will be subjected to testing for the final approval of the Inspecting Officer before accordance of delivery to the consignee.

1.8 Upon issue of amendment or new drawings introducing modification and alteration to design, the Controller will incorporate such changes into current production within a period to be agreed upon by the DGQA or his agents and the contractor.

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0.0 FOREWORD

0.1 This specification has been prepared by Controllerate of Quality Assurance (Textiles and Clothing), Kanpur on behalf of the Director General Quality Assurance, Ministry of Defence, New Delhi.

0.2 This supersedes specification no. Prov/S/4369/FWP PV/TC-11/1(a)

0.3 This specification shall be used for tender enquiry, procurement, manufacture and Quality Assurance of the store covered by this specification.

0.4 The Quality Assurance Authority for the stores covered by this specification is the Controller, Controllerate of Quality Assurance (Textiles & Clothing), Post Box No. 294, Kanpur 208004. Enquiries regarding this specification related to technical or any other contractual conditions shall be referred to the Quality Assurance Authority named in the purchase document viz. tender or contract.

0.5 This specification is live document and is therefore , likely to undergo changes. Any major change in design should have the approval of General Staff/Users and financial concurrence in the form of DGQA approval as for Army. Thus it may involve some price difference. There fore , a specification issued holds good only for the supply order for which it is issued.

0.6 Copies of any other reference/documents such as specifications / drawings / instructions /guides can be obtained on payment from CQA (T&C), Post Box No. 294, Kanpur or from respective agencies on payment or otherwise.

1. SCOPE

1.1 This specification covers the requirements of Fabric 410 gram Olive Green Water Proof Polyester & Viscose Dope Dyed Rip Stop 148 cm for the TEFS-2 M and TEFS- 4 M unit complete for Defence Service Personnel.

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2. RELATED SPECIFICATIONS/REFERENCES

2.1 Reference is made in this specification to: -

Sl No.	SPECIFICATION	PARTICULARS
(i)	IS: 764 -1979 2 nd Revision or IS/ISO: 105-10-2006- C(3) Test No3	Method for determination of colour fastness to washing.
(ii)	IS: 971 -1983 RA 2009	Method for determination of colour fastness to perspiration.
(iii)	IS: 2454 -1985 RA 2010 or ISO: 105 -B02	Method for determination of colour fastness to artificial light (Xenon lamp).
(iv)	IS: 1954-1990 2 nd Rev. RA 2007	Method for determination of length and width of fabrics.
(v)	IS: 1963-1981 2 nd Rev RA 2008	Method for determination of threads per unit length in woven fabrics.
(vi)	IS: 1964-2001 2nd Rev RA 2010	Method for determination of mass/m ² and mass per linear meter of fabric.
(vii)	IS: 1969 -1985 2 nd Rev RA 2006	Method for determination of breaking load and elongation at break of woven fabric.
(viii)	IS: 2977 -1989 2 nd Rev RA 2010	Method for determination of relaxation shrinkage in woven fabrics.
(ix)	IS: 3416-1988 RA 2008	Method for quantitative chemical analysis of mixtures of polyester fibres with Viscose fibre
(x)	IS: 1390 -1983 RA 2004	Method for determination of pH value of aqueous extract of textile materials.
(xi)	IS: 3456-1966 RA 2010	Method for determination of water-soluble matters
(xii)	IS: 4905-1968 RA 2011	Method for random sampling.
(xiii)	CQA(I&C)/PMS/ 35(c)	Packing & Marking Schedule

Note:- All specifications/drawings referred to in this specification for any tender or contract shall mean the edition current on the date of such tender or contract

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2.2 Copy of IS specification can be obtained on payment from Bureau of Indian Standard , '9 'Bahadur Shah Zafar Marg New Delhi.110002 and from website www.bis.org.in

3. STANDARD PATTERN

3.1 The standard pattern of Fabric 410 gm Water Proof PV dope Dyed Rip Stop 148 cm held in the custody of the Controller, Controllerate of Quality Assurance (Textiles and Clothing), Post Box No. 294, Kanpur shall constitute the standard as regards shade, workmanship and finish and any other particulars or properties not noted/defined in this specification.

4. MATERIAL

4.1 The fabric shall be woven from spun yarn made from uniform dope dyed and an ultimate blend of 90 \pm 3percent Dope Dyed Polyester and 10 \pm 3 percent Dope Dyed Viscose fibre. The composition of the finished fabric shall comply with the requirements given in clause 6.1.

5. PROCESSING

5.1 Evenly spun two fold yarn of approximate 40 Tex (Single Ply)shall be used for both warp and weft. The direction of twist for both warp and weft shall be 'Z' for the single and 'S' for the folded yarn.

5.2 The fabric shall be woven in plain weave (Rip Stop) using three ends working together as one and appear every 14 threads in warp direction and three picks as one after every 7 threads in weft direction .

5.3 The fabric shall be uniformly woven and the selvages shall be firm and straight. In no case the effective width excluding selvages shall be less than the specified width of fabric.

5.4 The length of each piece shall be 40 \pm 2 m , 30 \pm 2m , 20 \pm 2m or as agreed between supplier and purchaser.

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5.6 The fabric shall be given suitable chemical treatment so as to meet the requirement given in clause 6.1. The chemical treatment be such (unlike PU/PVC coating) that the fabric does not become non breathable. The method of application of such chemical finish shall also not be based on the coating methods.

6. DIMENSIONS AND TOLERANCE

6.1 The finished fabric shall comply with the provisions of the following particulars and shall satisfy the tests detailed below: -

Sl. No.	Characteristics	Requirements	Tolerances	Method of Test
(a)	Width in cm	148 @	---	IS: 1954-1990 2 nd Rev. RA 2007
(b)	Threads/dm Warp Weft	280 165	} ± 5%	IS: 1963-1981 2 nd Rev. RA 2008
(c)	Mass/m ² (g)	410	± 5%	IS: 1964-2001 2 nd Rev 2010
(d)	Nature of Weave	The fabric shall be woven in plain weave Rip Stop using three threads working as one after every fourteen thread in warp and after every seven thread in weft direction.		
(e)	Breaking Load (Min) (5 cm x 20 cm between grips) 'N' Warp direction Weft direction	2500 1800		IS: 1969-1985 2 nd Rev RA 2006

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(f)	Composition (%) Polyester Viscose	90 10	± 3	IS: 3416-1988 RA 2008 Calculation of % Polyester as per clause 9.1 of the IS.(dry mass basis)
(g)	Dimensional changes (Max) Warp way Weft way	3.0% 3.0%	-	IS:2977-1989 Ist Revision RA 2010
(j)	Cone Test (a) Leakage (b) Wetting of Outer surface	No leakage No Wetting of outer surface	-	IS : 6803-1972 RA 2006
(k)	Pressure Head Test (a) Leakage (b) Wetting of Outer surface	No leakage No Wetting of outer surface	-	IS : 6803-1972 RA 2006
(l)	BWR Test (a) % Absorption (b) Penetration (c) Wetting (Inner surface)	60% (Max) Nil Nil	-	IS : 6803-1972 RA 2006
(m)	Proofing Contents	1% (Max)	-	IS :6803-1972 RA 2006
(n)	pH Value of aqueous extract	6.0 to 8.5	-	IS: 1390-1983 RA 2004 (Cold Method)

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(p)	Water soluble matter (Max)	1%	-	IS: 3456-1966 RA 2010
(q)	Colour Fastness (i) To light: -	Rating 6 or better	-	IS: 2454 -1985 RA 2010 or IS/ISO 105.C-10 :2006
	(ii) To Washing: (a) Change in shade (b) Staining on cotton	Rating 4 or better Rating 4 or better	-	IS: 764 (Repeated four times)
(r)	Levelling Test	Rating 4/5 or better	-	As Per Appendix 'B'
(s)	Hydro Test	Rating 4/5 or better	-	As Per Appendix 'C'
(t)	Chlorite Test	Rating 4/5 better	-	As Per Appendix 'D'

NOTE : S After exposure, the shift in tone and hue towards blue or violet or grey shall not be permissible.

(@) Width specified above is the total width of the fabric exclusive of selvages,

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7. WORKMANSHIP AND FINISH

7.1 The general workmanship and finish shall be of high standard and similar to sealed pattern held with the Controller, Controllerate of Quality Assurance (Textiles and Clothing), Kanpur.

7.2 The finished cloth shall be free from substances liable to cause subsequent tendering.

7.4 The cloth shall be free from weaving, processing defects like , reed mark, and fuzzy appearance.

7.5 The cloth shall be 'Heat Set' & fully shrunk.

8. MARKING

8.1 Each piece, prior to being offered for Quality Assurance shall be legibly marked by the supplier at both ends with his name, initials or recognized trade mark, year of manufacture, brief nomenclature, DS Cat No. of the store and length of the piece along with No. of flags contained in the piece. In addition, the firm's name and/or trademark should be woven/stamped along the selvedge at an interval of not less than 30cm and not more than one metre. Same yarn viz- polyester viscose Dope Dyed Olive Green should be used for the purpose. Firm's name/trademark should be in one word and in the shortest possible letters i.e. not more than 6-7 letters. Firm's name/trademark should only be at specific intervals and no continuous line or any other word should be woven along the selvedge in running length.

8.2 Acceptance Mark: - The acceptance mark be put up on each acceptance bolts as per instructions issued time to time.

9. PRE-INSPECTION BY THE PRODUCER

9.1 Advance Sample: - Unless other wise specified in the contract the firm who had not supplied this store during the last three years has to submit 3.0 m of cloth in full width as advance sample within stipulated date for clearance by this AHSP prior to commencement of bulk production.

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9.2 Manufacturers/Contractors must satisfy themselves first that the store manufactured are in accordance with the contract and fully conform to the specification, by carrying out thorough pre-inspection of each lot/batch before actually tendering the same for inspection to the Quality Assurance Officer nominated under the terms of the contract.

9.3 A declaration by the Contractor that necessary pre-inspection tests have been carried out on the stores tendered and the same are fit for inspection and test shall be rendered along with the challan. The declaration shall include the method followed in pre-inspection showing features checked/tested.

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

10. QUALITY ASSURANCE

10.1 Examination of samples taken from any portion of the consignment or during surveillance inspection shall conform to the requirement when tested in accordance with the methods mentioned against each in this specification.

10.2 Bulk samples shall be forwarded to CQA (T&C) from bulk supplies to check/monitor the quality whenever required.

11. SAMPLING

11.1 **Formation of Lot:** - The delivery shall be visually inspected by Quality Assurance Officer on the spot in the first instance to ascertain its homogeneity in respect of nature, source, year of manufacture, batch, uniformity of production etc. If the product units are homogeneous, the delivery shall be treated as one lot. If not the product units shall be segregated by the supplier into separate groups, so that each group is homogeneous within itself to form a sub lot. The supplier shall arrange the unit of the homogeneous lot in such a way that all the product units are easily accessible to the sampling officers from all sides to enable him to draw samples at random from any portion of the homogeneous lot.

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11.2 **Sampling Procedure:** - Sampling of the stores shall be carried out by adopting appropriate sampling method as per IS:4905.

11.3 **Sample Scale:** - The scale of sampling as given in Appendix 'A' shall be followed in respect of physical and chemical parameters.

11.4 **Lot size** – 25,000 Mtrs (Max)

12. **TEST METHODS**

12.1 The specification mentioned in clause -6 against each parameter be followed for test methods.

13.0 **CRITERIA FOR CONFOMITY**

13.1 All the sample units drawn shall be tested examined to the specification requirements. If all the sample units are found to conform to the requirement of this specification the lot shall be considered to be in conformity to the specification.

14. **PACKING AND MARKING**

14.1 Packing and marking shall be done as per packing and marking schedule No. PMS No. CQAT&C/PMS/35(e).

15. **TECHNICAL LITERATURE AND DOCUMENTS**

15.1 Appendix 'A'.to D

16. **WARRANTY**

16.1 "Except as otherwise provided in the invitation to the tender, the Contractor/seller hereby declare that the goods, stores, articles sold/supplied to the purchaser under this Contract shall be of the best quality and workmanship and new in all respects and shall be strictly in accordance with the specifications and particulars contained/mentioned in the Contract.

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16.2 The Contractor/seller hereby guarantees that the said goods/stores/articles would continue to conform to the description and quality aforesaid for a period of 12 months from the date of delivery of the said goods/stores/articles to the purchaser or 15 months from the date of shipment/dispatch from the contractor's work, whichever is earlier and that notwithstanding the fact that the purchaser (Inspector) may have inspected and/or approved the said goods/stores, articles, if during the aforesaid period of 12/15 months the said goods/stores/articles, be discovered not to be conform to the description and quality aforesaid or not having satisfactory performance or have deteriorated and the decision of the purchaser in that behalf shall be final and binding on the Contractor/seller to rectify replace by acceptable goods/stores/articles or such portion or portions thereof as is found to be defective by the purchaser within a reasonable period not exceeding 3 months or as may be allowed by the purchaser in his discretions on the application made thereof by the Contractor/seller and in such an event the above mentioned warranty period shall apply to goods/stores/articles rectified/replaced from the date of rectification/replacement thereof, otherwise the Contractor/seller shall pay to the purchaser such compensation as determined by the purchaser as may arise by reason of the break of the Warranty herein contained".

17.0 DEFENCE STORE CATELOGUE No.

17.1 NIV – Fabric 410 GSM Olive Green Water Proof Polyester and
Viscose Dope Dyed Rip Stop 148 cm

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18. SUGGESTION FOR IMPROVEMENT

18.1 Any suggestions for improvement of this document may be forwarded to: -

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CONTRAOILERATE OF QUALITY ASSURANCE
TEXTILES AND CLOTHING
MINISTRY OF DEFENCE
POST BOX No. 294
KANPUR 208 001

E mail : cqatc-dgqa @ nic.in

Date :

Place : KANPUR

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CONTROLLER
CONTRAOILERATE OF QUALITY ASSURANCE
TEXTILES AND CLOTHING
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19.1 DETAILS OF ABBREVIATIONS USED

AHSP	- Authority Holding Sealed Particulars
AQL	- Acceptance Quality Level
CQA	- Controllerate of Quality Assurance
T&C	- Textiles and Clothing
CAT. No.	- Catalogue No
Cm	-Centimeter
DS	-Defence Store
DPM	- Defence Procurement Manual
GSM	-Gram Per Square Metre
IS-	-Indian Standard
N	-Newton
PMS	-Packing and Marking Schedule
QA	-Quality Assurance

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APPENDIX 'A'

SAMPLING PLAN FOR
FABRIC GSM POLYESTER AND VISCOSE DOPE DYED 148 CM

(BASED ON AQL 4% AUTHORITY ISO: 2859)

Lots Size in bolts of 40 m or as agreed.	Sampling Plan for					
	Visual Parameters		Physical Parameters (for laboratory tests)		Chemical Parameters and other physical parameters* requiring long testing time (for laboratory tests)	
	Sample Size	Acceptance No.	Sample Size	Acceptance No	Sample Size	Acceptance No
	2	3	4	5	6	7
Up to – 280	13	1	13	1	5	0
281 – 500	20	2	13	1	5	0
501 – 1200	32	5	20	2	5	0
1201-3200	50	5	32	3	13	1

* Time consuming physical parameters are (i) Shrinkage (ii) Spray rating test.

- Note :**
- Samples drawn as per column (2) to be first examined visually. If found satisfactory, the samples for lab testing as per column (4) be drawn out from the samples originally drawn as per column (2) by the sampling officer and marked by him accordingly.
 - Samples for lab testing will be drawn from the samples drawn as mentioned in column (2) only.
 - For chemical parameters samples to be drawn at random as per IS:4905 from those samples drawn as per column (4).

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LEVELING TEST1. Method

- | | | |
|------------------------|---|--|
| (a) <u>Reagent</u> | - | 0.5 gpl Leveling Agent
(Lyogen DFT) |
| (b) <u>Temperature</u> | - | 130° C |
| (c) <u>Time</u> | - | 45 min |
| (d) <u>M:L:R</u> | - | 1:50 (gm: ml) |
| (e) <u>pH</u> | - | 4.5 |
| (f) <u>Sample Size</u> | - | 10.0 x 4.0 cm |

2. Procedure

Cut a test specimen of 10.0 x 4.0 cm size and place it between two un-dyed cloth each made up of a fiber to be assessed for staining and sew along all the four sides to form a composite specimen. Weigh the composite sample accurately. Then immerse the sample in bath containing 0.5 gpl leveling agent (lyogen DFT type) for 45 min at 130° C temp. Remove the sample and wash under running tap water for 10 min and dry the sample at less than 60° C under shade.

3. Observation:

- Light staining on polyester.
- There should be no noticeable change in colour of dope dyed fabric. Rating 4 or better when compared to grey scale of wash fastness test.

APPENDIX 'C'

HYDRO TEST

1. Method

- | | | |
|------------------------|---|---|
| (a) <u>Reagent</u> | - | 2.0 gpl Sodium Hydro Sulphite &
2.0 gpl Sodium Hydroxide |
| (b) <u>Temperature</u> | - | 55° C |
| (c) <u>Time</u> | - | 15 min |
| (d) <u>M:L:R</u> | - | 1:50 (gm: ml) |
| (e) <u>pH</u> | - | 10.0 |
| (f) <u>Sample Size</u> | - | 10.0 x 4.0 cm |

2. Procedure

Cut a test specimen of 10.0 x 4.0 cm size and weigh it accurately then immerse the sample in bath containing 2.0 gpl Sodium Hydro Sulphite & 2.0 gpl Sodium hydroxide solution for 15 min at 55° C temp. Then remove the specimen and wash under running tap water for 10 min. Then dry the specimen at less than 60° C under shade.

3. Observation:

There should be no noticeable change in colour of dope dyed fabric. Rating 4/5 or better when compared to grey scale of wash fastness test.

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APPENDIX 'D'

CHLORITE TEST (IS: 987-1958)

1. METHOD

- | | | |
|------------------------|---|--|
| (a) <u>Reagent</u> | - | 1 gpl Sodium Chlorite (80%) & maintaining pH 3.5 with Acetic Acid. |
| (b) <u>Temperature</u> | - | 80° C |
| (c) <u>Time</u> | - | 1 hour |
| (d) <u>M:L:R</u> | - | 1:50 (gm: ml) |
| (e) <u>pH</u> | - | 10.0 |
| (f) <u>Sample Size</u> | - | 10.0 x 4.0 cm |

2. Procedure

Take a test specimen of 10.0 x 4.0 cm size and weigh it accurately then wet out the sample in the Chlorite solution and immerse in bath containing Sodium Chlorite solution for 1 hour at $80 \pm 2^\circ$ C temp. Then remove the specimen and wash under running tap water for 10 min. Then dry the specimen at less than 60° C under shade.

3. Observation

There should be no noticeable change in colour of dope dyed fabric. Rating 4/5 or better when compared to grey scale of wash fastness test.

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