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No. U.II-98(Spec)/2024-25-Prov(Khaki Uniform)-14 Dated, the 12. July' 2024

To

The DsG: AR, BSF, CISF, ITBP, NSG, SSB and BPR&D

Subject: QRs/Specification of "Khaki Uniform Cloth (Khadi)".

It is to convey that the QRs/Specification in respect of "**Khaki Uniform Cloth(Khadi)**" has been approved by the competent authority.

2. As per direction of MHA ID Note No. IV-24011/05/2024/Prov-I/(3689957)/252 dated 24/04/2024, QRs/Specification of Khaki Uniform Cloth (Khadi) has been finalized and approved by the competent authority. Khaki Uniform is a surrendered item in lieu of dress allowance vide MHA OM No. II-27012/36/CF-3396554/2017-PF-I dated 04/01/2018. Approved QRs/Spec of Khaki Uniform Cloth (Khadi) is forwarded herewith for further needful please.

3. This has the approval of DG, CRPF on 12/07/2024 (empowered vide MHA letter F. No. 11012/02/2009-Fin-I-17 dated 02/01/2018).

Encl: QRs/Spec. of Khaki Uniform Cloth (Khadi).

(Shahnawaz Khan)
DIG (Prov) Dte

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Copy forwarded to:-

1. SO (IT), North Block-with request to upload the approved QRs/Specification of **"Khaki Uniform Cloth (Khadi)"** at MHA Website (e-mail ID : soit@nic.in).
2. **Sh. Paritosh Singhal, ACEO(GeM), and Sh. Abhishek Kakkar, Director - Category Management,** Government of India, Ministry of Commerce & Industry, GeM, New Delhi-110001 with request to upload the approved QRs/Specification of **"Khaki Uniform Cloth (Khadi)"** on GeM Portal.
3. **The Chairman, CEO cum GM**, Headquarters, Kendriya Police Kalyan Bhandar (KPKB), East Block-07 (Level-II), Sector-01, R.K. Puram, New Delhi-110066 for further needful please.
4. **Dr. Ajay Kumar Singh,** Director, Khadi Gramudyog Bhawan, KVIC, New Delhi-110001 for further needful please.
5. DIG (IT), Dte Genl., CRPF-with request to upload this approved QRs/Specification of **"Khaki Uniform Cloth (Khadi)"** on CRPF Portal and Selo Module.
6. All Zones/Sectors/GCs/Units HQr for information and necessary action.

(Shahnawaz Khan)
DIG (Prov) Dte

SPECIFICATION FOR CLOTH KHAKI UNIFOR (KHADI)

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1.0 SCOPE

1.1 The specification prescribes the requirement of Polyester Cotton blended Khaki uniform cloth (Khadi) herein referred as "Khaki Uniform Cloth" Khadi,

1.2 This specification does not specify the design/ pattern and stitching of uniform from the "Khaki Uniform cloth"

1.3 This specification does not specify general' appearance; feel etc of the "Khaki Uniform cloth"

2.0 MANUFACTURE AND FINISH

2.1 The hand spun yarn shall be used in the manufacture of the fabric.

2.2 The fabric shall be woven from uniform and intimate blend of approximate 67 percent Polyester and approximately 33 percent Cotton (Refer Table I).

2.3 The fabric shall be woven on handloom with uniform construction having firm and straight selvedges.

2.4 The "Khaki Uniform -cloth" (Khadi) shall be well singed, Heat set and fully shrunk.

2.5 The "Uniform cloth" should be supplied in the width of **137 cm (minimum)**. The length of each piece shall be 22 ±2 meters or as agreed between supplier and purchaser,

2.6 Freedom from Defect: The "Khaki Uniform cloth" "Khaki Uniform Cloth" (Khadi) shall be free from major flaws (defects). which shall not exceed 15 per 100 meters length (see Note). A list of major flaws (defects) is given in **Annex-B of IS 15853:2009** (see IS 4125). The allowance for providing extra length of cloth in lieu of the flaws (defects) not exceeding the permissible limit may be agreed between the buyer and seller. It shall also be free from dyeing defects such as streaks, stains and uneven dyeing etc. The finished "Khaki Uniform cloth" shall be free from sizing, filling and dressing materials and substance liable to cause subsequent tendering.

The "Khaki Uniform cloth" "Khaki Uniform Cloth" (Khadi) shall be free from any other defect which may significantly mark the appearance or serviceability,

Note- The number of defects shall be determined on all pieces under test and converted into number of defects per 100-meter length. (See 7.4)

3.0 WORKMANSHIP AND FINISH

The "Khaki Uniform Cloth" (Khadi) shall be free from workmanship defects i.e. texture, weaving, dyeing flaws etc. The "Khaki Uniform Cloth" (Khadi) shall not have missed stitches, hole, cut, oil stains or any other defect which may significantly affect the appearance or serviceability of "Khaki Uniform Cloth" (Khadi).

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4.0 REQUIREMENTS

4.1 The "Khaki Uniform Cloth" (Khadi) shall conform to the requirements given in Table 1. Specification for colour shall be as given in Table 2.

4.2 Sealed Sample: In order to illustrate or specify the indeterminable characteristics such as general appearance, lustre, feel and shade of the "Khaki Uniform Cloth" (Khadi), a sample has been agreed upon and sealed. The supply shall be in conformity with the sample in such respects.

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

5.0 MARKING

Each piece of cloth shall be marked with the following:

1. Name of the material, "Khaki Uniform Cloth" (Khadi)
2. Composition, namely, Polyester 67 percent and Cotton 33 percent to be marked on every alternate meter of the cloth at a height not exceeding 2.5 cm from the selvedge;
3. Length and Width;
4. **Indication of the source of manufacture**
5. Any other information required by the law in force and/or by the buyers.

6.0 PACKAGING & PACKING

The "Khaki Uniform Cloth" (Khadi) shall be packed in polyethylene or polypropylene bags and or in box, as required by the buyer (see IS 2194 and IS 2195).

7.0 SAMPLING AND CRITERIA FOR CONFORMITY

7.1 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 is IS: 4905 shall be followed.

7.2 The sampling procedure detailed in 7.2 to 7.4 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 cloth tendering by him for inspection to comply with the requirements of this standard in all respects.

NOTE: For effective process control the use of statistical quality control technique is recommended and helpful guidance may be obtained in this respect from IS 397(Part I):2003 and IS 397 (Part II): 2003.

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7.3 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.

7.3.1 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.

7.4 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 for major flaws, meter by meter. The Total number of defects observed on sample piece shall be converted into number of defects per 100-meter length. 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 4 of Table 3	All specimens shall satisfy the relevant requirements.
iii) Blend composition, shrinkage, breaking strength, tearing strength, colour fastness, pH etc.	According to col 5 of Table 3	All specimens shall satisfy the relevant requirements:

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Table - 1: Requirements of Khaki Uniform Cloth (Khaki)

Sl. No.	Characteristics	Requirements	Testing Method
1.	Count of Yarn (tex) (guidance parameter) a) Warp b) Weft	 2/36^s 2/36^s	IS 3442:1980
2.	Blend Composition (Warp/Weft) a) Polyester b) Cotton	 67% ± 4 % 33% ± 4 %	IS 3416(Pt I): 1988 (Based on dry mass).
3.	Ends/dm	240 ± 5%	IS 1963:1981
4.	Pick/dm	210 ± 5%	IS 1963:1981
5.	Mass gm/m^2	175 ± 5%	IS 1964 1970
6.	Width (cms)	137 cm (Minimum)	IS 3442:1980
7.	Breaking Strength (Grip 5 ×20) a) Warp b) Weft	(Minimum) 800 600	IS 1969:1985 (5 cm X 20 cm between grip)
8.	Tearing Strength 'N' a) Warp b) Weft	(Minimum) 40 35	IS 6489:1993
9.	Dimensional Stability to dry Heat at 150± 20 C, percent, Max a) Warp b) Weft	 (Minimum) 2% 2%	IS: 15853: 2009
10.	Dimensional Stability a) Warp b) Weft	 2% Max 2% Max	IS 2977: 1989
11.	Pilling Resistance	(after one wash) 3 or Better	IS 10971:1984
12.	pH Value	6 – 8.50	IS 1390: 2022 (Cold method)
13.	Water Soluble Matter	1% Max	IS 3456 : 2022
14.	Colour Fastness to Light Original cloth	4 or Better	IS 2454:1985
15.	Fastness to Washing a) Change in Shade b) Staining on Adj. Fab	 3 or Better 3 or Better	IS/ISO 105: C10 C(3) (Repeated four times)
16.	Fastness to Perspiration a) Change in Shade b) Staining on Adj. Fab	 3 or Better 3 or Better	IS 971:1983
17.	Air Permeability cc/sec/cm2 Min	10	IS 11056:2022
18.	Nature of Dye	Disperse + VAT Dyed	IS 4472 (Part I):2021
19.	MVTR	(Minimum) 1050	ASTM E-96,(water method), RH: 50±2% and Temperature: (32± 3)^{0}C
20	Weave	Plain weave	Visual

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Table–2: Specification of colour Khaki
(Guideline of AATCC Test Method 173 : 2009 & AATCC Evaluation Procedure-7:2015)

Colour	:	Khaki
System	:	CIE LCH
Illuminant Observer	:	D-65
Standard Observer	:	10 Degree

Tristimulus Values :

X	Y	Z
21.262	21.571	13.300

LCH :

L	C	H
53.569	20.627	78.956

CMC (l:c) : 2:1

Color 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, the sample is unacceptable

Note-1 : Absorbance/ reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore, comparison should be made between sample 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.

Note-3 : Standard value of Tristimulus and LCH values for colour Khaki-Khadi defined as indicative.

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Table 3: Sample size and permissible number of non-conforming Uniform Cloth (Refer IS 15853:2009)

Lot size (1)	Sample size (2)	Permissible number of non-conforming pieces (3)	Sub-sample size (4)	Sub-sub sample size, (5)
Up to 100	5	0	3	3
101-150	8	0	3	3
151-300	13	1	5	3
301-500	20	1	5	3
501-1000	32	2	8	5
1001 and above	50	3	13	5

8.0 REFERENCES

8.1 The list of referred standards is given below:

LIST OF REFERED STANDARDS

Sl. No.	Method/Spec Number	Title
1	IS: 397(Part-1):2003	Method for statistical quality control during production: Part-1 Control charts for variable.
2	IS:397 (Part II): 2003	Method for statically quality control during production: Part-2 Control charts for attributes and count of defects
3	IS: 9543:1980 (RA 2004)	Spun polyester sewing threads
4	IS: 3442:1980 (RA 2004)	Methods for identification of crimp and count of yarn removed from fabric
5	IS: 1963: 1981 (RA 2004)	Method for determination of thread per unit length in woven fabric
6	IS: 1964:1970(RA2006)	Methods for determination of weight per square meter and weight per linear meter of fabric
7	IS: 1954:1990 RA 2007	Determination of length and width of woven fabric
8	IS:1969:1985 (RA 2006)	Method for determination of breaking strength and elongation of woven fabrics.
9	IS: 6489:1993 (RA 2006)	Textiles-woven fabrics-determination of tear resistance by the failing pendulum method
10	IS: 15853:2009	Textiles-Polyester -blend suiting for uniforms specification

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11	IS/ISO 105:C10 C (3) 2006	Method for determination of colour fastness of textile material to washing
12	IS 971: 1983, Reaffirmed 2004	Method for determination of colour fastness of textile material to perspiration
13	IS 689: 1988, Reaffirmed 2004	Method for determination of colour fastness of textile material to hot pressing
14	IS 766:1988, Reaffirmed 2004	Method determination of colour fastness of textile material to rubbing
15	IS 2454:1985, Reaffirmed 2006	Method for determination of colour fastness textile material to artificial light (Xenon lamp)
16	IS 1390: 2022 (RA 2004)	Method for determination of pH value of aqueous extract of textile materials
17	AATCC Test method 173: 2009	CMC: Calculation of small colour differences for acceptability
18	AATCC Evaluation Procedure 7: 2009	Instrumental assessment of the change in colour of a test specimen.
19	IS 3416 (Pt 1): 1988	Method for quantitative chemical analysis of binary mixtures of polyester fibres with cotton or regenerated cellulose
20	ASTM E 96	Standard test methods for - water vapor transmission
21	IS 4472 (Part I):2021	Identification of the application classes of dyes on textile materials Part 3 Man-made fibres (first revision)
22	IS 11056:2022	Determination of the permeability of fabrics to air
23	IS 3456 : 2022	Method for determination of water-soluble matter of textile materials
24	IS 10971:2010	Method for determination of pilling resistance of fabrics
25	IS 2977: 1989	Method for Determination of Dimensional Changes on Soaking in Water
26	IS 1964: 1970	Methods for Determination of Mass per Unit Length and Mass per Unit Area of Fabrics
27	IS 4905 : 2020	Random Sampling and Randomization Procedures (First Revision)

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ANNEX-B
(Clause- 3.2.2)

CATEGORIZATION OF FLAWS

B-1 MAJOR FLAWS	
B-1.1 One or more ends missing in the body of the material throughout its length, more than three ends missing at a place and running over 50 cm, or prominently noticeable double end running throughout the piece.	**B-1.10** More than two adjacent ends running parallel, broken or missing and extending beyond 10 cm.
B-1.2 Undressed suitings noticeable over a length exceeding 5 percent of the length of the piece.	**B-1.11** Noticeable warp or weft float in the body of the fabric.
B-1.3 Smash definitely rupturing the texture of the fabric.	**B-1.12** Noticeable oil or other stain in the fabric.
B-1.4 Hole cut or tear.	**B-1.13** Oily weft in the fabric.
B-1.5 Reed marks prominently noticeable over a length exceeding 5 percent of the piece.	**B-1.14** Prominently noticeable slub.
B-1.6 Defective or damaged selvedge noticeable over a length exceeding 5 percent of the length of the piece.	**B-1.15** Conspicuous broken pattern.
B-1.7 Skewing of more than 3 percent on weft.	**B-1.16** Gout due to foreign matter. usually lint or waste woven into the fabric.
B-1.8 Weft crack or two or more missing picks across the width of the fabric	**B-1.17** Prominent selvedge defect.
B-1.9 Warp or weft bar due to the difference in raw material, count, twist, luster, colour, shade or spacing of adjacent groups of yarns (starting mark).	**B-1.18** Significant shading or listing in fabrics having a gradual change in tone or depth of shade of fabric (excluding selvedge or border running parallel to the selvedge).
	B-1.19 Coloured flecks.
	B-1.20 Blurred or dark patch
	B-1.21 Patchy, streaky or uneven dyeing.
	B-1.22 Dye bar.
	B-1.23 Fuzzy appearance.

B-1.14 and B-1.17 may be checked, considering hand woven/hand spun cloth. However, any major prominent defect will not be accepted.

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Approved/~~Not approved~~

12/7/24

Anish Dayal Singh, IPS
Director General, CRPF