No.IV.21011/3/2010-Prov-I
Government of India
Ministry of Home Affairs
Prov-I Desk
******

26, Man Singh Road, Jaisalmer House
New Delhi, dated the 09.11.2011

To

DG, CRPF
CGO, Complex

Sub: QRs/ Technical Specification for "Anti-Mosquito Veil" for CoBRA Bns

Sir,

The QRs/Technical Specifications of "Anti-Mosquito Veil" for CoBRA Bns, have been approved by the competent Authority in the MHA and the same are enclosed for information and Record.

Yours faithfully,

(S.B. Nanda)
Under Secretary to the Govt. of India

CENTRAL RESERVE POLICE FORCE (CoBRA) STANDARD

SPECIFICATION FOR "ANTI-MOSQUITO VEIL"

Submitted to :

Office of the Inspector General of Police, CoBRA Sector
CRPF, Sector –IV, PUSHP VIHAR,
New Delhi-110017

Prepared by :

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SPECIFICATION FOR "ANTI MOSQUITO VEIL"

RECORD OF AMENDMENTS

Amendment No. and Date	Amendment pertains to Sl.No./Para No./Column No.	Authority	Amended by Name and Appointment (in block letter)	Signature and Date

PREAMBLE

The Inspector General of Police (CoBRA Sector), CRPF, has asked NITRA to prepare technical specifications for specification for "Anti Mosquito Veil". The specification describes the performance requirements and material properties – base & bias, mesh shape, mass, yarn count, fibre composition, dimensions, color fastness to light, washing, and perspiration; pH, bursting strength etc. Bureau of Indian Standards (BIS) and American Association of Textile Chemists and Colorists (AATCC) test methods are considered to draw this specification.

This report contains 13 pages which describe the technical specifications of "Anti Mosquito Veil" for CRPF (CoBRA).

Whenever a reference to any other standard occurs in this specification, it shall be taken as reference to the latest version of that standard existing at the time of finalization of a contract.

This technical specification will enable the CRPF (CoBRA) to prepare tender documents (technical details) at the time of placing orders for "Anti Mosquito Veil" and final inspection as well.

SPECIFICATION FOR "ANTI MOSQUITO VEIL"

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0.0 FORWARD

0.0 This specification has been prepared by Office of the Inspector General of Police, CoBRA sector, CRPF on the authority of The Inspector General of Police, CoBRA sector.

0.1 This specification is for use by the CRPF - CoBRA.

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

0.3 Quality assurance authority for the item covered in this specification is Office of the Inspector General of Police, CoBRA Sector, CRPF, New Delhi. All enquiries regarding this specification, including those relating to any contractual conditions contained therein shall be addressed to the Quality Assurance authority at the following address:

Office of the Inspector General of Police, CoBRA Sector
New Delhi-110017

0.4 Copies of the specification can be obtained from:

Office of the Inspector General of Police, CoBRA Sector
New Delhi-110017

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

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

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

0.8 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 "Anti Mosquito Veil".

1.2 This specification does not specify the general appearance, luster, feel, type of finish of "Anti Mosquito Veil.

2.0 MATERIAL AND MANUFACTURE

2.1 The shape dimensions and design of the "Anti Mosquito Veil" is shown in the Fig. 1.

2.2 The "Anti Mosquito Veil" shall be manufactured using polyester nettings. For guidance 75 denier multifilament polyester yarn may used for making nettings. The mesh of the netting shall be hexagonal.

2.3 The circular crown (125 ± 5 mm diameter) of the "Anti Mosquito Veil" shall be made of 100% polyester fabric of 2 up 1 down twill weave (Fig. 1). For guidance 80 denier multifilament polyester yarn in warp and 150 denier spun polyester yarn in weft may be used. The edges of the crown shall be properly finished.

2.4 Nylon lanyard used for closing and opening of "Anti Mosquito Veil" (Fig. 1) shall be a circular knit plain hose manufactured using 6 needles. The length of the lanyard shall be 95 ± 5 cm. For guidance 840 denier multifilament nylon yarn may be used for the manufacture of lanyard. Both the ends of the nylon lanyard shall be heat sealed.

2.5 For the manufacture of "Anti Mosquito Veil", polyester netting shall be folded in such a way that its width shall be 290 ± 10 mm and height shall be 375 ± 15 mm. To this, crown and lanyard shall be attached as shown in the Fig. 1. For more detail sample held in the custody of CRPF-CoBRA shall be referred.

3.0 STITCHING:

The "Anti Mosquito Veil" shall be assembled with lock stitch of even tension throughout and loose ends securely fastened off. The number of stitches per decimeter shall be 30 to 38. The stitching shall be made using 50s/3 Ne spun polyester thread of matching shade confirming IS 9543.

4.0 WORKMANSHIP AND FINISH

The "Anti Mosquito Veil" shall be free from workmanship defects i.e. texture, chemical damages, dyeing defect, such as uneven dyeing and streakiness etc. In appearance, shape, workmanship and finish in all respects not defined in this specification the "Anti Mosquito Veil" shall conform to the sealed sample.

5.0 SEALED SAMPLE

In order to illustrate or specify the indeterminable characteristics such as general appearance, luster, feel and design of the "Anti Mosquito Veil", a sample has been agreed upon and sealed; the supply shall be conformity with the sample in such respects.

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

6.0 REQUIREMENTS

6.1 The nettings used in the "Anti Mosquito Veil" shall conform to the requirements as given in Table 1. Specification for colour of nettings shall be as given in Table 2.

6.2 The fabric used in the crown of "Anti Mosquito Veil" shall meet the requirements as given in the Table 3.

6.3 The lanyard/cord used in the "Anti Mosquito Veil" shall conform to the requirements as given in the Table 4.

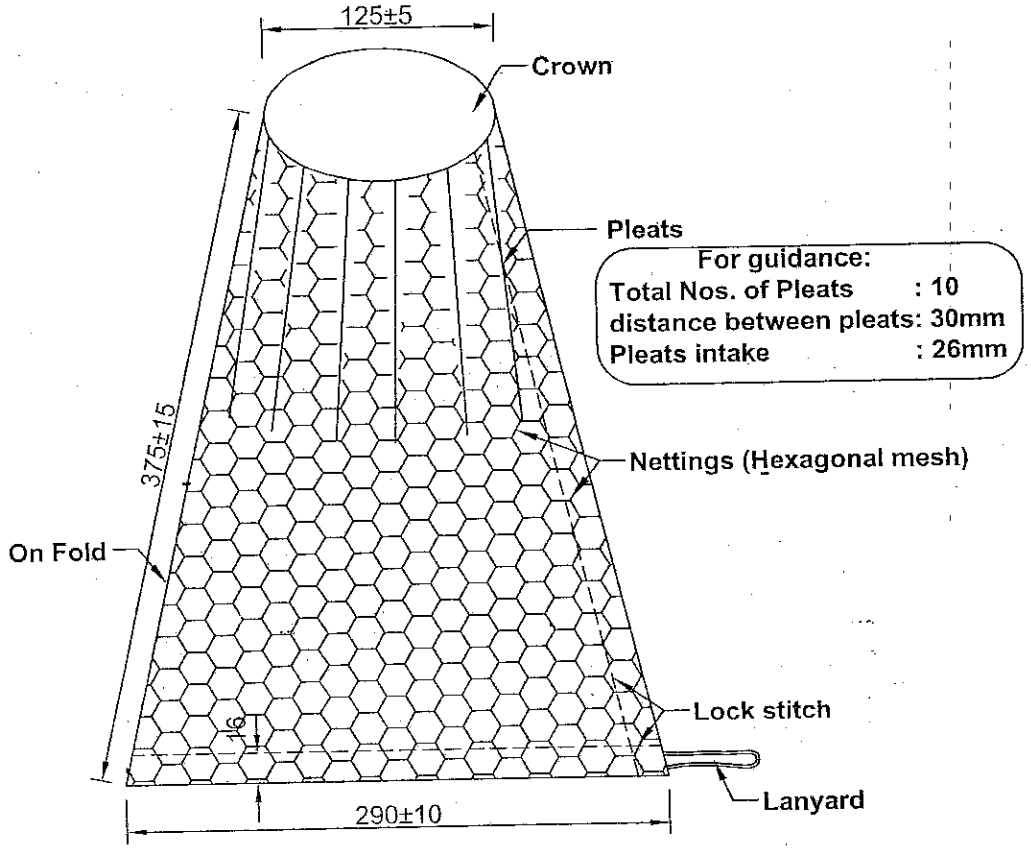


Fig-1 Mosquito Veil

(All the dimensions are in mm)

Table 1: Requirements of Nettings "Anti Mosquito Veil"

Sl. No.	Parameters	Requirements	Method of Testing
1.	Composition	100 % polyester	AATCC: 20-2007 & AATCC 20A-2008
2.	Mass per square metre, g/m^2	35 ± 5%	IS 1964 : 1970
3.	Total number of holes on base & bias within 6.25 cm^2 area	28 to 33	Annex A of IS 1431:1973
4.	Bursting strength ,Kpa, Minimum	240	IS 1966:1975
5.	Colour fastness to light	5 or better	IS: 2454-1985
6.	Colour fastness to washing - Change in colour - Staining on adjacent fabric	 4 or better 4 or better	IS: 764 -1979
7.	Colour fastness to perspiration - Change in colour - Staining on adjacent fabric	 4 or better 4 or better	IS: 971-1983
8.	pH Value of aqueous extract	6.0 to 8.0	IS :1390-1983 (Cold method)
9.	Colour difference (ΔE)	≤ 3.0	See Table 2

Table 2: Specification of colour of netting "Anti Mosquito Veil"

(AATCC Test method 173 : 2005 & AATCC Evaluation Procedure 7 : 2003)

Colour	:	**Green**
System	:	**CIE LCH**
Illuminant Observer	:	**D 65**
Standard Observer	:	**10 Degree**

Tristimulus Values :

X	Y	Z
4.587	4.787	2.400

L C H :

L	C	H
26.119	16.293	87.640

CMC (l:c)	:	**2:1**
Colour difference, ΔE_{cmc}	:	**≤ 3.0**

Interpretation of Results:

i) If ΔE_{cmc} is less than or equal to 3.0, then sample is acceptable.

ii) If ΔE_{cmc} is greater than 3.0, 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.

Table 3: Requirements of Crown fabric "Anti Mosquito Veil"

Sl. No.	Parameters	Requirements	Method of Testing
1	Composition	100 % polyester	AATCC: 20-2007 & AATCC 20A-2008
2	Weave	Twill-2 up 1 down	Visual
3	End/dm, Min.	520	IS 1963:1981
4	Picks/dm, Min	330	IS 1963:1981
5	Mass, g/m^2	110 ± 5	IS 1964 : 1970
6	Colour fastness to washing - Change in colour - Staining on adjacent fabric	 4 or better 4 or better	IS 764 : 1979
7	Colour fastness to perspiration - Change in colour - Staining on adjacent fabric	 4 or better 4 or better	IS 971:1983
8	Colour fastness to rubbing - Dry - Wet	 4 or better 4 or better	IS 766:1988
9	Colour fastness to light	5 or better	IS 2454:1985
10	pH value of aqueous extract	6.0 to 8.0	IS 1390 (Cold method) :1983
11	Colour	Matching with netting colour	Visual

Table 4: Requirements of Lanyard "Anti Mosquito Veil"

Sl. No.	Characteristics	Requirements	Test Method
1	Nature of fibre/filament	Nylon-6 filament	IS: 667 & IS 2005
2	Course/inch (minimum)	24	IS 1963:1981
3	Length, cm	32 ± 2	IS 1954:1990
4	Mass per linear meter, g	2.5 ± 5%	IS 1964 : 1970
5	Breaking strength, Newton (Minimum) -	250	IS 1969:1985
6	Colour fastness to Washing - Change in colour - Staining on adjacent fabric	 4 or better 4 or better	IS 764 : 1979
9	Colour fastness to Light	4 or better	IS 2454:1985
11	pH value of aqueous extract	6.0-8.0	IS 1390 (Cold method) :1983
12	Colour	Green colour, matching with netting	Visual

7.0 SAMPLING AND CRITERIA FOR CONFORMITY

7.1 Lot: For the purpose of conformance inspection and test sampling, a lot is defined as all the completed "Anti Mosquito Veil" of the same size and type, with same assemblies, produced in one facility, using the same production processes and materials, and being offered for delivery at one time to buyer against a dispatch note.

7.2 For assessing the conformity of the lot to the requirements of the specification, the samples as given in Table 5 shall be drawn at random from the lot for inspection. To ensure the randomness of selection, methods given in IS 4905 shall be followed.

7.3 The lot shall be considered as conforming to the requirements of this specification if all the samples meet the requirements specified in this standard

Table 5: Sample size

No. of "Anti Mosquito Veil" in the lot	**Non – Destructive Testing (For freedom from defects, dimensions and number of holes)**	**Destructive Testing (For nature of fibre/filament, mass, bursting strength, pH value, colour fastness to various agencies etc.)**
	No. of "Anti Mosquito Veil" to be selected	**No. of "Anti Mosquito Veil" to be selected**
(1)	**(2)**	**(3)**
Up to 100	8	2
101 – 150	13	2
151-300	20	3
301 and above	32	3

Note: Sampling officer will select sampling unit randomly and select ultimate items from each sampling unit as per the above table.

7.4 The CRPF (CoBRA) reserves the right to carry out inspection of bigger lot sizes, even to the extent of 100% inspection, if considered necessary.

8.0 MARKING

A cloth label marked with the following information shall be securely attached at the bottom on the inner side of the "Anti Mosquito Veil":

a) Size
b) Name / Trademark of the manufacturer
c) Any other information required by the buyer

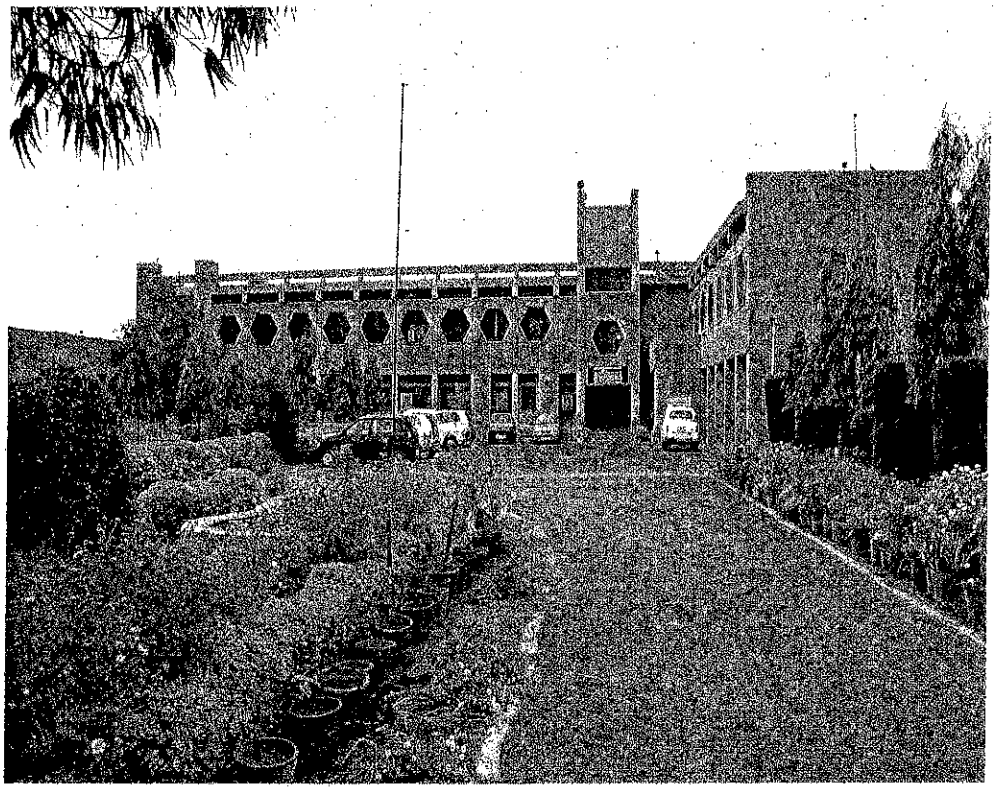
9.0 PACKAGING & PACKING

9.1 Twenty "Anti Mosquito Veil" suitably folded shall be wrapped with one layer of polyethylene film of minimum 40 microns (see IS: 2508-1963) and tied with twine at places to form a unit pack.

9.2 Twenty such unit packs (400 "Anti Mosquito Veil") shall be packed in polyethylene or polypropylene bags and or in box, as required by the buyer (see IS 2194 and IS 2195).

10.0 RELATED TEST METHODS AND SPECIFICATIONS

Sl. No.	SPEC. /TEST METHOD No.	DESCRIPTION
(a)	AATCC 20 : 2007	Fibre analysis: Qualitative
(b)	AATCC 20A: 2008	Fibre analysis: Quantitative
(c)	IS 971: 1983, RA 2004	Method for determination of colour fastness of textile material to perspiration
(d)	IS 1390: 1983, RA 2004	Methods of testing of pH value of aqueous extract
(e)	IS 2454: 1985, RA 2006	Methods for determining of colour fastness of textile materials to artificial light (xenon lamp)
(f)	IS 2500 (Part 2): 1965, RA 2006	Sampling inspection tables
(g)	IS 764: 1979, RA 2004	Method for determination of colour fastness of textile material to washing
(h)	IS 4905: 1968, RA 2006	Method of random Sampling
(i)	IS 6359:1971, RA 2004	Method for Conditioning of Textiles
(j)	IS 14953 : 2001	Textiles-Polyester or polyamide mosquito nets-Specification
(k)	AATCC Test method 173 : 2005	CMC: Calculation of small colour differences for acceptability
(l)	AATCC Evaluation Procedure 7 : 2003	Instrumental assessment of the change in colour of a test specimen



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