No. IO / 016 / SPCN
INSPECTION OFFICE
Dated : 15.05.2004.

Sub. : **AMENDMENT TO BF SPECIFICATION NO.1.6 DTD. 30.04.1979 ON CLOTH COTTON CAMBRIC WHITE 45" WIDTH [115 cms.].**

Ref :- Office Note of even No. dtd. 12.05.2004

The following amendment to the subject specification has been approved by AGM/TS.

Clause 4.2
Table-I

Sl. No.	FOR		READ	
	Characterstics	Require -ments	Characterstics	Require-ments
4.	Warp ends per decimeter [Newton]	402	Warp ends per decimeter [Min.]	402
5.	Weft picks per decimeter [Newton]	323	Weft picks per decimeter [Min.]	323
7.	Breaking load of material wrap way min (Newton) weft way min. (Newton)	 333 222	Breaking load of material wrap way min (Newton) weft way min. (Newton)	 215 145

All other entries will remain unchanged.

The above amendment may be incorporated in copy of relevant specification at your end.

DVO/RX,WO,PV,ST,LY,SF,WI,IG, RK.

AWM/IO

15/5
16/5/20

C/W/016 - 3

PTER : IV
JECT : TEXTILE
M : CLOTH COTTON CAMBRIC WHITE
45" WIDTH (115 cm)

B.F.Specification No. 1.6
Dated:- 30/4/1979
Supersedes B.F.Specn.No. Nil.
Dated:- Nil

SCOPE: This specification prescribes the quality requirements and methods of sampling and tests applicable to cloth cotton cambric for purchase from Trade by Ordnance Factory, Bhandara.

GENERAL REQUIREMENTS OF SAMPLING:

1 The following precautions shall be observed in drawing, preparing, storing and handling of the samples.

Sampling instruments shall be clean and dry.

Quantity of each sample drawn will be about ½ metre and two such samples shall be taken, one from either end, from each consignment.

One of the two samples will be used for tests/analysis and other kept in the Ordnance Factory, Bhandara Laboratory for a period of two months or till contract is finalised, which ever is earlier.

If the first sample is found to fail in specific quality requirements the failing consignment shall be resampled second time and tested.

The material in any consignment shall be accepted as confirming to the specification, if the results of testing the corresponding test samples s atisfy the requirements under clause 4.2 below, otherwise the consignment shall be rejected.

INSPECTION

General Manager, Ordnance Factory, Bhandara shall be the inspecting authority.

Mode of Sapling:

i) Tests on samples for quality requirements as stipulated under para 4 below.

ii) If the second sample also fails, the whole consignment shall be rejected.

QUALITY REQUIREMENTS:

Description: The material shall be all cotton, scoured and soured well woven with plain weave, free from flaws, knots and other defects. Yarns shall be evenly made, Selvedges shall be firm and straight. The material shall be in a clean and dry condition. Too much of filling/loading the material shall not be allowed.

The material shall also comply with the requirements given in table I, below, when tested according to the methods prescribed in JSS No. 1250.

Table I : Requirements for cloth cotton cambric white.

	Characteristics	Requirements	Method of Test (Ref.to JSS No.1250)
	Moisture (Regain) at 105° to 110°C; percent, max.	9.0	As per JSS 1250 JSG-0114
	pH of water extract Max.	8.5	"
	Min.	5.5	"
	Water soluble chlorides, calculated as sodium chloride percent by wt., max.	0.05	"
4.	Warp ends per decimetre (warp) min	402	"

5.	Weft picks per decimetre	(~~Newton~~) Min.	323	As per JSS
6.	Wt. gms per sq.metre	(Newton)	67.8±6.8	"
7.	Breaking-load of material			
	War-p way min	(")	333 215	"
	Weft way min	(")	225 145	"

5. PACKING AND MARKING:

5.1 PACKING: Material shall be packed in packages as agreed to by t purchaser and supplier.

5.2 MARKING: All packages in which the material is transported shal marked as prescribed by law in force from time to time.

(V.N.S.MATHUR)
Officer-In-Charge

Distribution:

RX, WO, PV, ST, LX,
SF, WI, IG & IO

Copy No.....of.. .....for
Effective from.....5/4/97

JSS 1250 is superseded by JSG-0114:1994

A DETERMINATION OF SPECIFIC GRAVITY

A.1 GENERAL : The specific gravity determination is carried out with any accurate and suitable hydrometer.

A.2 APPARATUS

Hydrometer - Twaddell or Baume hydrometer shall be used. Any other hydrometer of comparable accuracy calibrated to read directly the specific gravity may also be used.

A.3 PROCEDURE - Pour the material to be tested into a clean hydrometer jar the diameter of which shall be at least 2.5 cm greater than the diameter of the hydrometer used. Care should be taken to remove all the air bubbles in the liquid. Keep the jar in a vertical position in a bath maintained at 15°C. When the sample in the jar attains the temperature of the bath, lower the hydrometer gently into the material. When it has settled, depress it about two scale divisions into the liquid, the unimmersed portion of the stem being kept dry, as any unnecessary liquid on the stem changes the effective weight of the instrument and affects the reading obtained. Allow five minutes time for the hydrometer to become stationary and for all air bubbles to come to the surface. Read the point on the hydrometer scale to which the sample rises, with the eye placed at the principal surface of the material.

A.4 CALCULATION

a) With Baume Hydrometer
Specific gravity at 15°/15 °C = $\frac{145}{145 - \text{Degree Baume.}}$

b) With Twaddell Hydrometer
Specific gravity at 15°/15°C = 1 + 0.005 X Degree Twaddell.

B DETERMINATION OF NITRIC ACID CONTENT.

B.1 GENERAL - The acid is diluted and titrated against standard sodium hydroxide solution.

B.2 APPARATUS.

Lunge-Rey pipette - if this pipette is not available, a weighing bottle or a glass ampoule may be used.

B.3 REAGENTS

B.3.1 Standard Sodium Hydroxide Solution 1 N.

B.3.2 Methyl Red Indicator - Dissolve 0.15 g of methyl red in 500 ml of rectified spirit conforming to IS : 322 - 1959.

B.4 PROCEDURE - Accurately weigh about 2 g of the material with Lunge-Rey pipette and dilute it with water to 100 ml. in a 250 ml. flask. Titrate the solution against standard sodium hydroxide solution using methyl red as indicator.

B.5 CALCULATION :

Nitric acid (HNO_3) content, percent by weight = $6.3 \frac{VN}{W}$

Where

V = Volume in ml of standard sodium hydroxide solution used.

N = Normality of the alkali solution, and

W = Weight in gm of the material taken for the test.

P.T.O.

C. DETERMINATION OF RESIDUE ON IGNITION

C.1 GENERAL - A known weight of the acid is evapo-rated on water bath and finally heated at 400° to 500°C and the residue left weighed.

C.2 PROCEDURE :- Weigh a silica dish of capacity 100 ml and accurately weigh into it about 10 gmof the material. Evapora-te the acid on a waterbath in a fume cupboard till dry. Transfer the dish to a muffle furnace and raise the temperature gradually till it reaches 400° to 500°C. After 10 to 15 minutes remove the dish and cool it till its temperature is about 100°C. Finally cool the dish at room temperature in a desiccator and weigh.

C.3 CALCULATION

$$\text{Residue on ignition, percent by weight} = \frac{100\ W_1}{W_2}$$

W-here

W_1 = Weight in gm of the residue, and

W_2 = weight in gm of the material taken for the test.

D. DETERMINATION OF CHLORIDES.

D.1 GENERAL - Chlorides are precipitated as silver chloride and weighed.

D.2 REAGENT

Silver nitrate solution - approximately 5 percent.

D.3. PROCEDURE - Weigh accurately, using a weighing bottle or ampoule or the Lunge Rey pipette, about 20 gmof the material and dilute in a breaker with 300 ml. of water. Heat the solution to about 50°C and add to the whole solution a slight excess of silvernitrate solution to ensure complete precipitation. Heat again to boiling to coagulate the silver chloride. Protect the silver chloride precipitate from light by wrapping black paper around the beaker. Filter through atered Gooch or sintered glass crucible (G No. 4) and wash the precipitate with cold water. Dry the crucible and its contents to constant weight at about 130°C.

D.4 CALCULATION

$$\text{Chlorides (as HCL), percent by weight} = \frac{W_1 \times 0.2544 \times 100}{W_2}$$

W-here

W_1 = Weight in gm of the precipitate, and

W_2 = Weight in gm of the material taken for the test.

E. DETERMINATION OF SULPHATES.

E.1 General - Sulphates are precipitated as barium sulphate and weighed.

E.2 REAGENTS

E.2.1 Sodium chloride - analytical reagent grade.

E.2.2 Hydrochloric acid - analytical reagent grade.

E.2.3 Barium chloride solution - prepared by dissolving 12 g of barium chloride crystals in water and making up to 100 ml.

Contd...3/-

E.3 Procedure -- Weigh accurately, using a weighing bottle or an ampoule or the lunge-Rey pipette, about 50 gm of the acid into a 100 ml porcelain dish. Add 0.5 g of sodium chloride and evaporate the contents almost to dryness on a water-bath. Add 5 ml of hydrochloric acid and transfer the contents to a 250 ml beak-er using 100 ml of water. Bring the contents to boil over a low flame and, while still hot, add 5 ml. of boiling barium chloride solution in a slow stream, stirring all the time. Boil the contents for two minutes and allow the precipitate to settle for four hours. Filter the supernatant liquid through a tared sintered glass crucible (G No. 4) or tared Gooch crucible and transfer the precipitate carefully into the crucible. Wash thoroughly with hot water till free from chlorides . Heat the crucible at 105°C to constant weight.

E.4 CALCULATION

Sulphates (As H_2SO_4), percent by weight $= \frac{W_1 \times 0.4202 \times 100}{W_2}$

Where

W_1 = Weight in gm of the precipitate, and

W_2 = Weight in gm of the material taken for the test.

F. DETERMINATION OF NITROU-S ACID

F.1 GENERAL - The material is titrated with standard potassium permanganate solution.

F.2 REAGENTS

F.2.1 Dilute Sulphuric Acid -- 1:4 by volume.

F.2.2 Standard potassium Permanganate Solution -- 0.1 N.

F.3 Procedure -- In a conical flask of 500 ml capacity, place 300 ml of water and 25 ml of dilute sulphuric acid. Measure into it 25 ml of the material and swirl to mix the contents. Titrate the solution quickly with standard potassium permanganate solution, adding the reagent at first rapidly and later drop by drop as the end point is approached. Stop adding permanganate solution when a pink colour is obtained which persists for three minutes.

F.4 CALCULATION

Nitrous acid (HNO_2), percent by weight $= \frac{2.351\ VN}{W}$

Where

V = Volume in ml of standard potassium permanganate solution used in the titration.

N = normality of standard potassium permanganate solution, and

W = weight in gm of the material taken (calculated from specific gravity of nitric acid).

RWW