

GOVERNMENT OF INDIA  
MINISTRY OF DEFENCE

IND/ME/1004 : 2013

**MASTER COPY**  
**RAYON WOOL FABRIC**

DC NO. 5159-ME  
25.9.2013

**SPECIFICATION NO. IND/ME/1004:2013**

*V. Thangaraj*  
6/3/13

**MASTER COPY**

Issued by

CONTROLLER

CONTROLLERATE OF QUALITY ASSURANCE (MILY. EXPLOSIVE)

AUNDH ROAD, PUNE - 411 020

RECORD OF AMENDMENTS

Amendment Sr. No.	Date	Details of Amendment	Amendment carried out by (Name & date)
DC NO 3662-ME/8.1.2001		Sealed provisionally	

**CONTENTS**

0. FOREWORD
1. SCOPE
2. RELATED SPECIFICATIONS AND DOCUMENTS
3. MATERIAL/FINISH
4. SUPPLIER'S PRE-INSPECTION OF STORES / CONSIGNMENT
5. QUALITY ASSURANCE
6. PACKAGING
7. MARKING
8. WARRANTY
9. SAFETY OF OPERATIONS
10. DEFENCE STORES CATALOGUE NUMBER
11. SUGGESTIONS FOR IMPROVEMENT
12. APPENDIX-A

THIS SPECIFICATION OR ANY PATTERN, DRAWING OR ANY OTHER INFORMATION ISSUED IN CONNECTION THEREWITH MAY ONLY BE USED FOR A SPECIFIC ORDER PLACED BY THE COMPETENT AUTHORITY. IT IS NOT TO BE USED FOR ANY OTHER PURPOSE WHATSOEVER WITHOUT THE EXPRESS WRITTEN SANCTION OF THE DIRECTOR GENERAL OF QUALITY ASSURANCE, NEW DELHI - 110 011.

FOREWORD

0.1 This specification has been prepared by the Controllorate of Quality Assurance (Military Explosives), Aundh Road, Pune-411 020.

0.2 This specification shall be used for Tender enquiry, procurement, manufacture and Quality Assurance of the item covered by this Specification.

0.3 The Quality Assurance Authority for this store is Controller, Controllorate of Quality Assurance (Military Explosives), Aundh Road, Pune - 411 020. Enquiries regarding this specification relating to technical or any other contractual conditions shall be referred to the Quality Assurance Authority mentioned above/named in the tender or contract.

0.4 Copies of this specification can be obtained on payment from -

The Controller  
 Controllorate of Quality Assurance (Mily Explosives)  
 Aundh Road,  
 Pune-411 020

1.0 SCOPE

1.1 This specification prescribes requirements, method of sampling and test of Rayon Wool fabric and provides guidance to suppliers / manufacturers and quality assurance agencies.

1.2 This specification is meant to govern manufacture, supply and quality assurance of Rayon Wool Fabric .

1.3 The material is suitable for use in the manufacture of Powder bags for propellant charges (155mm Ammn.).

## 2.0 RELATED SPECIFICATIONS AND DOCUMENTS

2.1 The related documents as mentioned in Clause 2.2 are those applicable at the date of publication of this specification. It is contractor's/manufacture's responsibility to confirm their current applicability and to obtain from CQA(ME), Aundh Road, Pune - 411 020, information concerning any change that may be necessary due to cancellation, replacement or supersession of any of these documents.

2.2 The following related specifications have been referred to in preparation of this IND/ME specification:

I	IND/ME/221	Cloth Viscose.
II	JSG 0114-1994	Method of test for textiles used in amm..
III	IS- 138-1992	Ready Mixed Paint, Marking for packages and petrol containers(third revision)
IV	IS :1963 - 1981 (2 <sup>nd</sup> Revision reaffirmed 1993)	Method for determination of threads per unit length in woven fabrics.
V	IS :1969- 1985 (2 <sup>nd</sup> Revision reaffirmed 1993)	Methods for determination of breaking load & elongation of woven textile fabrics
VI	IS: 1390-1983 (1 <sup>st</sup> revision reaffirmed 1993)	Methods for determination of pH value of an aqueous extract of textile materials.

2.3 Copies of this specification and of related specifications may be obtained on payment basis from the agencies mentioned below:

IND/ME  
Specifications

The Controller,  
Controllerate of Quality Assurance (Mily Explosives)  
Aundh Road,  
Pune - 411 020

IS Specification

The Bureau of Indian Standards,  
Manak Bhavan, 9, B.S. Zafar Marg,  
New Delhi - 110 002

JSG

The Director,  
Directorate of Standardisation,  
Standardisation Documents Centre  
Min. of Defence, Room No. 50  
'J' Block, Nirman Bhavan PO  
New Delhi-110 011

### 3.0 MATERIAL / FINISH

3.1 The Rayon wool fabric shall be woven from staple viscose Rayon wool / closely woven in plain weave. It shall be uniform in appearance and free from manufacturing defects like loose threads, missed picks, floats, knots, holes etc. It shall also satisfy the requirements mentioned at Serial No. 1 of clause 5.3.1

### 4.0 PRE-INSPECTION OF STORES / CONSIGNMENT

4.1 Manufacturers / contractors must satisfy themselves that 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 Quality Assurance 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 challan. The declaration will also indicate the method followed in carrying out pre-inspection showing the features checked / tested and will have a Test Certificate attached to the challan / declaration.

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

### 5.0 QUALITY ASSURANCE

#### 5.1 INSPECTION

5.1.1 The Rayon Wool Fabric and the packages in which it is contained shall be subjected to inspection by and to the approval of QA officer / QA authority.

5.1.2 Samples of the material and of the packages in which it is contained shall be taken from any portion of the batch / lot / consignment and at any stage of manufacture.

5.1.3 If, on examination, any sample be found not to conform to this specification, the whole consignment shall be rejected.

5.1.4 The foregoing provisions shall equally apply to the prime contractors, and subcontractors if any.

#### 5.2 SAMPLING

5.2.1 The sampling shall be done in good light and in an enclosed space, free from dust, acid and other fumes. Utmost cleanliness shall be observed while handling the cloth so that cloth does not acquire acidity / alkalinity, chlorides and stains. If the roll / thann is not uniform in appearance, samples will be drawn to represent extreme variations.

5.2.2 Samples shall be drawn preferably from beginning, middle and end of the roll / thann selected for sampling.

5.2.3 Three representative samples measuring 2 meters length x full width each shall be drawn from beginning, middle and end portion from each roll / thann selected for sampling. The number of rolls / thanns for drawing samples from batch / lot shall be as follows.

Batch / Lot size (No. of rolls / thanns)	No. of rolls / thanns to be selected
2 to 8	2
9 to 15	3
16 to 25	5
26 and above	8

5.2.4 All precautionary measures for handling of the store as stated in the standing instructions shall be strictly complied with. In the absence of these, instructions from the QAO shall be sought.

5.3 TESTING

5.3.1 The samples shall be tested / examined as per Clause 3 above and shall also conform to the following test requirements given in clause 5.3.2

5.3.2 TEST REQUIREMENTS

SL. NO.	CHARACTERISTICS	PASSING STANDARD	TEST METHOD
1	2	3	4
1	Visual examination. ( Permissible defects) Major	Max 02	As per Appendix 'A'
	Combined ( Major + Minor but not containing more than 2 major defects)	Max 07	
2	Mass in , g/m <sup>2</sup>	Min 100 Max 150	JSG 0114 : 1994

1	2	3	4
3	Ends /dm Min.	Min 210	IS : 1963
4	Picks /dm Min.	Min 210	IS : 1963
5	Tensile strength Newtons. Min.		
	Warp	Min 350	IS : 1969
	Weft	Min 300	IS : 1969
6	Elongation at break , percent. Min		
	Warp	Min 10	
	Weft	Min 10	
	Max		
	Warp	Max 20	
	Weft	Max 20	
7	pH of water extract.		
		Min 6.0	IS 1390
		Max 8.0	
8	Ash percent.	Max 0.5	JSG - 0114 Method No.10
9.	Chlorides, as NaCl Percent.	Max 0.05	JSG - 0114 Method No.7
10.	Sulphates , as Na <sub>2</sub> SO <sub>4</sub> Percent.	Max 0.25	JSG 0114 Method No.8

\*\* Note : Shall be at a constant rate of traverse of machine of  $300 \pm 15$  mm /minute. The travelled strip to be cut as 325 x 60 mm as test to be carried out keeping the jaw distance 200mm and width after travelling 50mm .

### 5.3.3 QUALITY OF REAGENTS

Unless otherwise specified, pure chemicals and distilled water shall be employed in tests. "Pure chemicals" shall mean the chemicals that do not contain impurities which affect the results of analysis.



#### 5.3.4 CONDITIONS FOR TESTING

The test specimen shall be conditioned to standard atmosphere of  $65 \pm 2$  % Relative Humidity and  $27^{\circ}\text{C} \pm 2^{\circ}\text{C}$  temp, for 24 hrs and tested in the same standard atmosphere.

#### 5.3.5 CRITERIA FOR CONFORMITY

The batch/lot shall be declared as conforming to the specification if the samples drawn as per the sampling plan satisfy Clause 3 and the test requirements given in Clause 5.3.2 above.

#### 6.0 PACKAGING

6.1 The Rayon Wool of Fabric shall be packed in a continuous length of 20 meters or such continuous length as agreed between the supplier / purchaser. Each roll will be wrapped all over, with chemically neutral strong packing paper or in polythene film of thickness 0.13mm minimum. A suitable no. of such rolls will be made into bales / bundles and each bale / bundle will be wrapped, in gunny or cloth bag and tied securely with nylon / iron bands, in such a way that there is no damage to the contents.

6.2 Any other form of packages shall have prior approval of the QA officer / QA authority.

6.3 The inclusion of any foreign matter or impurities in any of the package shall render the whole batch / consignment liable for rejection.

#### 7.0 MARKING

7.1 All the packages containing the material shall be indelibly and legibly marked with the following details as applicable :

- a) Nomenclature and Specification No. of the store
- b) Name and address of the consignee
- c) A/T No. or S.O. No. and date
- d) Lot/ Batch No. and date of manufacture
- e) Consignment No.
- f) Gross and Net Mass
- g) Consecutive No. of package and total No. of packages
- h) Date of Supply
- j) Contractor's initials or recognized trade mark.

7.2 Addition to the above, the QA Officer/QA Authority may suggest some more marking / identification suitable at the time of inspection.

7.3 The paint used for marking shall conform to IS: 138 (latest issue), any paints used on the container and the paints or other materials used for marking shall be of good quality to the satisfaction of QA officer and shall not contain Lead or Lead compounds calculated as metallic Lead together exceeding 0.5 percent.

### 8.0 WARRANTY

8.1 The store supplied against the contract shall be deemed to have been warranted against defective materials and performance by the manufacturer/contractor/supplier for a period of 12 months from the date of receipt of the store at the consignee's end and if during this period any of the store supplied is found defective the same shall be replaced by the manufacturer/contractor/supplier free of charge at the consignee's premises.

### 9.0 SAFETY OF OPERATION

9.1 Nothing in this specification shall relieve the manufacturer/supplier/user of his responsibility for the safety of operation in manufacture, storage, transit or use of the store.

### 10.0 DEFENCE STORES CATALOGUE NUMBER

10.1 The Defence Stores Catalogue Number has been allotted to this store is 830 500 4523

### 11.0 SUGGESTIONS FOR IMPROVEMENT

11.1 Any suggestions for improvement in this document shall be forwarded to The Controller, CQA(ME), Aundh Road, Pune - 411 020.

Date: 23.9.2013

Sd —

(Dr C. NESAMANI),  
Controller,  
CQA(ME), Aundh Road,  
PUNE - 411 020

APPENDIX - A

The cloth shall be opened out and examined 100% for visual defects and short lengths . Following is the classification of defects . The defects below shall be noted and counted per 100 metre length.

Classification of defectsMajor

- i. Broken ends
- ii. Missing ends/Picks
- iii. Cut selvages.
- iv. Thin uneven fine yarn
- v. Puncture, holes, thin cuts
- vi. Abrasion marks or weak spots

Minor

- i. Knots, Floats
- ii. Thick uneven fluffy yarn
- iii. Stains
- iv. Wrinkles, crease, hard "embedded
- v. Width less than specified
- vi. Any open place or any area visibly thinner or weaker than surrounding normal cloth.