DC NO. 6104 - ME
31.08.2019

IND/ME/888:2019
(Supersedes IND/ME/888:2015)

V. Thangavelu
6/11/19

TAPE COTTON MEDIUM

1) PROOFED MASTER COPY
2) UNPROOFED

Sr. No.	Width in mm	DS Cat Nos.	NSN
i	6	8315-000 447	8315720199 196
ii	10	8315-000 448	8315720199 197
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iv	16	8315-000 450	8315720199 199
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ix	38	8315-000 454	8315720199 203
x	50	8315-000 455	8315720199 204

CONTROLLERATE OF QUALITY ASSURANCE (MILITARY EXPLOSIVES)
AUNDH ROAD, PUNE - 411 020

DEPARTMENT OF DEFENCE PRODUCTION
MINISTRY OF DEFENCE

AMENDMENT RECORD

Amendment		Authority	Clauses Affected	Remarks
D.C.	DATE			
1. 2477-ME	28.11.1983		SEALED	
2. 2578-ME	18.10.1985		Physical Req. Column No.6 and Column No.7	
3. 3176-ME	12.08.1994		Clause 2.2(Sr.No.2) and Clause 8.1 - (1) and (2) Table, Column No.4	
4. 3754-ME	12.12.2002		Front Page Page No.4 Top Para last line Clause 0.1 -- 2nd line Clause 0.2 -- last line Clause 2.1 -- 4th line Lause 2.2 (i)	
5. 5405-ME	01.02.2016		Revised , redesignated and Superseded by IND/ME/888:2015	
6. 6104-ME	31.08.2019		At Page No.1, 9 & 10. Addition of 30mm width along with NSN	

CONTENTS

0. FOREWORD

1. SCOPE

2. RELATED SPECIFICATIONS AND DOCUMENTS

3. MATERIAL

4. TENDER SMPLE

5. PRE-INSPECTION OF STORES

6. QUALITY ASSURANCE

7. PACKAGING AND MARKING

8. DEFENCE STORES CATALOGUE NUMBER/ NATO STOCK NUMBER

APPENDIX A & B

THIS SPECIFICATION OR ANY OTHER PATTERN, DRAWINGS 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, MINISTRY OF DEFENCE, NEW DELHI - 110 011.

0 FOREWORD

0.1 This specification has been prepared by the CONTROLLERATE OF QUALITY ASSURANCE (MILITARY EXPLOSIVES) AUNDH ROAD, PUNE -411 020.

0.2 This specification is a revision of IND/ME/888:2015 and supersedes the same.

0.3 For additional copies or any other enquiry regarding this specification, reference should be made to the Quality Assurance Authority (i.e. CQA(ME) Aundh road, Pune-411 020, e-mail: cqamear-dgqa@nic.in).

1 SCOPE

1.1 This specification is meant to govern supply and inspection of Tape Cotton medium required for manufacture of bags for packing C.E./T.N.T/N.C.P. and Propellants.

2 RELATED SPECIFICATIONS AND DOCUMENTS

2.1 The related documents mentioned at clause 2.2 are those applicable at the date of publication of this specification. It is contractor's/manufacturer's responsibility to confirm their current applicability and to obtain from the Authority Holding Sealed Particulars (i.e. 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 the preparation of this specification:-

JSG 0114 : 2015, Rev No. 1	-	Methods of tests for textiles used in Ammunition

2.3 Copies of this specification and other related specifications are obtainable on payment basis as follows:

SPECIFICATION		SOURCE OF SUPPLY
IS Specification	:	Bureau of Indian Standards, Manak Bhawan 9, Bahadur Shah Zafar Marg, NEW DELHI – 110 002 or Their regional / Branch offices

IND/ME/ Specification : C Q A (ME),
AUNDH ROAD,
PUNE - 411 020.

JSS : The Director
Directorate of Standardization
Standardization Documents Centre
Ministry of Defence
Room no 05, 'J' Block
Nirman Bhawan PO
New Delhi – 110 011

3 MATERIAL

3.1 The Tape Cotton, Medium shall be made from good quality cotton yarn. The weave shall be plain or twill. The tape shall be uniformly woven and shall be free from creases, flaws, knots and other defects. The selvedge shall be firm and straight. The tape may be proofed or unproofed, scoured and soured and the tape may be in loom state or in roll form and shall be of the width ordered in the contract. The tapes shall normally be supplied in 50 ± 10 meters length in roll from. The tapes shall be as free from joints as practicable and the number of joints shall not exceed three in 50 meters and no piece length shall be less than 05 meters. Pins or other metal fastening shall not be used to join any two lengths of tape.

4 TENDER SAMPLES

4.1 The tenderer shall submit a tender sample (2 rolls/hanks) of 30 to 50 meters free of all charges, conforming to this specification, the minimum mass of the sample to be submitted for test shall not be less than 250 grams.

5 PRE-INSPECTION OF STORES

5.1 Before tendering the store to the Inspector, the Contractor shall carry out a thorough inspection of each delivery to satisfy himself that the store fully conforms to this specification and shall render a certificate to that effect to the Quality Assurance Officer.

6 QUALITY ASSURANCE

6.1 INSPECTION

6.1.1 The tape cotton, medium and the packages in which it is contained shall be subject to inspection by and to the final approval of the Quality Assurance Officer/Quality Assurance Authority.

6.1.2 Samples of the material and of the packages may be taken from any portion of a consignment/batch/lot.

6.1.3 If, on examination, any sample be found not to conform to this specification,

the whole consignment/batch/lot may be rejected.

6.1.4 The foregoing provisions shall apply equally to prime contractors and to sub-contractors, if any.

6.2 SAMPLING

6.2.1 Not less than 5 samples from separate roll/hanks, each of at least 10 to 15 meters in length shall he drawn from a consignment of 10,000 meters on part thereof. The length of each sample in case of 6.0 mm and 10.0 mm tape shall be a minimum of 20 to 25 meters.

6.3 TEST REQUIREMENTS

6.3.1 Samples taken from any portion of the supply shall comply with clauses 3 above and shall also conform to the following requirements.

(A) Chemical requirements - i) General

S. No.	Characteristics	Passing Standard	Test Method Ref to JSG 0114
1	pH of aqueous extract Max. Min.	 8.5 5.5	6
2	Water soluble chlorides, calculated as NaCl percent by mass Max	 0.1	7
3	Water soluble sulphates, calculated as Na_2SO_4 percent by mass Max	 0.25	8
4	Ash, Percent by mass a) Unproofed material, Max. b) Proofed material, Max.	 0.5 5.0	10

2) When the material is proofed it shall comply also with the following requirements in addition to the above tests (1 to 4).

Sl. No.	Characteristics		Require ments	Test Method Ref to JSG 0114
1	2		3	4
1.	Mould Proofed material water soluble matter % by mass			
	a) When mould proofed by para nitrophenol 0.25%	Min	0.35	5
	b) When mould proofed by sodium pentachlorophanate - 0.5%	Min	0.70	5
2.	Smoulder proofed by Gelatine and Diammonium hydrogen phosphate.			
	(a) Water soluble matter, percent by mass	Min	5	5
	(b) Soluble phosphate calculated as Diammonium hydrogen phosphate percent	(i) Max (ii) Min	3.0 2.5	Appendix 'A' to this specn.
	(c) Time of smouldering seconds	Max	5	
3.	Smoulder proofed by Galantine and Dianmonium hydrogen phosphate and mould proofed by paranitrophenol 0.25%			
	(a) Water soluble matter percent	(i) Max (ii) Min	11.0 5.0	5
	(b) Soluble Phosphates calculated as Diammonium hydrogen phosphate, percent by mass	(i) Max (ii) Min	3.0 2.5	Appendix 'A' to this specn.
	(c) Time of smouldering seconds,	Max	5	

4.	Smoulder proofed by Gelatine and Diammonium hydrogen phosolphate and mould proofed by sodium penta chlorophenate 0.5%			
	(a) Water Soluble matter percent by mass	Min	6.7	5
	(b) Soluble phosphates calculated as Diammnium hydrogen phosphates, percent by mass	(i) Max (ii) Min	3.0 2.5	Appendix 'A' to this specn.
	(c) Time of smouldering seconds	Max	5	Appendix 'B' to this specn.

NOTES:

i) The amount of material added in the proofing process shall not exceed 20% of the air-dry- mass, of the tape prior to proofing.

ii) The following details of a single process which gives satisfactory results are added for guidance.

a) Moulde Proofing - The tape is dipped in a 0.25% solution of Paranitrophenol or 0.5% Sodium Pentachlorophenate solution for 15 minutes, excess solution drained and the tape is dried in air.

b) Smoulder Proofed- Same as in (c) below but without Paranitrophenol or Sodium Pentachlorophenate.

c) Mould and Smoulder Proofing – The tape is passed through a sizing bath containing 3 percent Gelatine, 8 percent Groundnut oil, 2 percent Diammonium hydrogen photrphate and 0.25 Percent para nitrophpnol or 0.5 percent Sodium Pentachlorophenate. The nip rollers are adjusted to leave on the tape its own mass of size.

iii) When the percentage of Diammonium hydrogen phosphate present in the material is of the order of 2% - 3%, additional mould proofing is necessary

iv) All percentages shall be calculated on the dry mass of the material after drying to constant mass.

B) Physical Requirements

Material shall conform to the physical requirements of the given schedule attached to this specification. (Please see page No. 11)

7 PACKAGING AND MARKING

7.1 PACKAGING

7.1.1 Assemble as many rolls as convenient on a common hollow wooden or card board mandril. Securely tie with a piece of Jute, twine or cotton tape so as to from a bundle. Such bundle will be wrapped in polythene and finally with gunny bag and tied/stitched securely.

7.2 MARKING

7.2.1 All the packages constituting a consignment shall each be legibly and durably marked with the following details as applicable.

(i) Nomenclature and specification number of the material,
(ii) Name and address of the consignment,
(iii) AT/SO No. and date,
(iv) Consignment,
(v) Lot No./ Batch No. and date of manufacture,
(vi) Quantity in number,
(vii) Consecutive number of package and total No. of packages
(viii) Date of supply,
(ix) Contractor's initials or recognised trade mark if any.

7.2.2 In addition to above, Quality Assurance Officer may suggest some more marking/ identification at the time of inspection.

8.0 DEFENCE STORE CATALOGUE NUMBER/ NATO STOCK NUMBER

8.1 Defence Store Catalogue number/NATO Stock Number (NSN) allotted to the store are as under :

Sr. No.	Width in mm	DS Cat Nos.	NSN
i	6	8315-000 447	8315720199 196
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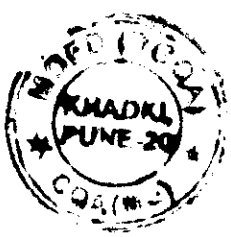
Date :- 04/9/19



Kakade

(Mrs. S.S. KAKADE)
Controller
CQA [ME], PUNE

SCHEDULE TO- PHYSICAL REQUIREMENTS

Width in mm	Weave	Total Warp ends Min	Weft picks per dm, Min	Tex		Finished Mass per 100 metres In gram	Breaking load on full width x 20 cm between grip Min N
				Warp	Weft		
1	2	3	4	5	6	7	8
1. 6.0 ± 1.5	Plain or twill	20	125	21 Tex X 2	22.7 Tex	115 ± 5%	85
2. 10.0 ± 1.5	"	30	125	"	"	160 ± 5%	115
3. 13.0 ± 1.5	"	35	125	"	"	210 ± 5%	145
4. 16.0 ± 1.5	"	45	125	"	"	255 ± 5%	180
5. 19.0 ± 1.5	"	50	135	"	"	300 ± 5%	215
6. 22.0 ± 1.5	"	65	140	"	"	385 ± 5%	265
7. 25.0 ± 2.5	"	75	140	"	"	420 ± 5%	295
8. 30.0 ± 2.5	"	90	140	"	"	510± 5%	360
9. 38.0 ± 2.5	"	110	140	"	"	645 ± 5%	445
10. 50.0 ± 2.5	"	145	140	"	"	850 ± 5%	585

NOTE:-

1) When tapes are scoured the soured mass will be approximately 5 percent lighter.
2) The Tex count figures are for guidance only.
3) Before testing for physical requirements, the material shall be conditioned for 24 hours in an atmosphere of 65 ± 2% relative humidity at 27°C ± 2 deg C.
4) Samples shall comply with the physical requirements for the specific width in the schedule attached.

APPENDIX 'A'

DETERMINATION OF SOLUBLE PHOSPHATE

Reagents

Magnesia Mixture
50 g Magnesium chloride, hydrated
100 g Ammonium chloride
5 ml Conc. Hydrochloric acid
and diluted to 1000 ml with distilled water.

Procedure - a) Extract 10 g of the smouldered sample with hot boiling water. Filter if necessary. Acidify the extract with 5 ml of dilute hydrochloric acid and add few drops of methyl red indicator. Add 50 ml of magnesia mixture. Heat the solution to boiling and while still boiling very slowly run in dil. ammonia solution with constant stirring until crystalline precipitate appears. Cool the mixture. Add conc. ammonia equal approximately to 1/5 of the total volume. Stir and leave aside overnight. Filter over a tared and ignited gooch crucible. Wash the precipitate free from chloride with dilute ammonia and finally moisten with several drops of saturated solution of ammonium nitrate in dilute ammonia solution, Dry the crucible and then ignite gently at first until all fumes of ammonia have been displaced and finally to constant mass at bright red heat and weigh.

b) From the mass of the precipitate of Magnesium pyrophosphate ($Mg_2P_2O_7$) calculate the percentage of soluble phosphate as Diamnonium hydrogen phosphate $(NH_4)_2HPO_4$.

APPENDIX 'B'

METHOD FOR DETERMINATION OF TIME OF SMOULDERING

A piece of tape of diameter equal to the width is fixed centrally on a steel skewer and ignited in a Bunsen flame from which it is withdrawn on ignition. The time elapsing between the flame dying out and the disappearance of glow is observed. This is the time of smouldering.