

PR-731

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DENO 3857-2004
ME. 29/4/2005

EXPANDED CROSS-LINKED POLYETHYLENE FOAM BASED CUSHIONING MATERIALS FOR PACKING OF AMMUNITION

मोडल नं. 11/10/2005
दिनांक 14/10/2005
S-R. RAJAWAR
Asst. Controller

Controllerate of Quality Assurance
(Military Explosives)
Khadki, Pune-411020

Department of Defence Production
Ministry of Defence

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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, MINISTRY OF DEFENCE, DHQ PO NEW DELHI 110011.

FOREWARD

- 0.1 This specification is formulated on the basis of the project report initiated by CQA(Ammun) Khadki and conducted at O.F. Bhusawal to replace Internal steel filments of steel boxes with varying density upto 85kg/m^3 cushioning materials.
- 0.2 For additional copies or any other information regarding this specification, reference should be made to the Quality assurance Authority i.e. CQA (ME), Aundh Road, Khadki Pune - 411020.

1. SCOPE

- 1.1 This specification is meant to govern the manufacture, supply and Quality Assurance of Expanded Polyethylene (Crosslinked) Foam based cushioning material.
- 1.2 The Crosslinked Polyethylene Foam is useful for Clamp lining applications etc. in steel boxes like C-48, C-53 and C-51.

2. RELATED SPECIFICATIONS AND DOCUMENTS

- 2.1 (a) IS 138:1992 Ready mixed paint, marking for packages and Petrol containers (Third Revision)
- (b) ASTM-D 624 Test method for Surface resistivity
- (c) ASTM-D 3575 Standard Test method for Flexible Cellular Material from Olefin Polymer
- (d) JSG 0112:1997 General Methods of Tests and assessment of impurities in Chemicals/Materials used in the Manufacture of Explosives and Ammunition.

Copies of related specifications are obtainable on payments basis as follow: -

1) ASTM & Indian standard
Bureau of Indian standards,
Manak Bhavan
9 Bahadur Shah Zafar Marg

2) JSG 0112:1997
Directorate of Standardisation
'H', Block, Min of Defense
DHQ PO NEW DELHI 110011

New Delhi - 110 002
Or
Their regional / branch offices.

3. MATERIAL / FINISH

3.1 The subject materials shall be in the form of sheets, blocks, profiles and fittings of various thicknesses.

4. MANUFACTURE

4.1 Crosslinked Expanded Polyethylene Foam of varying density is manufactured from resins or blend of resins of Polyolefin family such as LDPE (except EVA) crosslinked with the help of suitable additives. The finished product is crosslinked by the process of compression moulding in the form of blank. It is later on skived/sliced into sheets of various dimensions.

5.0 PRE - INSPECTION OF STORES / CONSIGNMENT

5.1 Manufacturer / contractor must satisfy themselves that the store is in accordance with the terms of contract and fully conform to the specification, by carrying out a thorough pre-inspection of each lot before tendering the same for inspection to the Quality Assurance Officer nominated in the terms of contract. A declaration by the contractor that necessary pre-inspection has been carried out of the store tendered will be submitted along with the tender. The declaration will also indicate the method followed in carrying out the pre-inspection showing the features checked / tested and will have the test report attached to the challan / declaration.

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

6.0 QUALITY ASSURANCE

6.1 The material Expanded Crosslinked Polyethylene foam and the packages in which it is packed shall be subjected to inspection by and to the approval of the Quality Assurance Officer / QA Authority.

6.2 Samples of the material and the packages may be taken from any part of the batch / lot of manufacture.

6.3 If on examination, any sample be found not to conform to the specification, the whole batch / lot shall be rejected.

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

7. SAMPLING

7.1 The number of samples to be drawn as per approved sampling plan.

8. TEST REQUIREMENTS

8.1 Samples taken from any portion of the batch / lot shall be as per App-A (50) / 20/64
 addition shall satisfy the following test requirements.

Test Requirements of Expanded Cross-Linked Polyethylene foam based cushioning materials.

CHARACTERISTIC (2)	PASSING STANDARD (3)	TEST METHOD (4)	Remark (5)
Colour ✓	Black As per requirement	Appendix A Para -2	
Thickness in mm ✓	1.10%	Appendix A Para -2	
Width in mm	As per requirement	ASTM D1575 Suffix 'W' Test Method 'A'	Sample size upto 15mm thickness will be of 25cm x 25cm x 10mm thick.
Density kg/m ³ Upto thickness 25mm ✓	1.5% 50 to 65	do	Above 25mm, sample size will be 25cm x 25cm x 40mm thick.
Above 25mm	0.5 to 85	do	Upto 25mm thickness test sample thickness will be 10mm & above 25mm thickness test sample thickness will be 25mm
Water absorption (At 27 Deg C for 48 Hrs) Max g/cm ² ✓	0.02	ASTM D1575 Suffix 'L'	Test specimen thickness will be 8mm
Tensile Strength Kp/cm ² Minimum (At break) ✓	50	ASTM D1575 Suffix 'T' ASTM D1771-63R Die A speed of head travel 500 5mm/min	Tensile strength & elongation are tested together hence test specimen will remain the same. Passing standard should be 50% minimum thickness of the specimen will be 10mm
Elongation % Minimum ✓	50	ASTM D1575 Suffix 'T' ASTM D1771-63R Die A speed of head travel 500 5mm/min	
Tear Strength Kp/cm Minimum	LR	ASTM D624 Die C speed of head travel 500 50mm/min	
Compression Strength (at 25% deflection) Kp/cm ² Minimum	0.0	ASTM D1575 Suffix 'D'	Test specimen will be of 15mm thickness
Thermal Stability at 50°C/7Hrs & +70°C/24Hrs.	5	ASTM D1575 Suffix 'S'	Sample size 150mm x 75mm x 25mm
Change in dimension % Max PH of water extract ✓	0.0 to 0.5	BS 3015:196 Method No 3 (1)	

9.0 WARRANTY

9.1 The stores supplied against contract shall be deemed to be warranted against material and performance by the contractor for a period of 12 months from the receipt of the stores at the consignee's end and if during this period any of the stores supplied is found defective, the same shall be replaced by manufacture / supplier / contractor free of all charges at the consignee's premises.

10. PACKING

10.1 The stores shall be securely packed to avoid damages in transit so as to be in perfect, serviceable condition to the consignee. The packages shall be marked with the consignee's address and other necessary details for identification of the stores by consignee.

10.2 The materials shall be supplied in sound and dry packages, consisting of polythene film of 0.13mm thick and suitable external packages. The packages shall be securely closed.

10.3 The material offered in any other packages shall have the prior approval of the Quality Assurance Officer / Quality Assurance Authority.

10.4 Inclusion of any foreign matter or impurities in any of the packages shall render the whole consignment liable for rejection.

11. MARKING

11.1 All the packages containing the material shall be indelibly and legibly marked with the following details: -

- i. Nomenclature of the store and specification number
- ii. Name and address of the consignee
- iii. A/T or S.O. No. and date
- iv. Consignment number
- v. Lot / Batch number
- vi. Gross and net mass
- vii. Consecutive No. of packages and total No. of packages in the consignment
- viii. Date of supply
- ix. Contractor's initials or recognized trade mark

11.2 In addition to above the Quality Assurance Officer may suggest some other markings / identifications suitable at the time of inspection.

11.3 The paint used for marking shall conform to IS 138.

12. SAFETY OPERATIONS: -

12.1 Nothing in the specifications shall relieve the manufacture / supplier / contractor / user of his responsibility for the safety of operations in manufacture, handling, storage and use of the store.



13. SUGGESTIONS FOR IMPROVEMENT: -

13.1 Any suggestion for improvement in this specification shall be forwarded to the Controller, Controllerate of Quality Assurance (Military Explosives), Amudh Road, Khadki, Pune - 411 020.

K.P. Patil
20/04/04
(K.N. Patil)
Controller COA (ME),
Amudh Road
Khadki, Pune - 411 020.

Appendix 'A'

TEST SPECIMEN

1. Test specimen in case of sheets, fabricated or die-cut parts, moulded sheets shall be cut from buns, as described in clause 4.1
2. Measure the dimensions up to 25mm using a dial type gauge with a minimum foot area of 50 mm square (1 inch square). Thickness of material having irregular surface characteristics shall be measured by a method agreed between end use AHSP and the manufacturer.

Dimensions over 25mm may be measured with dial gauge, scale or measuring tape.

The scale tape or gauge shall be graduated to permit measurements within $\pm 1.0\%$ of the dimension to be measured.

Results reported shall be the average of 3 equally spaced measurements of length and width. Thickness shall be the average of center and four equally spaced measurements around the perimeter of the specimen / sample.

SIC

UNDER CERTIFICATE OF POSTAGE

PHONE NO. 2569 43 0 / 2569 4295
E mail: qacmil@vsnl.net

Government of India
Ministry of Defence (DQA)
Control State of Quality Assurance
(Military Explosives)
Aundh Road, Khadli
PUNE 411 070.

No. CQA (ME) / 17201/2004/258

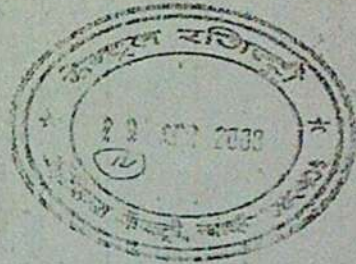
11.16 April 2008

To

G.M.

of Chandra

M.H. 442 501



SUPPLY OF SPECIFICATIONS / DRAWINGS

2. Reference your letter No. 7024 / STD CELL / DC

Dated - 11.04.2008

3. Certified True Copy / Copies of the under mentioned ^{D.C.} specifications / Drawings is / are forwarded herewith as desired.

Letter D.C. 3857-ME dt 29.04.2005 Jm

~~ISS - 010-42-10497~~

IND/ME/1023 (Pm) - April 2005

Kindly acknowledge the receipt.

Encl:- Specifications / Drawings D.C.

10 Prakashan Rao

(V.P. Rao)

Asst. Controller
To, Controller

7

(New specification) -
IND/ME/1023(PROV)
Apr. 2005

IND/ME/1023 (REV. 09/10-001005)

The new specification
IND/ME/1023 (PROV) Apr. 2005
for "EXPANDED CROSS-
LINKED POLYETHYLENE FOAM
BASED CUSHIONING
MATERIAL FOR PACKING OF
AMMUNITION"
has been sealed provisionally

3857-ME
29104/2003

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PHONE NO. 2569 43 0 / 2569 1295
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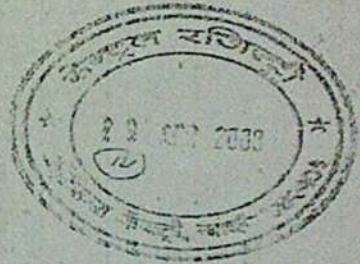
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~~ISS-010-42-1007~~

IND/ME/1023 (Pm) - April 2005

Kindly acknowledge the receipt.

Encl:- Specifications / Drawings D.C.

10 Pradip Kumar

(V.P. Rao)

Asst. Controller
To, Controller