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IND/ME/ 913 (a) (Prov):2004

Revision No.1

## ANTISTATIC POLYETHYLENE FOAM BASED CUSHIONING MATERIAL

प्रमाणित प्रतिलिपि ।

Certified Correct Copy of  
Sealed SPECIMEN DRG

दिनांक/At this date

... *[Signature]* ...

05/10/2017

कुले निबंधक गु.आ.नि. (सै.वि.)

खडकी, पुणे-411003.

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

**Department of Defence Production**  
**Ministry of Defence**



# RECORD OF AMENDMENTS

Amendment Ser No.	Date	Details of amendment	Amendment carried out by (Name & Date)
3814-ME	07-06-2004	The existing specification has been Revised, Redesignated, Superseded & Advanced by IND/ME/913(a) (Prov). 2004, Revision No. 1 based on ARDE/SPECN/585/1996 (Provisional.) The Nomenclature has been changed as "ANTISTATIC POLYETHYLENE FOAM BASED CUSHIONING MATERIAL."	<p><i>Ex Jbali</i> <i>07/06/2004</i></p> <p><i>R</i> <i>07.06.04</i> <i>DO (ANSP)</i></p> <p><i>JC</i> <i>14/06/04</i></p> <p><i>Controller</i> <i>K.P.L.</i> <i>15/06.</i></p>



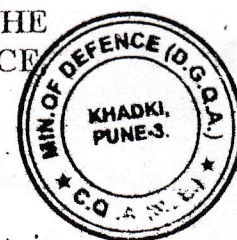
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THIS SPECIFICATION OR ANY PATTERN DRAWING OR ANY OTHER INFORMATION ISSUED IN CONNECTION THEREWITH MAY ONLY BE USED FOR A SPECIFIC ORDER PLACED BY THE COMPETENT AUTHORITY, IT IS NOT TO BE USED FOR ANY OTHER PURPOSE WHATSOEVER WITHOUT THE EXPRESS WRITTEN SANCTION OF THE DIRECTOR GENERAL OF QUALITY ASSURANCE, MINISTRY OF DEFENCE  
DHQ PO NEW DELHI 110011.



## FOREWARD

- 0.1 The IND/ME/913(PROV) was issued in 1990 and present document is revision of IND/ME/913:1990, based on ARDE specification No. ARDE/SPECN/585/1996 (PROVISIONAL) and supersedes the same.
- 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 Antistatic Expanded Polyethylene ( ASEP )
- 1.2 The material is suitable for packaging of electro sensitive products such as missiles, explosive powders and electro sensitive devices. ( ESD ), micro circuits, semi conductors and associated airborne components.

## 2. RELATED SPECIFICATIONS AND DOCUMENTS

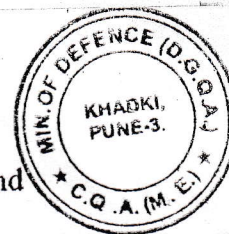
- 2.1 (a) IS 138:1992 Ready mixed paint, marking for packages and Petrol containers ( Third Revision )
- (b) ASTM-D 257 Test method for Surface resistivity
- (c) ASTM-D 3575 Standard Test method for Flexible Cellular Material from Olefin Polymer.
- (d) JSG 0112:1997 General Methods of Tests and assessment of impurities in Chemicals/Materials used in the manufacture of Explosives and Ammunition.  
Revision No. 1
- 2.2 Copies of related specifications are obtainable on payment basis as follows:-

1) ASTM & Indian Standard  
Bureau of Indian Standards,  
Manak Bhavan,  
9, Bahadur Shah Zafar Marg,  
New Delhi - 110 002

Or

Their regional / branch offices.

2) JSG  
Directorate of Standardisation  
'H' Block, Min. of Defence  
DHQ PO New Delhi 110 011



### 3. MATERIAL / FINISH

The material ASEP shall be in the form of sheets, blocks, profiles and fabricated fitments.

### 4. MANUFACTURE

The material, Antistatic Expanded Polyethylene (ASEP) shall be manufactured from resins or blend of resin of polyolefin family, such as LDPE melt mixed with additives of such nature and quality that the finished product shall have permanent antistatic property and not an external coating. The sheets, of ASEP shall be made by low temperature twin screw extrusion process using non toxic, non hazardous Butane or LPG. While the blocks and planks of ASEP shall be made by laminating the sheet, using heat welding process and Not adhesives. Minimum thickness of Base material should be 10 mm. to get higher thickness.

### 5.0 PRE - INSPECTION OF STORES / CONSIGNMENT

5.1 Manufacturer / contractor must satisfy themselves that the stores are in accordance with the terms of 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 contract. A declaration by the contractor that necessary pre-inspection has been carried out on the store tendered will be submitted along with the challan. The declaration will also indicate the method followed in carrying out pre-inspection showing the features checked / tested and will have the test certificate 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. QUALITY ASSURANCE

- 6.1 The material Polyethylene foam and the packages in which it is packed shall be subject to inspection by and to the approval of QA officer/QA Authority.
- 6.2 Samples of the material and the packages may be taken from any portion of the batch /lot of manufacture.
- 6.3 If on examination, any sample be found not to conform to this specification, the whole batch / lot shall be rejected.
- 6.4 The foregoing provisions shall equally apply to the prime contractors and sub-contractors, if any.
- 6.5 The base material should be procured from a manufacturer, employing Twin Screw Extruded process only and built up by Heat Lamination process and the supplier of this material should produce a certificate to this effect.

### SAMPLING

- 7.1 The number of samples to be drawn shall be at the discretion of the Quality Assurance Officer.





7.2 All precautionary measures for handling of the stores as stated in the standing Instructions of the section shall be strictly complied with. In absence of these, instructions from QA officer/ QA Authority shall be sought.

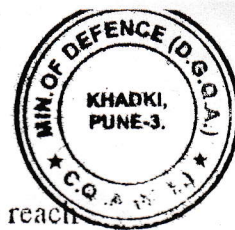
## 8. TEST REQUIREMENTS

8.1 Samples of ASEP taken from any portion of the batch shall conform to the clause 3 above and in addition shall satisfy the following test requirements. Minimum thickness of Base material should be 10 mm. Test Specimen as per Appendix 'A'

Sl No.	CHARACTERSTIC	PASSING STANDARD	TEST METHOD
(1)	(2)	(3)	(4)
1.	Thickness in mm	As per requirement $\pm 10\%$	-----
2.	Width in mm	As per requirement $\pm 5\%$	-----
3.	Density $\text{kg/m}^3$	40 to 45	ASTM - D 3575 Suffix 'W' Test Method 'A'
4.	Water absorption (at 27 Deg.C for 96 Hrs.) $\text{kg/m}^2$ , Max.	0.50	ASTM - D 3575 Suffix 'L'
5.	Tensile Strength $\text{Kg./cm}^2$	1.5 to 2.5	ASTM - D 3575 Suffix 'T'
6.	Elongation % .	40 to 120	----Do-----
7.	Compression Strength (at 10 % deflection) $\text{Kg.cm}^2$	0.10 to 0.25	ASTM - D 3575 Suffix 'D'
8.	Surface resistivity Ohm/sq.	$10^9$ to $10^{12}$	ASTM - D 257
9.	pH of water extract	6.0 to 8.0	JSG 0112:1997 Method 5 (b)

## 9.0 WARRANTY

9.1 The stores supplied against contract shall be deemed to be warranted against defective material and performance by the contractor for a period of 12 months from the date of 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 manufacturer / supplier / contractor free of all charges at the consignee's premises.



## 10.0 PACKING

- 10.1 The stores shall be securely packed to avoid damages in transit so as to reach in perfect, serviceable and fit condition to the consignee. The packages shall be legibly marked with the consignee's address and other necessary details for easy identification of the stores by consignee.
- 10.2 The material shall be supplied in sound and dry packages, consisting of polythene film of 0.13 mm thick and external bag made up of kraft paper of capacity 25 kg.. 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.

## 11.0 MARKING

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

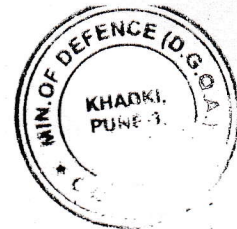
- i) Nomenclature of the store and specification number
- ii) Name and address of the consignee
- iii) A/T or S.O. No. and date
- iv) Consignment number
- v) Lot / Batch number
- vi) Gross and net mass
- vii) Consecutive No. of packages and total No. of packages in the consignment
- viii) Date of supply
- ix) Contractors initials or recognized trade mark

11.2 In addition to above, the Quality Assurance Officer may suggest some more 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 specification shall relieve the manufacture / supplier / contractor / user of his responsibility for the safety of operations in manufacture, transit, 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), Aundh Road, Khadki, Pune - 411020.

**( NV PILLAI )**  
**Controller**  
**CQA (ME), Aundh Road**  
**Khadki, Pune - 411020.**





## Appendix 'A'

### TEST SPECIMEN

For sheets, planks, heat laminated planks and blocks, test specimen shall be taken from base material. With fabricated or die-cut parts or molded shapes, test specimen should be cut from the sample taken prior to fabrication.

### MEASUREMENTS OF TEST SPECIMEN

- i) Measure dimensions up to and including 25 mm using a dial type gauge with a minimum foot area of 650 mm square ( 1 inch square ). However thickness of material having irregular surface characteristics shall be measured between CQA and the manufacturer.
- ii) Dimensions over 25 mm may be measured with dial gauge, scale or tape
- iii) The scale, tape or gauge shall be graduated to permit measurements within  $\pm 1.0$  % of the dimension to be measured.
- iv) Results reported shall be the average of 3 equally spaced measurement of length and width and for thickness shall be the average of center and four equally spaced measurements around the perimeter of the specimens.