

[METRIC]

A-A-549D

~~JUNE 13, 1994~~

SUPERSEDING

A-A-549C

April 5, 1990

## COMMERCIAL ITEM DESCRIPTION

CUSHIONING MATERIAL, PACKAGING  
(FLEXIBLE CLOSED CELL PLASTIC FILM, FOR SHORT DISTRIBUTION CYCLES)

The General Services Administration has authorized the use of this commercial item description, for all Federal agencies

1. SCOPE. This description covers flexible, closed cell, heat sealable, non corrosive, plastic film for use in cushioning and packaging applications when the shipping cycle will not exceed 7 days.

2. SALIENT CHARACTERISTICS:

A. Construction. The cushioning material shall be constructed of a composite of two or more sheets of plastic film and shall be furnished in the form of rolls, perforated rolls, or sheets, as specified (See 7.a). The thickness of cushioning material shall be in accordance with Table I, as specified (See 7.b). The composite material shall have uniformly distributed closed cells. It shall be sufficiently transparent to permit easy reading of 10-point type through a single layer of cushioning material. The cushioning material shall pass all testing under paragraph 3.C. herein.

B. Dimensions. The cell height for each nominal thickness shall be the initial thickness found during the creep test. The width tolerance shall be  $\pm 6.4$  mm ( $\pm 1/4$ " ). The length tolerance for sheets shall be  $\pm 6.4$  mm ( $\pm 1/4$ " ). Rolls and perforated rolls shall be not less than the specified length. Perforations, when perforated rolls are specified, shall be placed not more than 6.4 mm ( $1/4$ " ) apart for very thin, thin, and medium material and not more than 12.7 mm ( $1/2$ " ) apart for thick material. The tolerance for the distance between the rows of perforations in perforated rolls shall be  $\pm 6.4$  mm ( $\pm 1/4$ " ). The size of the perforations shall be such that the material can be easily separated.

Beneficial comments, recommendations, additions, deletions, clarifications, etc. and any data which may improve this document, should be sent to: General Services Administration, Federal Supply Service, 26 Federal Plaza, New York N.Y. 10278  
ATTN: Engineering Branch (2FYEE).

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

FSC 8135

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Table I

Nominal cushioning thickness	Cell height
Very thin	Up to 3.18 mm (1/8")
Thin	3.18 to 6.4 mm (1/8" to 1/4")
Medium	6.4 to 9.53 mm (1/4" to 3/8")
Thick	Greater than 9.53 mm (3/8")

C. Workmanship. The cushioning material shall be free from cracks, cuts, holes, chafed spots, or other imperfections which might impair its usefulness. It shall be free from dirt, contamination, mold release compounds, or other foreign matter. Rolls and perforated rolls shall be evenly wound. Sheets shall be evenly stacked.

### 3. QUALITY ASSURANCE:

A. Sampling for Examination and Testing. Cushioning material and shipping containers shall be sampled in accordance with MIL-STD-105. A lot shall consist of all cushioning material manufactured by the same process from the same components at the same time, or of all fully prepared shipping containers presented for inspection at the same time, as applicable. Unless otherwise specified, every lot shall be tested.

B. Examination of the end item for dimensions and workmanship. Lot size shall be expressed in units of rolls, perforated rolls, or sheets of cushioning material, as applicable. The sample unit shall be 1 roll, 1 perforated roll, or 1 sheet. The Inspection Level shall be S-2 and the AQL shall be 2.5 percent defective.

C. Testing. Lot size shall be expressed in units of square feet of cushioning material. The sample unit shall be 0.65 m<sup>2</sup> (7 ft<sup>2</sup>) of cushioning material. The Inspection Level shall be S-1 and the AQL shall be 2.5 percent defective.

(1). Heat Sealability Test. One specimen from each sample unit shall be tested for heat sealability in accordance with Method 2024 of FED-STD-101. The procedure for sheet materials shall be used and the specimen shall be folded before sealing so that the cells are inside. If the seam opens more than 1.58 mm (1/16"), the specimen fails the heat sealability test.

(2). Creep Test. Sufficient amount of  $13.3 \pm 0.64 \times 13.3 \pm 0.64$  cm ( $5 \pm 1/4" \times 5 \pm 1/4"$ ) squares of cushioning material to make a stack not less than 5 cm (2.0") high shall be cut from randomly selected areas of each sample unit in a manner which will provide the maximum number of closed air cells. The cushioning material shall be interleaved with pieces of pressboard 0.61 - 0.91 mm (0.024" - 0.036") thick and approximately 13.8 x 13.8 cm (5-1/2" x 5-1/2") in size. The squares of cushioning material shall be arranged so that each cell is directly over the corresponding cell in the square below. This stack of cushioning material interleaved with pressboard shall be placed on a rigid horizontal platform not less than 15 x 15 cm (6" x 6"). An adjustable weight with a even, level, rigid, bottom surface measuring approximately 14 x 14 cm (5-1/2" x 5-1/2") shall be centered on the stack so that the bottom of the weight is in contact with the top of the stack. The weight shall be adjusted to provide a pressure of 0.62 to 0.76 kPa (0.09 to 0.11 psi) on the cushioning material. After  $60 \pm 5$  minutes, the vertical distance between the bottom surface of the weight and the horizontal platform shall be measured at each of the 4 corners of the stack with an instrument capable of measuring 0.25 mm (0.01"). The measurements shall be taken carefully so as not to disturb the stack. These 4 measurements shall be averaged to determine the initial stack height. The initial stack height, minus the total thickness of the interleaving sheets, divided by the number of pieces of cushioning material in the stack, yields the initial thickness or cell height. The weight shall be kept on the stack for a total of  $168 \pm 2$  hours, then the distance between the bottom surface of the weight and the horizontal platform shall be measured again and the final thickness determined in the same manner as the initial thickness. The final thickness shall be not less than 80 % of the initial thickness.

(3). Deflation Test. A specimen containing at least 100 cells shall be cut from each sample unit and examined for deflated cells. Any deflated cells found shall be marked. Not more than 5 percent of the cells shall be deflated. If no more than 5 percent deflated cells are found, the specimen shall be placed in a vacuum vessel and the vessel evacuated to a pressure of  $45.7 \pm 2.5$  cm ( $18 \pm 1"$ ) of mercury for 5 minutes. The pressure shall then be returned to ambient and the test specimen examined for unmarked cells which were deflated by the reduced pressure. Not more than 10 % of the unmarked cells shall be deflated.

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(4). Contact Corrosivity Test. Every 24 month, or whenever there is a change in manufacturing process or materials, if less than 24 month, two specimens from each sample unit shall be tested for contact corrosivity on aluminum panels as specified by Method 3005 of FED-STD-101. The solvent cleaning procedure specified by ASTM D 3330 may be used to clean the panels after finishing with abrasives instead of the solvent cleaning procedure specified by Method 3005. One specimen from each sample unit shall be tested bubble side down and 1 specimen bubble side up. No corrosion shall be visible on the surface of any test panel at the end of the exposure period.

(5). Low Temperature Flexibility Test. Every 12 months, or whenever there is a change in manufacturing process or materials, if less than 12 month, the cushioning material shall be tested for low temperature flexibility. One specimen measuring  $10.8 \pm 0.64 \times 31.1 \pm 0.64$  cm ( $4 \pm 1/4" \times 12 \pm 1/4"$ ) shall be cut from each of 4 rolls or 4 sheets of cushioning material. Two specimens shall have the 30.5 cm (12") dimension parallel to the length of the roll or sheet and 2 specimens shall have the 30.5 cm (12") dimension perpendicular to the length of the roll or sheet. Condition all the specimens and a round, 0.64 cm (1/4"), steel mandrel for at least 3 hours at  $-29 \pm 1.1^{\circ}\text{C}$  ( $-20 \pm 2^{\circ}\text{F}$ ) in a manner which allows circulation of air against both surfaces of the cushioning material. When conditioning is complete, without removing the cushioning material or the mandrel from the conditioned area, bend each specimen around the mandrel through an angle of  $180^{\circ}$ , with the bubble side facing up, at a rate such that bending takes 2 to 3 seconds. Continue conditioning the cushioning material and the mandrel for an additional 3 hours, then bend the pieces around the mandrel again in the same manner they were bent previously, except that the bubble side shall face down. The cushioning material shall show no cracks, tears, or separation.

4. REGULATORY REQUIREMENTS: The contractor shall certify that the material used contains a minimum of 30 % recycled plastic, including a minimum of 15 % post consumer recovered plastic. The Government reserves the right to require proof of such conformance prior to first delivery, and thereafter as may be otherwise provided for under the provisions of the contract.

5. PACKAGING, PACKING, AND MARKING: Shall be as specified in the contract or purchase order.

6. **REFERENCED DOCUMENTS:** The issues of the referenced documents in effect on the date of the solicitation for offers or request for proposals shall be used to determine conformance with the requirements of this Commercial Item Description.

A. Federal Standard

FED-STD-101 - Test Procedures for Packaging Materials

Copies of Federal specifications, standards, and commercial item descriptions may be obtained through the Congressional Sales Office, U.S. Government Printing Office, Washington, DC 20402.

Federal Government Activities may obtain copies of Federal standardization documents and the Index of Federal Specifications, Standards and Commercial Item Descriptions from established distribution points in their agencies.

B. Military Standard

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes

MIL-STD-105 is available from the Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

C. Other Publications

ASTM D-3330 - Standard Test Methods for Peel Adhesion of Pressure Sensitive Tape at 180° Angle

ASTM D-3330 is available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

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7. ORDERING DATA: Purchasers shall specify the following in the contract or purchase order.

- (a). Whether rolls, perforated rolls, or sheets are required.
- (b). Nominal cushioning thickness required.
- (c). Length and width required.
- (d). Distance between rows of perforations, when perforated rolls are specified.
- (e). Packaging, packing, and marking required.

MILITARY INTERESTS:

PREPARING ACTIVITY:

Military Coordinating Activity

GSA-FSS

Army - GL

Custodians

Army - GL

Navy - AS

Air Force - 69

Review Activities

Army - AR, AV, MD, MI

Navy - CG

Air Force - 84, 99