

[INCH-POUND]

PPP C-1842B

February 11, 1992

SUPERSEDING

PPP C-1842A

March 3, 1975

## FEDERAL SPECIFICATION

CUSHIONING MATERIAL, FLEXIBLE OPEN CELL PLASTIC FILM  
(FOR PACKAGING APPLICATIONS)

This Federal Specification, prepared by the General Services Administration, Office Supplies and Paper Products Commodity Center, Engineering Branch, New York, NY 10278., was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

## 1. SCOPE AND CLASSIFICATION

1.1. Scope. This specification covers flexible, open cell, heat sealable, noncorrosive, plastic film for use in cushioning and wrapping applications.

1.2. The material covered by this specification shall be of the following Types, Classes, Styles and Grades, as specified below and 6.2.

Type I - For cushioning applications, nominal thickness is not less than 1/4 inches

Type II - For wrapping applications, nominal thickness is less than 1/4 inches

Style A - Perforated

Style B - Nonperforated

Class 1 - Without reinforcing top film

Class 2 - With reinforcing top film

Grade A - Regular

Grade B - Static dissipative

Grade C - Fire retardant

## 2. APPLICABLE DOCUMENTS

2.1. The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

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

FIC 3135

PPP-C-1842B

Federal Specifications:

PPP-B-636 - Boxes, Shipping, Fiberboard.  
PPP-B-1055 - Barrier Material, Waterproofed, Flexible.  
PPP-T-60 - Tape: Packaging, Waterproof.  
QQ-S-698 - Steel, Sheet and Strip, Low Carbon.  
TT-T-291 - Thinner, Paint, Mineral Spirits, Regular and  
Odorless.

Federal Standards:

Fed. Test Method Std. No. 101 - Test Procedures for Packaging  
Materials.

Fed. Std. No. 123 - Marking for Domestic Shipment (Civil  
Agencies).

Fed. Std. No. 313 - Material Safety Data, Transportation Data  
And Disposal Data For Hazardous Materials  
Furnished To Government Activities.

Activities outside the Federal Government may obtain copies of  
Federal Specifications, Standards, and Handbooks as outlined under  
General Information in the Index of Federal Specifications and  
Standards and at the prices indicated in the index. The Index,  
which includes cumulative monthly supplements as issued, is for  
~~sale on a subscription~~ basis by the Superintendent of Documents,  
U.S. Government Printing Office, Washington, DC 20402.

Single copies of this specification, and other Federal  
specifications and commercial item descriptions required by  
activities outside the Federal Government for bidding purposes are  
available without charge from General Services Administration  
Business Service Centers in Boston, MA; New York, NY; Philadelphia,  
PA; Washington, DC; Atlanta, GA; Chicago, IL; Kansas City, MO; Fort  
Worth, TX; Houston, TX; Denver, CO; San Francisco, CA; Los Angeles,  
CA; and Seattle, WA.

Federal Government activities may obtain copies of Federal  
Specifications, Standards, and Handbooks and the Index of Federal  
Specifications and Standards from established distribution points  
in their agencies.

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection  
by Attributes.  
MIL-STD-129 - Marking for Shipment and Storage.

Copies of military specifications and standards required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.

**Laws and Regulations:**

29 CFR 1910 - Occupational Safety and Health Standards

Application for copies should be addressed to the Department of Health, Education, and Welfare, 330 Independence Avenue, S.W., Washington DC, 20003.

2.2. Other publications. The following documents form a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

- ASTM B 209 - Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate
- ASTM D 257 - Standard Test Methods for D-C Resistance or Conductance of Insulating Materials
- ASTM D 1596 - Standard Test Method for Shock Absorbing Characteristics of Package Cushioning Materials.
- ASTM D 2221 - Standard Test Method for Creep Properties of Package Cushioning Materials.
- ASTM D 3951 - Standard Practice for Commercial Packaging
- ASTM D 4727 - Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes
- ASTM E 162 - Standard Test Method for Surface Flammability of Materials Using A Radiant Heat Energy Source.
- ASTM E 662 - Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials.

ASTM Methods are available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

PPP-C-1842B

### 3. REQUIREMENTS

3.1. Construction. The material shall be constructed of flexible plastic film with uniformly distributed open cells. Class 2 material shall have an additional reinforcing layer of plastic film. The material shall be sufficiently transparent to permit reading of 10-point type through a single layer of material when held directly behind and touching the material.

3.1.1. Chlorofluorocarbon and Halon. The manufacturing processes for the material shall be chlorofluorocarbon (CFC) and halon free. Material Safety Data Sheets (MSDS) indicating conformance shall be provided. (See 3.1.3).

3.1.2. Use of Carcinogenic Agents. The use of carcinogenic agents in the manufacture/fabrication of fire retardant packaging materials in a concentration of greater than 0.1% is prohibited (see 6.5). Material Safety Data Sheets (MSDS) indicating conformance shall be provided. (See 3.1.3).

3.1.3. Material Safety Data Sheets. The contracting activity shall be provided a Material Safety Data Sheet (MSDS) prior to contract award. The MSDS shall be prepared and submitted in accordance with FED-STD-313 and 29 CFR 1910.1200. In the event of a conflict, 29 CFR 1910.1200 shall take precedence. The MSDS shall be included with each shipment covered by this document. (see 6.4)

3.2. Form. The material shall be furnished in continuous length rolls or sheets, in nominal thicknesses, as specified (see 6.2). When specified (see 6.2), the rolls or sheets shall be perforated, Style A, at specified distances.

3.3. Dimensions. Rolls and perforated rolls shall be not less than the specified length. The width shall be as specified, with a tolerance of  $\pm 1/4$  inch. When Style A is specified, the perforations shall be not more than  $1/4$  inch apart and of a size such that the material can be easily separated at the perforations. The tolerance for the distance between the rows of perforations in Style A material shall be  $\pm 1/4$  inch.

3.3.1. Thickness. The thickness of the material shall be as specified (see 6.2), with the tolerance of  $\pm 0.03$  inches, and when tested as specified in 4.2.3.1. The material used for cushioning applications, Type I, shall have a nominal thickness of not less than  $1/4$  inch thick (see 6.2). The material used for wrapping applications, Type II, shall have a nominal thickness less than  $1/4$  inch (see 6.2).

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

3.5. Shelf Life. The manufacturer is required to provide test data and to certify that after 36 month of storage under normal warehouse conditions (temperature 45°F to 120°F and 20% to 90% relative humidity), the Grade B material having the same nomenclature and manufactured under comparable conditions will be able to pass the electrostatic decay time and the surface resistivity tests of paragraphs 3.6.8 and 3.6.9 respectively.

3.6. Physical Properties. The material shall pass the applicable requirements specified below.

3.6.1. Heat Sealability. The heat seal shall not separate or open more than 1/16 inch when tested as specified in 4.2.3.2.

3.6.2. Contact Corrosivity. After an exposure period of twenty (20) hours, the assemblies shall be removed. Presence of corrosion, pitting and/or etching in the contact area shall be cause for rejection when tested as specified in 4.2.3.3. Corrosion in the intermediate area shall not invalidate the test or be cause for rejection.

3.6.3. Low Temperature Flexibility. The material shall show no cracks, tears, or separation when tested as specified in 4.2.3.4.

3.6.4. Abrasion. The surface of the panel shall show no scratches caused by the movement of the material across the panel when the panel is examined under 10 X magnification when tested as specified in 4.2.3.5.

3.6.5. Compression Set (Type I). The thickness of each sample stack after compression shall be not less than 85 percent of initial thickness when tested as specified in 4.2.3.6.

3.6.6. Blocking. Blocking is the non-separation of materials following two minutes of testing in accordance with 4.2.3.7. There shall be no blocking when tested as specified in 4.2.3.7.

3.6.7. Creep (Type I). The creep shall be not more than 10 percent when tested after 7 days, and as specified in 4.2.3.8.

PPP-C-1842B

3.6.8. Electrostatic Decay Time (Grade B). The electrostatic decay time shall be not more than 2.0 seconds when tested as specified in 4.2.3.9.

3.6.9. Surface Resistivity (Grade B). The surface resistivity, expressed to 3 significant figures, shall be not less than  $1.00 \times 10^5$  ohms per square and not more than  $1.00 \times 10^{12}$  ohms per square when tested as specified in 4.2.3.10.

3.6.10. Flame Spread (Grade C). A flame spread index shall be not more than 10 when tested in accordance with 4.2.3.11.

3.6.11. Smoke Density (Grade C). A specific optic density shall be not more than 45 when tested in accordance with 4.2.3.12.

3.6.12. Dynamic Cushioning (Type I). The dynamic cushioning curves for Class 1 and 2 materials shall lie between the upper and lower curves as shown in FIG. 1 of 4.2.3.13, when tested as specified in 4.2.3.13.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1. Responsibility for Inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.1.1. Certificate of Compliance. When certificates of compliance are submitted, the Government reserves the right to check such items to determine the validity of the certification.

4.2. Sampling. Samples shall be selected for inspection in accordance with MIL-STD-105, using the plans described in Table I. A lot shall consist of a number of sample units manufactured by the same process from the same components at the same time. Random samples shall be drawn from each lot for the end item inspection. Unless otherwise specified, every lot shall be tested.

TABLE I

Inspection Type	AOL (%) Defective	Inspection Level	Sample Unit	Requirement Paragraph	Inspection Paragraph
Construction & Workmanship	2.5	S-2	1 Roll or 5 Sheets	3.1 3.4	4.2.1
Dimensions	2.5	S-2	1 Roll or 5 Sheets	3.3	4.2.1.1
Physical Properties	1.5	S-1	30 square feet	3.6	4.2.3
Preparation for Delivery	4.0	S-2	1 shipping container	5	4.2.2

4.2.1. Examination for construction and workmanship.

<u>Examine</u>	<u>Defects</u>
Construction	Material not uniform. No reinforcing layer for Class 2 material. Material not sufficiently transparent (see 3.1). Not conforming to 3.1.1., & 3.1.2.
Workmanship	Material contains cracks, cuts, holes, chafed spots, dirt, mold release compound, contamination or other foreign matter. Rolls not evenly wound. Sheets not evenly stacked.

4.2.1.1. Examination for dimensions.

<u>Examine</u>	<u>Defects</u>
Dimensions	Length of roll not as specified. Width tolerance is more than $\pm 1/4$ inch. Perforations are more than $1/4$ inch apart and are not easily separated. Tolerance between the rows of perforations is more than $\pm 1/4$ inch. The thickness tolerance is more than $\pm 1/32$ inches. Thickness for cushioning application is less than $1/4$ inch. Thickness for wrapping application is $1/4$ inch or more.

PPP-C-1842B

4.2.2. Examination of preparation for delivery.

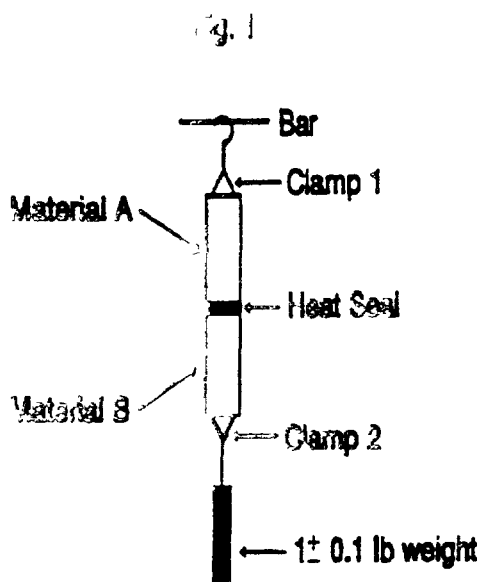
<u>Examine</u>	<u>Defects</u>
Markings	Omitted, incorrect, illegible, improper size, location, sequence or method of application.
Materials	Component missing or damaged.
Workmanship	Bulging or distortion of container.
Contents	More or less than required.
Containers	Not as specified.

4.2.3. Physical properties.

4.2.3.1. Thickness Test. Thickness of the material shall be measured, to verify the compliance with specified nominal thickness, as specified by ASTM D 2221 using the load of  $0.025 \pm 0.005$  psi. If more than one piece of material is used, the thickness shall be the measured thickness of the stack divided by the number of pieces used.

4.2.3.2. Heat Sealability Test (seam strength). One  $(6 \times 6) \pm 1/4$  inch specimen from each sample unit shall be tested. Class 2 material shall be folded before sealing so that the reinforcing film is on the outside. Seal opposite edges together to form a sleeve using the sealing conditions recommended by the manufacturer of the material. Allow the material to cool for not less than one hour, then cut a  $1 \pm 1/16$  inch wide strip from the middle of each sleeve so that a loop is formed with a 1 inch wide heat seal at the end. Cut each loop opposite the seal to form a strip approximately  $1 \times 6$  inch with a 1 inch wide heat seal in the middle of the strip. Clamp one end of the strip not less than 12 inches above a horizontal surface. Attach a  $1.0 \pm 0.1$  pound weight to the opposite end of the strip so that the weight acts evenly across the width of the strip. Allow the weight to hang free for not less than 5 minutes, supported by the strip of heat sealed material. Examine the heat seal. (see Fig. 1)





Procedure Indicating Testing for Heat Seal Strength

4.2.3.3. Contact Corrosivity Test. At least every 6 months, or whenever the manufacturing process changes, if less than 6 months, the cushioning material shall be tested for contact corrosivity.

**Materials:**

Steel test panels: Three 2x4x1/16 to 1/8 inches panels of cold rolled, composition 5, steel conforming to QQ-S-698 shall be hand polished with 240 grit aluminum oxide to a surface roughness of 6-1/2 micro inches Root-Mean-Square (RMS). After polishing, panels shall be cleaned with surgical gauze and then scrubbed in a breaker of hot mineral spirits, conforming to TT-T-291, type I, with 95 percent methanol and boiling absolute methanol. Specimens shall be allowed to dry and then stored in a desiccator until ready to use. If storage of more than 24 hours occurs, surface preparations shall be repeated, starting with polishing.

Mounting Bar: Three, 3x1x1 inches steel bars.

Specimens: Three, 2x3 inches strips of cushioning material.

Glass slides: Three, 3x1 inches non-corrosive microscope slides.

Desiccator: Approximately 250 millimeters (mm) in diameter with plate. Plate shall be fitted with a single control support to facilitate handling.

**Preparation of test assemblies:**

Each 2x3 inch specimen of cushioning material shall be placed on a clean flat surface. The surface of the specimens shall be cleaned

PPP-C-1842B

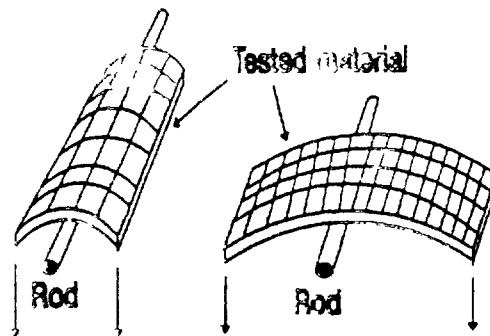
with surgical gauze moistened with methanol and wiped dry with clean, surgical gauze. The specimens shall immediately be inverted onto the test panel with blister face down. A mounting bar shall be centered on top of each specimen with the longitudinal center-line of the bar coinciding with that of the specimen. The position of the specimen and mounting bar shall be marked with a lead pencil to differentiate contact or test area and the intermediate areas from the remaining control areas of the test panel which shall serve as blank.

**Procedure:**

The test assemblies shall be placed on a clean desiccator plate with attached handle and conditioned for 1/2 hour in an oven maintained at  $150^{+20}$ F. At the end of this period, the plate with the test assemblies shall be rapidly transferred to the desiccator containing 500 milliliters (ml) of a synthetic glycerine-water solution having a specific gravity of 1.173 at  $75^{+30}$ F. To maintain a relative humidity of  $65^{+5}$ % at  $120^{+0}$ F, the desiccator shall be sealed and immediately placed in a circulating oven maintained at  $120^{+20}$ F. After an exposure period of 20 hours, the assemblies shall be removed and examined for corrosion, etching, or pitting in the contact area. Corrosion in the intermediate area shall not invalidate the test nor be cause for rejection.

4.2.3.4. Low Temperature Flexibility Test. At least every 12 months, or whenever the manufacturing process changes, if less than 12 months, the cushioning material shall be tested for low temperature flexibility. One specimen measuring  $(4 \times 12)^{\pm 1/4}$  inches shall be cut from each of 4 rolls. Two specimens shall have the 12 inch dimension parallel to the length of the roll or sheet and 2 specimens shall have the 12 inch dimension perpendicular to the length of the roll or sheet. Condition all the specimens and a round, 1/4 inch, steel mandrel for at least 3 hours at  $-20^{+20}$ F in a manner which allows circulation of air against both surfaces of the material. When conditioning is complete, without removing the material or the mandrel from the conditioned area, bend each specimen around the mandrel through an angle of  $180^{\circ}$ , at a rate such that bending takes 2 to 3 seconds. Continue conditioning the 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 opposite side of the material shall face the mandrel (see Fig. 2)

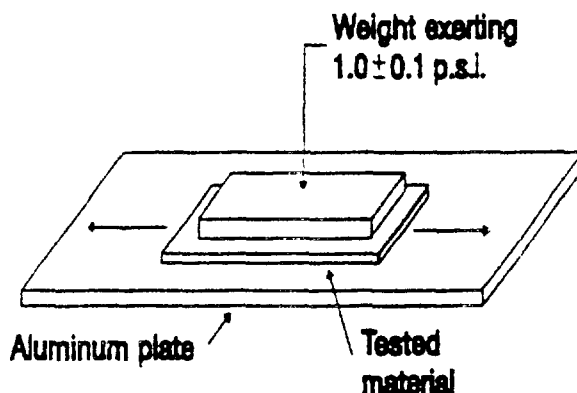
Fig. 2



### Procedure Indicating Testing for Low Temperature Flexibility

4.2.3.5. Abrasion Test. At least every 12 months, or whenever the manufacturing process changes, if less than 12 months, the cushioning material shall be tested for abrasion. One specimen of any convenient size shall be cut from each of 4 rolls and placed on an aluminum panel conforming to ASTM B 209, Alloy 2024, Temper 0. The panel shall be wider than the material and long enough to permit the material to be pulled along the panel for 6 inches. A weight exerting  $1.0 \pm 0.1$  psi., shall be placed on top of the material, then the weighted material shall be pulled  $6.0 \pm 0.5$  inches back and forth along the panel for 30 cycles at an approximate speed of 1 foot (1 cycle) per second. The weight shall then be removed and the material reversed so that the opposite side contacts the aluminum panel. The weight shall be replaced and the material pulled across the panel above for an additional 30 cycles. (see Fig. 3)

Fig. 3



Procedure Indicating Testing for Abrasion

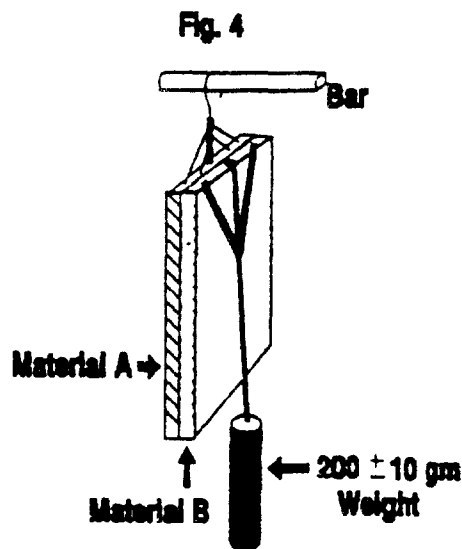
4.2.3.6. Compression Set Test. At least every 12 months, or whenever the manufacturing process changes, if less than 12 months, the cushioning material shall be tested for compression set. Enough  $(5 \times 5)^{\pm 1/4}$  inch squares of material to make a stack as close to 1.0 inch high as possible shall be cut from each of 4 rolls of material. The original thickness of each stack shall be determined as specified in paragraph 4.2.3.1 above. Each stack shall be compressed to  $50^{\pm 5\%}$  of the original thickness and maintained at normal room temperature, in this condition, for not less than 2 hours. After 2 hours, the material shall be removed from the compression apparatus. Three minutes later, after the pressure has been removed, the thickness of each stack shall be measured as specified in 4.2.3.1 above.

4.2.3.7. Blocking Test. At least every 12 months, or whenever the manufacturing process changes, if less than 12 months, the cushioning material shall be tested for blocking. Identical tests shall be conducted on four rolls of cushioning material. The apparatus to be used in this test shall be the static load box or comparable equipment described in ASTM D 2221. Each test unit shall include three sets of cushioning and resilient pads. Each set shall contain a resilient pad  $(4-1/2 \times 4-1/2 \times 3/16)^{\pm 1/16}$  inch and two squares of cushioning material  $5^{+1/4} \times 5^{\pm 1/4}$  inches. The resilient pad shall have a Durometer hardness of  $A60^{\pm 2}$  and shall have finished edge dimensions  $1/2$  inch smaller than the cushioning material. The pad of the first set shall be placed on the inside bottom of the outer box of the apparatus. Two squares of cushioning material shall be placed over the pad and centered

thereon. A stack of three sets shall be assembled vertically. Each set shall be separated from the lower set by a resilient pad. The inner box shall be loaded with a weight which will exert a pressure of  $1.0^{+0.1}$  psi on the cushioning material and the assembly shall be placed in an oven at  $150^{+20}F$  ( $65.5^{+1.1}C$ ) for 24 hours. The assembly shall then be dismantled and the pieces of cushioning material examined for blocking.

If partial or complete blocking (sticking) occurs between the faces of two adjacent squares of cushioning material, an attempt shall be made to separate them during a two minute interval. Clasp the top edge of material A and hang vertically. Clasp the adjacent edge of material B and hang a  $200 \pm 10$  gram weight to the clamp of material B. This will usually result in the peeling of the squares during a two minute interval.

If after two minutes, the pieces do not separate, the material shall be considered blocked. (see Fig. 4 below).



#### Procedure Indicating Testing for Blocking

4.2.3.8. Creep Test. At least every 12 months, or whenever the manufacturing process changes, if less than 12 months, the cushioning material shall be tested for creep as specified by ASTM D 2221. Separate determinations shall be made on each of 4 rolls of cushioning material. The load shall be  $0.25^{+0.005}$  psi.

PPP-C-1842B

4.2.3.9. Electrostatic Decay Time Test. At least every 12 months, or whenever the manufacturing process changes, if less than 12 months, the material shall be tested for electrostatic decay time as specified in Fed. Test Method Std. No. 101, method 4046, except that the 12 days oven test and the 24 hour water shower are not required. All samples shall be conditioned for a minimum of 24 hours at  $73 \pm 5^\circ\text{F}$  ( $22.8 \pm 2.8^\circ\text{C}$ ), and  $50 \pm 5$  percent humidity, before placing in the desiccating chamber.

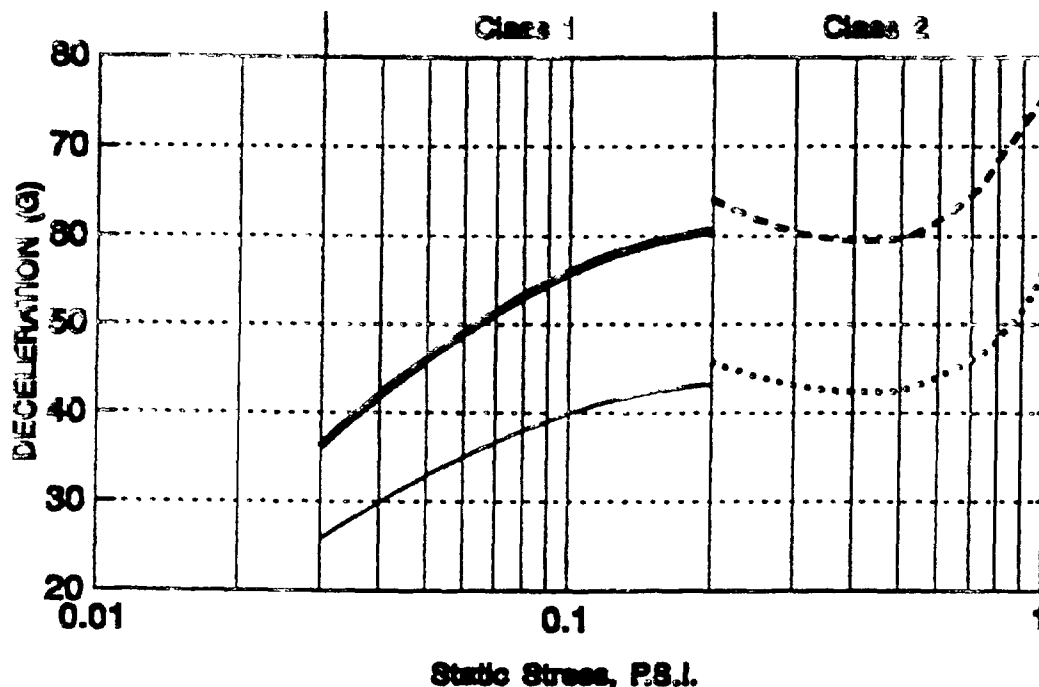
4.2.3.10. Surface Resistivity Test. At least every 12 months, or whenever the manufacturing process changes, if less than 12 months, the material shall be tested for surface resistivity as specified in ASTM D 257.

4.2.3.11. Flame Spread Test. At least every 12 months, or whenever the manufacturing process changes, if less than 12 months, the cushioning material shall be tested for flame spread as specified by ASTM E 162.

4.2.3.12. Smoke Density Test. At least every 12 months, or whenever the manufacturing process changes, if less than 12 months, the cushioning material shall be tested for smoke density as specified by ASTM E 662.

4.2.3.13. Dynamic Cushioning Test. At least every 12 months, or whenever the manufacturing process changes, if less than 12 months, the cushioning material shall be tested for the dynamic cushioning properties as specified by ASTM D 1596. Density and dynamic set need not be tested. Material measuring  $8 \frac{1}{8}$  inches square shall be plied up to form a stack of  $2 \frac{1}{8}$  inch. The deceleration (G) shall be recorded for drops 2-5 and the impact velocity shall be  $136 \pm 4$  in/sec. Four stacks of material shall be tested at varying static loads. Class 1 material shall be tested at static loads of:  $0.030 \pm 0.005$ ,  $0.050 \pm 0.007$ ,  $0.080 \pm 0.010$ ,  $0.160 \pm 0.015$  psi. Class 2 material shall be tested at static loads of  $0.25 \pm 0.05$ ,  $0.40 \pm 0.06$ ,  $0.60 \pm 0.08$ ,  $0.90 \pm 0.10$  psi. (see Fig. 5)

**FIG. 5**  
**DYNAMIC CUSHIONING CURVES (TYPE I MATERIAL)**  
**2.5 Drop Average, 2-inch thick, 24-inch Drop**



— LOWER LIMIT, Class 1 — UPPER LIMIT, Class 1  
 ... LOWER LIMIT, Class 2 -- UPPER LIMIT, Class 2

## 5. PREPARATION FOR DELIVERY

5.1. Packaging shall be level A, or Commercial, as specified (see 6.2).

### 5.1.1. Level A.

5.1.1.1. Rolls. Each roll shall be evenly wound on a core with a minimum inside diameter of 3 inches and restrained from unwinding or telescoping. The rolls shall be completely wrapped with material conforming to PPP-B-1055. The wrap shall be sealed and secured with tape conforming to PPP-T-60.

5.1.1.2. Sheets. Sheets shall be bundled in quantities as specified (see 6.2). Fiberboard pads conforming to Type CF, Class Domestic, Variety SW, Grade Optional of ASTM D 4727, shall be placed on top and bottom of each bundle. Bundles shall be wrapped and sealed as specified for rolls in 5.1.1.1.

PPP-C-1842B

5.1.2. Commercial. Rolls or sheets shall be packaged in accordance with ASTM D 3951.

5.2. Packing. Packing shall be level B, or Commercial, as specified (see 6.2).

5.2.1. Level B.

5.2.1.1. Rolls or sheets. Rolls or sheets, shall be packed in boxes conforming to PPP-B-636, Class Weather Resistant, Grade V2s, Style RSC. Closure shall be in accordance with the appendix to the box specification.

5.2.2. Commercial. Rolls or sheets packaged as specified in 5.1.2 shall be packed in accordance with ASTM D 3951.

5.3. Marking.

5.3.1. Civil agencies. In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with FED-STD-123.

5.3.2. Military requirements. In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1. Intended use. The materials described, are intended for use within packages. Transparent materials are especially suitable for use in inserts within transparent bags and envelopes to permit inspection of the contents. The materials are also used as bags, wraps, dunnage and as filler. Maximum transparency is obtained when use is limited to one thickness.

6.2. Ordering data. Purchasers should select the preferred options permitted herein, and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type, style, class and grade required (see 1.2)
- (c) Distance between rows of perforations when Style A is required. (see 3.3)
- (c) Whether material is intended for cushioning or wrapping application (see 3.3.1)
- (d) Nominal thickness required (see 3.3)
- (e) Form required (see 3.2)
- (f) Length and width required (see 3.3)
- (g) Unit of issue.



- (h) Level of packaging and packing required (see 5.1, 5.2)
- (i) Marking required (see 5.3)
- (j) Unit of issue, when commercial packaging and packing is specified (see 5.1, 5.2)

6.2.1. Item Identifiers/Reference Part Number System  
(for cataloging use only)

PPPC1842 - 2 8 1 A This example describes a perforated, static dissipative, cushioning material with reinforcing top film and the nominal thickness of not less than 1/4 inches.

- Type I - For cushioning applications, nominal thickness is not less than 1/4 inches
- Type II - For wrapping applications, nominal thickness is less than 1/4 inches
- Style A - Perforated
- Style B - Nonperforated
- Class 1 - Without reinforcing top film
- Class 2 - With reinforcing top film
- Grade A - Regular
- Grade B - Static dissipative
- Grade C - Fire retardant

6.3. Supersession data. This revision of PPP-C-1842 supersedes PPP-C-1842A(3) which has been in effect since August 17, 1977. All documents and drawings referencing PPP-C-1842A(3) should be reviewed to determine what Type, Style, Class and Grade of PPP-C-1842B is applicable. The principal changes are:

- (a) Elimination of requirements for Hexagonal and Fluted cell configurations for cushioning material as prescribed in Type I, II, & III of PPP-C-1842A. Type I of PPP-C-1842B, describes a material of 1/4 or more inches thick to be used for cushioning. Type II of PPP-C-1842B, describes a material of less than 1/4 inch thick to be used for wrapping.
- (b) Replacement of Style A & B of PPP-C-1842A with Class 1 & 2 of PPP-C-1842B. Style A in PPP-C-1842B describes a perforated material with distance between the rows of perforations at the option of the procuring activity. Style B of PPP-C-1842B describes a nonperforated material.
- (c) Incorporation of Grade A-Regular, Grade B-Static dissipative, and Grade C-Fire retardant material into PPP-C-1842B.

OPP-C-1842B

6.4. Material Safety Data Sheets. Contracting officers will identify those activities requiring copies of completed MSDS prepared in accordance with FED-STD-313 and 29 CFR 1910.1200. The pertinent Government mailing addresses for submission of data sheets are listed in Appendix B of FED-STD-313.

6.5. Carcinogen. A carcinogen is defined as chemical appearing on one or more of the following source documents: Occupational Safety and Health Administration regulated carcinogens list, National Toxicology Program list, International Agency for Research on Cancer lists 1, 2A or 2B.

6.5.1. Precautions in Handling. Certain individuals may experience adverse reactions of a respiratory, dermatological, or other nature or be sensitive to ingredients used in the manufacture/fabrication of some fire retardant packaging materials. Problems or adverse effects resulting or suspected from handling these materials should be referred to the local Medical Department for appropriate follow-up. Safety concerns should be referred to the local Safety Office for review. Questions regarding specific packaging material may be referred to the Navy Environmental Health Center, Code 34B, Norfolk, VA. The following precautions during handling are recommended:

6.5.1.1. Cotton gloves should be worn. Gloves should be changed at the end of the workshift, and laundered before reuse or discarded. Gloves should be changed more frequently if they fail to provide protection against skin contamination during the workday.

6.5.1.2. Good general ventilation should be provided to ensure that significant airborne levels of dust from fire retardant packaging materials do not accumulate in work areas. Questions should be referred to the local Industrial Hygienist for review. If dust generation is unavoidable, a National Institute for Occupational Safety and Health/Mine Safety and Health Administration approved respirator, selected based on the exposure of concern, must be provided and used. Contact the local Industrial Hygienist for specific guidance pertaining to request for training and use of approved respirators.

PPP-C-1842B

MILITARY INTERESTS

PREPARING ACTIVITY

Military Coordinating Activity

GSA-FSS

Army - GL

Custodians:

Air Force - 69

Army - GL

Navy - SA

Review Activities:

Air Force - 99

Army - SM

Navy - AS

User activities:

Army - AV, EL, ME, WC