

PPP-B-15C
 June 6, 1975
 SUPERSEDING
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 April 18, 1968

FEDERAL SPECIFICATION

BAGS AND ENVELOPES, CELLOPHANE, FOR PACKAGING

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration for use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the fabrication of cellophane bags and envelopes for use in protective packaging (see 6.1).

1.2 Classification.

1.2.1 Styles, types, and classes. This specification covers the following styles, types, and classes of bags and envelopes, as specified (see 6.2 and 6.3).

- | | | |
|---------|---|---|
| Style A | - | Bags and envelopes, flat |
| Style B | - | Bags, square |
| Style C | - | Bags, satchel bottom |
| Type I | - | Nonheat sealing |
| Class 1 | - | Noncoated |
| Class 2 | - | Both sides coated with cellulose nitrate |
| Class 3 | - | Both sides coated with cellulose nitrate, water resistant |
| Type II | - | Heat sealing |
| Class 1 | - | Both sides coated with cellulose nitrate, intermediate water vapor permeability |
| Class 2 | - | Both sides coated with cellulose nitrate, low water vapor permeability |
| Class 3 | - | Both sides coated with cellulose nitrate water resistant, intermediate water vapor permeability |
| Class 4 | - | Both sides coated with cellulose nitrate, water resistant, low water vapor permeability |
| Class 5 | - | Both sides coated with synthetic resins, water resistant, low water vapor permeability |

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- Class 6 - One side coated with cellulose nitrate or synthetic resin, water resistant, intermediate water vapor permeability
- Class 7 - One side coated with cellulose nitrate or synthetic resin, water resistant, low water vapor permeability

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:

Federal Specifications:

- L-C-110 - Cellophane (Coated and Noncoated Regenerated Cellulose Film)
- PPP-B-566 - Boxes, Folding, Paperboard
- PPP-B-636 - Boxes, Shipping, fiberboard
- PPP-B-676 - Boxes, Setup

Federal Standard:

- FED-STD-123 - Marking for Domestic Shipment (Civil Agencies)

(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 required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles, 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 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

U. S. Postal Service Manual

(Copies of the manual may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.)

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:

U. S. Department of Health, Education and Welfare

Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder

(Applications for copies should be addressed to the Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.)

National Motor Freight Traffic Association, Inc., Agent

National Motor Freight Classification

(Application for copies should be addressed to the American Trucking Associations Inc., Tariff Order Section, 1616 P Street, N. W., Washington, DC 20036.)

Uniform Classification Committee, Agent

Uniform Freight Classification

(Application for copies should be addressed to the Uniform Classification Committee, Room 1106, 222 South Riverside Plaza, Chicago, IL 60606.)

(Technical society and technical association specifications and standards are generally available for reference from libraries. They are also distributed among technical groups and using Federal agencies.)

3. REQUIREMENTS

3.1 Materials. The cellophane bags and envelopes specified herein shall be fabricated from materials conforming to L-C-110, as specified in table I.

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TABLE I. Material for the construction of bags and envelopes

Bag or Envelope		Material Specification L-C-110		
Type	Class	Type	Class	Nominal thickness ^{1/} (mils.)
I	1	I	--	1.6, 1.45, 1.3, 0.9, 0.8
I	2	II	--	1.4, 0.9
I	3	III	--	1.0, 0.9
II	1	IV	1	1.0
II	2	IV	2	1.4, 1.1, 1.0, 0.9, 0.85
II	3	V	1	1.4, 1.0
II	4	V	2	1.4, 1.0
II	5	VI	--	1.9, 1.7, 1.4, 1.1, 1.0, 0.9, 0.8
II	6	VII	1	1.4, 1.0
II	7	VII	2	1.1

^{1/} Tolerance shall be ± 0.1 mil.

3.1.1 Adhesives. The adhesive used for sealing seams and closures of bags and envelopes shall be the type recommended by the supplier for the type of cellophane used. The adhesive used for type I, class 3 shall meet the water resistance test specified in 4.4.2.

3.1.2 Bags in contact with food items. When bags or envelopes are to be used in direct contact with food items they shall conform with the Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder.

3.2 Construction.

3.2.1 Fabrication. Cellophane bags or envelopes shall be formed by placing two sheets of cellophane together, or by folding one sheet of cellophane. The side seams and bottom seam, as applicable, shall be glued or heat sealed (see 1.2.1 and figures I, IA, II and III).

3.2.2 Seams.

3.2.2.1 Glued seams (type I). On glued seams, other than hot melt, there shall be a continuous strip of adhesive as specified in 3.1.1 not less than 1/8 inch from the bag edge. The width of the seam shall be not less than 3/16 inch for bag or envelope face areas of 25 square inches or less, and not less than 1/4 inch for face areas greater than 25 square inches. Side seams shall be parallel to each other, and to the outer edge of the bag. Glued seams shall meet the seam strength requirements in 3.5.3 and type I, class 3 and type II, classes 3, 4, 5, 6 and 7 seams shall meet the delamination requirement of 3.5.4. Hot melt adhesives shall be of a width that will meet the glue seam requirements in table II.

3.2.2.2 Heat sealed seams (type II). Heat sealed seams shall be made at a temperature, dwell time and pressure recommended by the supplier. The width of the seams shall be such as to comply with the seam strength requirement in 3.5.3. Type I, class 3 and type II, classes 3, 4, 5, 6 and 7 seams shall meet the delamination requirement in 3.5.4.

3.3 Lips for type I bags and envelopes. Type I bags or envelopes, other than those with a top flap closure shall have a $1/2 + 1/8$ inch lip at the open end. The lip shall be on the back face of the bag. When specified (see 6.3) styles B and C shall have lips. Lips shall be either straight line or elliptical.

3.4 Dimensions. Bag and envelope dimensions shall be inside measurements, exclusive of seals and seams. Bags and envelopes shall be supplied in the dimensions specified (see 6.3). A plus and minus tolerance of 1/16 inch shall be permitted to the dimensions specified. For bag and envelope styles specified, dimensions are stated as follows:

Bag or envelope style	Dimensions are stated
a. Flat, style A	Face width by length by lip (see figures I and IA)
b. Square, style B	Face width by gusset by length (see figure II)
c. Satchel bottom style C	Width by length by bottom (see figure III)

3.5 Physical requirements.

3.5.1 Thickness of cellophane. The thickness of cellophane shall be as specified in the contract or order (see 6.3).

3.5.2 Area factor of cellophane. The area factor of cellophane shall conform to the applicable requirements of L-C-110.

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3.5.3 Seam strength. Glued and heat sealed seams shall conform to the minimum requirements of table II when tested as specified in 4.4.1.

TABLE II. Seam strength - grams/inch of seam width at 75°F.

Type	Class	Heat seal		Glue Seal 2/	
		35% R.H.	80% R.H.	35% R.H.	80% R.H.
I	1 & 2	--	--	300	--
II	1 & 2	80	--	300	--
I	3	--	--	300	150
II	3 & 4	130	80	300	150
II	5	100	50	300	150
II	6 1/	130	80	300	150
II	7 1/	100	--	300	150

1/ Seals shall be made coated side to coated side.

2/ Glue seals shall be tested not less than five days after bag fabrication.

3.5.4 Water resistance of seams. Type I, class 3, and type II, classes 3, 4, 5, 6, and 7 bags or envelopes shall show no seam delamination when tested as specified in 4.4.2.

3.5.5 Water immersion stability. Materials used to fabricate any style, type I, class 3 and type II, class 5 bags or envelopes shall show no blistering or separation of the coating from the cellulose sheet when tested as specified in 4.4.3. Materials used to fabricate any style, type II, classes 3, 4, 5, and 6 bags or envelopes shall show no evidence of rub off of the coating from the base sheet, but may show pinhead blisters, when tested as specified in 4.4.3.

3.5.6 Water vapor permeability. The water vapor permeability of the material used to fabricate the bags or envelopes (see 1.2.1) shall comply with the requirements of L-C-110 for the type of materials used.

3.6 Workmanship. Cellophane bags and envelopes shall be free from pinholes, tears, cuts, wrinkles, dirt and other foreign materials.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in

the contract or order, the supplier 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. Where certificates of compliance are submitted, the Government reserves the right to test such items to determine the validity of the certification.

4.2 Inspection. Sampling for inspection shall be performed in accordance with MIL-STD-105, except where otherwise indicated hereinafter.

4.2.1 Component and material inspection. In accordance with 4.1 above, components and materials shall be inspected and tested in accordance with all the requirements of referenced specifications, drawings and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable purchase document.

4.3 Inspection of the end item.

4.3.1 Examination of the end item. Examinations shall be in accordance with table IV, 4.3.1.1, 4.3.1.2, and 4.3.1.3. The inspection levels and acceptable quality level (AQL's) shall be as shown in table III. The sample unit for these examinations shall be one bag, or one envelope in table IV, and 4.3.1.1, one interior package in 4.3.1.2 and one shipping container prepared for delivery in 4.3.1.3, as applicable. The lot size, for determining sample size shall be expressed in terms of the sample unit.

TABLE III. Inspection levels and acceptable quality levels (AQL's)

Examination in	Inspection level	AQL's	
		Major	Total
table IV	II	2.5	10
4.3.1.1	S-3	--	6.5
4.3.1.2	S-2	--	--
4.3.1.3	S-2	2.5	--

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TABLE IV. Examination of cellophane bags and envelopes

Defect	Category	
	Major	Minor
Not style, type or class specified (see 1.2.1)	101	
Glue line not continuous strip (see 3.2.2.1)	102	
Less than 1/8 inch from bag edge		201
Less than 3/16 inch wide for bags and envelopes 25 square inches or less (see 3.2.2.1) (except hotmelt)	103	
Less than 1/4 inch in width for bags or envelopes having a face area greater than 25 square inches (see 3.2.2.1) (except hotmelt)	104	
Edge seams not parallel to each other and edges of the bar or envelope (see 3.2.2.1)		202
Lip missing, as applicable (see 3.3)	105	
Not $1/2 \pm 1/8$, inch in length (see 3.3)	106	
Not straight line or elliptical (see 3.3)		203
Tear, cut, wrinkle or hole (including pin holes)	107	
Not clean	108	

4.3.1.1 Dimensional examination. The sample unit for this examination shall be one bag or envelope as applicable. Any dimension that is not within the specified tolerances shall be classified as a defect (see 3.2.2.1, 3.3 and 3.4).

4.3.1.2 Examination of the end item for count. The sample unit for this examination shall be one interior package of bags or envelopes. The average count per package shall be not less than the specified quantity (see 5.1.1).

4.3.1.3 Examination of preparation for delivery requirements. An examination shall be made to determine whether the packaging, packing, and marking complies with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully prepared for delivery except that it need not be closed. The lot size shall be the number of shipping containers in the end item inspection lot.

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<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	Omitted, incorrect, illegible, of improper size, location, sequence or method of application
Materials	Any component missing; damaged or not as specified
Workmanship	Bulged or distorted containers
Weight	Weight of contents per shipping container is more than required

4.3.1.3.1 Examination of interior packages. When interior packages are required to comply with PPP-B-566 or PPP-B-676, examination for defects in closure shall be in accordance with the requirements of the applicable box specification.

4.3.1.3.2 Examination of shipping containers. When shipping containers are required to comply with PPP-B-636, examination for defects in the closure, waterproofing and reinforcing shall be in accordance with the appendix of PPP-B-636.

4.3.2 Testing of the end item. The end items shall be tested for the characteristics indicated in table V. The sample unit shall be one bag, or envelope, as applicable. The lot size for determining the sample size shall be expressed in terms of sample units. The inspection level shall be S-2 and the acceptable quality level (AQL) for each characteristic shall be 6.5 expressed as percent defective. Test failure of a determination shall indicate a defective unit.

TABLE V. Instructions for testing the end items

Characteristic	Specification reference		Determinations per sample unit	Results reported pass or fail ^{1/}
	Require-ment	Test method		
Thickness	3.5.1	4.4.4	Average of 2	X
Seam strength	3.5.3	4.4.1	Average of 2	X
Seam water resistance	3.5.4	4.4.2	Average of 2	X
Water immersion stability	3.5.5	4.4.3	Average of 2	X

^{1/} If failure is indicated, report description of failure.

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4.3.2.1 Certificate of compliance. To eliminate dual testing, when the material manufacturer produces cellophane under the requirements of L-C-110, and when such requirements correspond to the requirements of this specification, a certificate of compliance from the manufacturer will satisfy such requirements.

4.4 Tests. Test procedures and controls which differ from those specified herein may be used by the supplier if they provide a quality assurance equivalent to that specified. If the Government inspection activity determines that such procedures and controls do not provide, as a minimum, such quality assurance, the supplier will use the test procedures set forth herein. In case of dispute as to test results, the test methods specified herein will govern.

4.4.1 Seam strength. A specimen 1-1/2 inches wide shall be cut from the edge or bottom of the bag, or envelope, through and perpendicular to the seam line to a length that, when suspended between the clamps of a tester (Suter Single Strand Strength Tester, or equal) with the seam equal distant $\pm 1/4$ inch between the clamps, the distance between the clamps shall be not less than 10 inches, except when limited by bag or envelope size. The speed of the lower clamp during the peeling cycle shall be 6 inches in 28 to 32 seconds. The force required to peel the seal apart shall be reported to the nearest gram, and the results shall be multiplied by 2/3 to convert the result to grams per inch of seam.

4.4.2 Seam water resistance. Sample bags or envelopes shall be immersed for 1-1/2 hours in distilled water at $113 \pm 2^\circ\text{F}$. Glued seam samples only shall be inspected for any delamination.

4.4.3 Water immersion stability. After the immersion cycle and test performance in 4.4.2, the samples shall be washed with water containing a wetting agent, in order to remove air bubbles and surface droplets. The film shall then be examined for evidence of blistering. While still wet, the film shall be rubbed between the fingers and examined for rub off of the coating from the base sheet.

4.4.4 Thickness. The gage used for the measurement of thickness shall be of a dead weight type equipped with a dial graduated to read directly to 1.0 mils. The presser foot shall be circular with a diameter of 3500 plus or minus 100 mils. The presser foot and moving parts connected therewith shall be weighted so as to apply a total load of 3 plus or minus 0.1 ounce to the specimen. The presser foot and anvil surface shall be plane to within 1 mil and parallel to each other within 1 mil. Thickness shall be measured to the nearest 1 mil at three different locations on the test specimen.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A, B or C as specified (see 6.3).

5.1.1 Level A. Cellophane bags or envelopes of one description only shall be packaged in a snug-fitting paperboard box in the following quantities:

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<u>Area of bag, or envelope face</u>	<u>Quantity per package</u>
to 100 square inches	500
101 to 200 square inches	200
201 to 300 square inches	100

The paperboard box shall conform to variety 1, style III or VIII, type G, class 1, of PPP-B-566 or type I, variety 1, class A, style 4 of PPP-B-676. Each box shall be securely closed in accordance with the appendix of the applicable box specification.

5.1.2 Level B. Packaging shall be as specified in 5.1.1.

5.1.3 Level C. Cellophane bags or envelopes shall be packaged to afford adequate protection against physical damage during shipment from the supplier to the first receiving activity.

5.2 Packing. Packing shall be level A, B or C as specified (see 6.3).

5.2.1 Level A. Cellophane bags or envelopes of one description only, packaged as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC, grade V2s of PPP-B-636. Each fiberboard container shall be closed in accordance with method III, waterproofed in accordance with method V and reinforced as specified in the appendix of PPP-B-636. Weight of contents of each PPP-B-636 container shall not exceed 65 pounds.

5.2.2 Level B. Cellophane bags or envelopes of one description only, packaged as specified in 5.1, shall be packed in a snug-fitting fiberboard shipping container conforming to style RSC, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. Each fiberboard container shall be closed in accordance with method II as specified in the appendix of PPP-B-636. Weight of contents of each PPP-B-636 container shall not exceed 65 pounds.

5.2.2.1 When specified (see 6.3), the fiberboard shipping container shall be a grade V3c, V3s, or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in the appendix of the container specification.

5.2.3 Level C. Cellophane bags or envelopes, packaged as specified in 5.1, shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. The quantity per shipping container shall be the same as that normally used by the supplier for retail distribution. Containers shall comply with the Uniform Freight Classification Rules or National Motor Freight Classification Rules, as applicable.

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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.

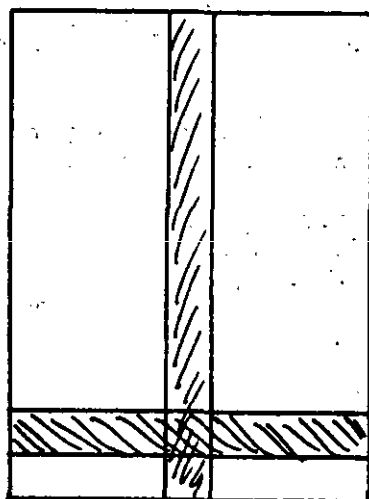
5.3.2 Military requirements. In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

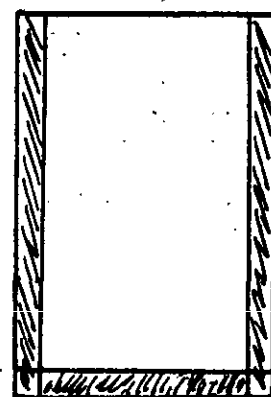
6.1 Intended use. The following tabulation illustrates the general end uses for each type and class of bag (see 1.1):

Type	Class	End use
I	1	General use where a moistureproof or heat sealing film is not needed
	2	For use in packaging products which require some degree of moistureproofness
	3	For use in packaging wet products or products liable to contact with water
II	1	General use where a film having limited moistureproofness is needed and heat-sealing may be desirable
	2	For use in packaging products requiring moistureproof protection and heat-sealing may be desirable
	3	For use mainly with wet products where limited water-vapor permeability, and moisture protection is required and heat-sealing may be desirable
	4	Same as class 3 except low water-vapor permeability is required
	5	For use with products where water and grease resistance is required and heat-sealing may be desirable
	6	For packaging such items as red meats with uncoated side next to the items where a minimum of protection from water-vapor permeability is required and heat-sealing may be desirable
	7	Same as class 6 except a lower water-vapor permeability is required

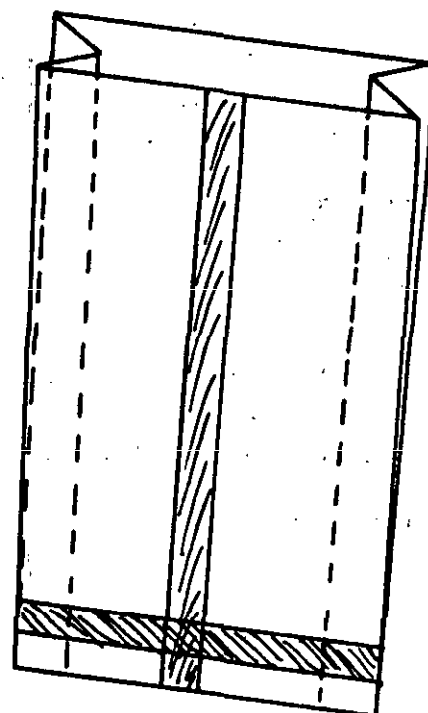
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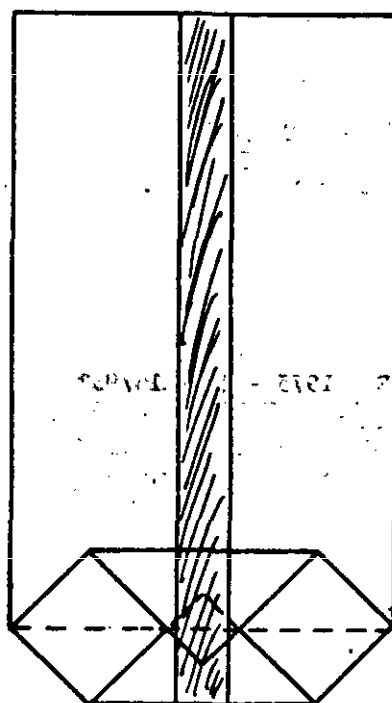
FLAT STYLE - FIG. IA



FLAT STYLE - FIG. I



SQUARE STYLE - FIG. II



SACHEL BOTTOM STYLE - FIG. III

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6.2 Flexibility. Most types of bags can be supplied fabricated from film which can be procured in two ranges of flexibility (1) high flexibility for low temperature service (0° to 40°F.) and (2) intermediate flexibility for normal temperature service (above 40°F.). Type II, classes 6 and 7 bags are supplied in intermediate flexibility only.

6.3 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) Style, type and class required (see 1.2.1).
- (c) Bag or envelope for style A (see 1.2.1).
- (d) When bags or envelopes will be in direct contact with food (see 3.1.2).
- (e) When styles B and C shall have lips (see 3.3).
- (f) Size of bag or envelope (see 3.4).
- (g) Thickness of cellophane (see 3.5.1).
- (h) Area factor of cellophane (see 3.5.2).
- (i) Selection of the applicable levels of packaging and packing (see 5.1 and 5.2).
- (j) When weather-resistant grade fiberboard shipping containers are required for level B shipments (see 5.2.2.1).
- (k) Flexibility desired (see 6.2).

Custodians:

Army - GL
Navy - SA
Air Force - 69

Preparing activity:

Army - GL
Project No. 8105-0247

Review activities:

Army - SM, MD
Air Force - 70, 71, 80, 82, 84

CIVIL AGENCIES COORDINATING ACTIVITIES:

AGR - APS
COMMERCE - NBS
GSA - FSS
HEW - FEC, HSM
JUSTICE - FPI
VA - DMS

User activity:

Navy - MC

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