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FEDERAL SPECIFICATION

PLASTIC FILM, SHEET AND STRIP (POLYVINYL CHLORIDE, COPOLYMER OR VINYLIDENE CHLORIDE AND VINYL CHLORIDE, OR POLYETHYLENE)

This specification 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 transparent colorless plastic film sheets or strips for food packaging made of polyvinyl chloride, copolymer of vinylidene chloride and vinyl chloride or polyethylene and with appropriate additives and plasticizers.

1.2 Classification.

1.2.1 Classes. Plastic film shall be of the following classes, as specified (see 6.2)

Class I. A soft, preferentially oriented shrink film with good low temperature characteristics for hand or automatic wrapping frozen food products.

Class II. A soft, biaxially oriented shrink film for hand wrapping bakery products or produce (see 3.3.1).

Class III. A medium soft, biaxially oriented shrink film with good low temperature characteristics for semi-automatic or automatic wrapping produce or frozen product. (see 3.3.1).

Class IV. A soft preferentially oriented shrink film for hand, semi-automatic or automatic sleeve wrapping produce.

Class V. A soft, stretch film having maximum bloom retention for hand wrapping fresh meats.

Class VI. A soft, stretch film having high cling characteristics for hand wrapping produce or hot foods.

Class VII. A soft, stretch film or hand wrapping produce.

Class VIII. A soft, preferentially oriented shrink film for hand or automatic wrapping fresh meats.

Class IX. A soft, self-clinging film for packaging food or covering dishes or glasses with or without food, commonly, known as household wrap. (see 3.3.1)

2. APPLICABLE DOCUMENTS

2.1 The following specifications and standards of the issue in effect on the date of invitation for bids or requests for proposal, form a part of this specification to the extent specified herein:

Federal Specifications:

PPP-B-636 - Boxes, Shipping, Fiberboard.

Federal Standard:

Fed. Std. No. 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

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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 Military Specifications and Standards required by contractors 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. Department of Health, Education and Welfare

21 CFR 121:

Federal Food, Drug and Cosmetic Act and Regulations Promulgated Thereunder

U.S. Department of Agriculture

9 CFR 301:

Meat Inspection Regulations

(The code of Federal Regulations (CFR) and the Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC, 20402. When indicated, reprints of certain regulations may be obtained from the Federal agency responsible for issuance thereof.)

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

National Motor Freight Traffic Association, Incorporated, Agent:

National Motor Freight Classification.

(Application for copies should be addressed to the American Trucking Association, 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.)

3. REQUIREMENTS

3.1 Material. The plastic film shall be made of polyvinyl chloride, polyethylene or copolymer of vinylidene chloride and vinyl chloride and with appropriate additives and plasticizers. The film shall comply with the Federal Food, Drug, and Cosmetic Act and Regulations Promulgated Thereunder and the Meat Inspection Regulations, as appropriate. The material shall meet the performance requirements for the class specified (see 1.2.1 and 3.4). The film shall be free from any objectionable odor. The film shall be clear and non-fogging.

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3.1.1 Core. The core shall be at least 1/4-inch longer than the specified width of the film and the film shall be wound evenly and shall be reasonably centered on the core. Alternatively, the core shall be flush with the end of the roll provided the roll has a device to suspend it in the shipping case. The fiber core used for classes I, II, III, IV, V, VII, and VIII film shall have an inside diameter of not less than 3 inches. The core used for classes VI and perforated class IX film, (see 3.3.1.1(b)) shall be fiber or paper suitable for the purpose with an inside diameter of 1.5 inch or 2 inch. The paper core used for non-perforated class IX shall have an inside diameter of 1.5 inches for length of 100 feet and 1.5 inch or 2 inch for lengths 1,000 feet or more.

3.2 Physical characteristics. Tested in accordance with 4.3 as applicable.

3.2.1 Thickness. The film thickness shall be a minimum average as specified (see 6.2 and 6.5). A tolerance is allowed for individual readings based on the thickness as indicated below.

Thickness		Tolerance
.0005	+	.0001-inch
.0006	+	.0002-inch
.0007	+	.0002-inch
.0010	+	.0002-inch

3.2.2 Length and Width of roll.

3.2.2.1 Length. The film, conforming to classes I, II, III, IV, V, VI, VII, and VIII, shall be furnished in minimum lengths of 1,000-, 2,000-, 3,000-, 4,000-, 5,000-, 6,000-feet or as specified (see 6.2). The film conforming to class IX non-perforated shall be furnished in minimum lengths of 100-, 1,000-, 2,000-feet or as specified (see 6.2). When class IX is perforated to be torn off at specified lengths (see 3.3.1.1 (b)), the number of sheets shall be not less than specified (see 6.2).

3.2.2.2 Width. The film, conforming to class I through VIII, shall be furnished in widths of 9-, 10-, 12-, 18-inches or, as specified (see 6.2). The film conforming to class IX shall be furnished in widths of 5-, 11 1/2-, 17 1/2-inches or as specified (see 6.2). The tolerance for width shall be indicated in Table I.

TABLE I. Tolerances for Width Dimension			
Class	Width (inches)		Tolerance
I IV V VI	10 inches and less	+	1/4 inches
VII VIII	More than 10 inches	+	1/2 inches
II & III	as specified		-0, + 3/4 inches
IX	as specified		-1/4, + 3/4 inches

3.3 End Item. The plastic film sheet or strip may be textured or plain at the option of the supplier. The film, sheet or strip shall be wound evenly and uniformly on a core specified in 3.1.1. When a splice occurs on a roll of film, it shall be neat and comply with the following:

(a) For classes I, II, III, IV, VI, VIII or IX film, the splice shall be the lap type using clear 3/4 inch wide double faced tape. There shall be not more than the number of splices listed in Table II per 1000 feet of film. The splice shall be flagged except that for classes II, IV, VI and IX flagging is not required.

(b) For classes V and VII, there shall be not more than one splice for each 1,000 feet of film.

TABLE II. Splice per 1,000 feet	
Thickness (see 3.3 (a))	Maximum Number of Splices
.0005	6
.0006	5
.0007	4
.0010	3

3.3.1 Special features.

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3.3.1.1 Perforations. When specified (see 6.2), the film shall be perforated in one of the following manners: (a) For classes II and III, the perforations in the film shall be a nominal 1/16 inch diameter. The holes shall be spaced on nominal 1/2-inch centers along the length of the roll and 3/4-inch centers across the width of the roll; (b) For class IX, the perforations shall be spaced in a row across the width of the film to facilitate tearing off a length of 5-, 6-, 9-, 12-inch, or as specified (see 6.2).

3.3.1.2 Dispenser carton. Each roll of class IX non-perforated film containing a length of 100 feet shall be furnished in a carton with a cutting edge designed to dispense film. Each roll shall have adequate embossing or a starting tab.

3.4 Certification. When specified in the contract or purchase order, (see 6.2), the contractor shall forward to the procuring agency for each order of film, a statement with test data certifying that the material submitted conforms to the appropriate requirements of the paragraphs 1.2.1 and 3.1.

3.5 Workmanship. The film shall be free of any imperfection or foreign matter that will detract from its appearance or interfere with its utility.

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, the supplier may utilize his own facilities or any commercial laboratory acceptable to 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.

4.2 Inspection.

4.2.1 Sampling. Sampling for inspection shall be performed in accordance with A STD-105, except where otherwise indicated herein.

4.2.2 Inspection of components. In accordance with 4.1 above, the supplier is responsible for insuring that materials and components used in the end item were manufactured, tested, and inspected, in accordance with the referenced subsidiary specifications and standards to the extent specified or, if none, in accordance with this specification. In the event of conflict, this specification shall govern.

4.2.2.1 Inspection records. Inspection records of the examination and testing for the certification as specified in the contract or order, shall be complete and made available to the government.

4.2.3 Inspection of the end item. Inspection of the end item shall be in accordance with classification of defects and acceptable quality level (AQL's) set forth below. Each roll shall constitute one unit of the lot for the purpose of determining lot size for sampling.

4.2.3.1 Examination and testing of the end item. The sample unit shall be one roll. The inspection levels shall be II and the acceptable quality level (AQL's) expressed in defects per hundred units shall be 2.5. Examination shall be performed in accordance with table III.

TABLE III. Examination and testing of end item	
Characteristic	Defect
Class	Not as certified
Length	Less than specified.
Width	More or less than tolerances of Table I.
Thickness	Not as specified
Splice	Not as allowed
Workmanship	Imperfection or foreign matter which affect appearance or utility.
Core	Not as allowed
Perforations (when specified)	Not as specified (see 3.3.1)

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4.2.3.2 Examination for preparation for delivery. An examination shall be made to determine whether the packaging, packing and marking comply with the requirements of section 5. Defects shall be scored as specified in table IV. Sampling shall be in accordance with MIL-STD-105. The sample unit shall be one container fully prepared for delivery. The lot shall be the number of containers offered for inspection at one time. The inspection level shall be S-2 with an AQL of 4.0, expressed in terms of defects per hundred units.

TABLE IV. Examination of preparation for delivery

Examine	Defect
Containers	Not as specified.
Contents	Not as specified.
Markings	Omitted; incorrect; illegible; improper size; location, sequence, or method of application.
Materials	Component missing or damaged.
Workmanship	Bulging or distortion of containers.

4.2.3.2.1 Examination for closure. When shipping containers are required to be in accordance with PPP-B-636, examination for defects in closure, waterproofness and reinforcement shall be in accordance with the appendix of that specification.

4.2.3.3 Testing of the end item. The end item shall be tested for applicable characteristics listed in table III. The sample unit quantity for each type shall be two consecutive square yards of material for rolls. Failure of one or more sample units to meet individual unit requirements shall be cause for rejection of the lot.

4.3 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.

4.3.1 Standard conditioning. Unless otherwise specified herein or applicable test method, samples for test shall be conditioned at a temperature of $72^{\circ} \pm 3^{\circ}\text{F}$. and a relative humidity of 50 ± 5 percent for a period of not less than sixteen hours.

4.3.2 Thickness. The gage for the measurement of thickness shall be a dead weight type equipped with a dial graduated to read directly to 0.0001 inch. The presser foot shall be circular with a diameter of 0.25 ± 0.01 inch. The pressure foot and moving parts connected therewith shall be weighted so as to apply a total load of 3 ± 0.1 ounce to the specimen. The pressure foot and anvil surface shall be placed to within 0.001 inch and parallel to each other within 0.001 inch. One measurement shall be made on each specimen of the 5 specimens cut from each sample roll. The measurements of all the specimens of a sample shall be averaged to determine the thickness of the sample. The average of the samples determines the thickness of the lot.

4.3.3 Width and length or number of sheets on perforated (see 3.2.2) roll. The width and length or number of sheets on a perforated roll (see 3.3.1.1) shall be measured with a steel tape or other suitable measuring device or method.

5. PREPARATION FOR DELIVERY

5.1 Packaging.

5.1.1 Roll. Each roll of film of the class specified shall be restrained from unwinding.

5.1.2 Dispenser Carton. The dispenser carton described in 3.2.2 shall be closed.

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

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5.2.1 Level A. The film shall be packed as specified in 5.2.1.1 or 5.2.1.2 as appropriate for the class.

5.2.1.1 Classes I through VIII. Each roll of film of class I through VIII shall be suspended and packed in a box conforming to PPP-B-636, V2s. The box shall be closed water proofed and reinforced in accordance with the appendix to the box specification.

5.2.1.2 Class IX.

5.2.1.2.1 Perforated. Unless otherwise specified, three rolls of class IX film, perforated to designate length of sheets (see 3.3.1), shall be suspended in a box conforming to PPP-B-636, V2s except that any style box is acceptable. The box shall be closed, waterproofed and reinforced in accordance with the appendix to the box specification.

5.2.1.2.2 Non-perforated. Twenty-four dispenser cartons (see 3.3.6.2) shall be packed in a box conforming to PPP-B-636, V2s except that the style of the box is optional. Each roll of class IX non-perforated film not in dispenser cartons shall be suspended and packed as specified in 5.2.1.1.

5.2.2 Level B. The film shall be packed as specified in 5.2.2.1 or 5.2.2.2 as appropriate for the class.

5.2.2.1 Classes I through VIII. Each roll of film of class I through VIII shall be suspended and packed in a box conforming to PPP-B-636, class domestic except that any style box is acceptable. The box shall be closed in accordance with the appendix to the box specification.

5.2.2.2 Class IX.

5.2.2.2.1 Perforated. One or three rolls, as specified, of class IX film, perforated to designate length of sheets, shall be suspended in a box conforming to PPP-B-636, class domestic except that any style box is acceptable. The box shall be closed in accordance with the box specification.

5.2.2.2.2 Non-perforated. Twenty-four dispenser cartons (see 3.3.1.2) shall be packed in a box conforming to PPP-B-636, class domestic. Each roll of class IX non-perforated film not in dispenser cartons shall be suspended and packed as specified in 5.2.2.1.

5.2.3 Level C. Rolls of film, in quantities as specified (see 6.2) packaged as specified in 5.1 shall be packed in containers to assure carrier acceptance and safe arrival at destination. Containers shall be in compliance with the Uniform Freight Classification or National Motor Freight classification, as applicable.

5.3 Marking. In addition to any special marking required in the procurement document, marking of the interior packages and exterior shipping containers shall be in accordance with Fed. Std. No. 123 for civil agencies and MIL-STD-129 for military agencies, as applicable (see 6.2).

6. NOTES

6.1 Intended use. Classes I through VIII plastic film covered by this specification is suitable for institutional or commissary packaging of fresh or frozen food, meat or produce as indicated. Class IX plastic film covered by this specification is suitable for packaging food and other products when toxicity, odor and taste requirements must be met.

6.2 Ordering data. Purchasers should exercise any desired option offered herein and procurement documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Class required (see 1.2.1).
- (c) Length or number of sheets and width required (see 3.2.2.1 and 3.2.2.2).

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- (d) Level of packaging and packing required (see 5.1 and 5.2).
- (e) When certification is required (see 3.4)
- (f) When classes II, III, or IX are required to be perforated (see 3.3.1.1).
- (g) Quantities required (see 5.2.2.2.1 and 5.2.3)
- (h) Marking document required (see 5.3).
- (i) Thickness required (see 3.2.1).

6.4 Sheet and strip terms, as used in this specification, are not synonymous with the ASTM definition of sheet and strip. For the purpose of federal supply cataloging, a sheet is defined as plastic film furnished in widths greater than six inches and a strip as plastic film furnished in widths of 6-inches or less.

6.5 Food grade polyethylene films of more than one mil (0.001 inch) thickness are described in L-P-378, Type I or II, Class 2.

Orders for this publication are to be placed with General Services Administration, acting as an agent for the Superintendent of Documents. See section 2 of this specification to obtain extra copies and other documents referenced herein. Price 10 cents each.