

INCH-POUND

MIL-C-83991A (USAF)
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SUPERSEDING
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MILITARY SPECIFICATION**COVER, POLYETHYLENE, PALLET, CARGO
HCU-6/E AND HCU-12/E**

This specification is approved for use within the Department of the Air Force and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the fabrication of polyethylene covers (bags) used in the protective covering of system 463L palletized military airlifted cargo.

1.2 Classification. Polyethylene covers shall be of the types as specified (see 6.2).

Type I - Cover, provides coverage for a 96 inch high load on a HCU-6/E pallet.

Type II - Cover, provides coverage for a 72 inch high load on a HCU-6/E pallet.

Type III - Cover, provides coverage for a 72 inch high load on a HCU-12/E pallet.

2. APPLICABLE DOCUMENTS**2.1 Government documents.**

* 2.1.1 Specifications and standards. The following specifications and standards form a part of this specification to the extent specified herein. Unless otherwise specified, the issues of these documents shall be those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation. (see 6.2).

SPECIFICATIONS**Federal**

L-P-378 Plastic Film (Polyethylene, Thin Gage)

Beneficial comments (recommendations, additions, deletion) and any pertinent data which may be of use in improving this document should be addressed to: WR-ALC/MMVRS, Robins AFB, GA 31098-5609 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A

FSC 3990

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MIL-C-83991A (USAF)

STANDARDSMilitary

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

* (Copies of specifications, standards, handbooks, drawings, publications, and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)

* 2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein (except for associated detail specifications, specification sheets or MS standards), the text of this specification shall take precedence. Nothing in this specification, however, shall supersede applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

* 3.1 Material. Material used to fabricate bags shall conform to Federal Specification L-P-378 Grade C, Finish 1, with the exception that in place of Type II, substitute Linear Low Density Polyethylene which shall be the copolymer of ethylene and octene 1 having melt index of 1.0 plus or minus 0.2g per 10 minutes and a density of 0.920 g/cc plus or minus 0.002 g/cc. It is encouraged that recycled material be used when practical as long as it meets the requirements of the specification.

3.1.2 Water vapor permeability. The water vapor permeability requirements of Federal Specification L-P-378, Table I shall be 0.45 in lieu of the required 0.30 for Type II film.

3.2 Construction.

* 3.2.1 Cover. Bags shall be formed from polyethylene tubing or flat film. The thickness of the film used shall be 0.003 inch. The seams of the formed bag (back and bottom as required) shall be effected either by an electronic seal, thermal impulse or other heat seal methods. All seams shall be straight and continuous and shall be parallel to each other and to the formed edges of the bag. The tensile strength of the formed seams shall be a minimum of 60 percent of the tensile strength of the film itself when tested in accordance with 4.3.2. Bottom seams and the side seams if used, shall be positioned along the edges of the bag with the gussets either in closed position or in the open (extended) position.

3.2.2 Load dimensions. Load dimensions shall be outside measurements. A polyethylene cover (bag) shall cover loads of the following dimensions:

Type I Cover	112 inches long, by 90 inches wide, by 96 inches high
Type II Cover	112 inches long, by 90 inches wide, by 72 inches high
Type III Cover	88 inches long, by 54 inches wide, by 72 inches high

3.2.2.1 Cover size. Bag type shall be supplied as specified (see 6.2). Cover dimensions shall be as specified in Table I.

MIL-C-83991A (USAF)

TABLE I - BAG DIMENSIONS

Type Bag	Dimensions
Type I	Size 202 ± 2 inches lay flat width, gusseted to 106 inches face width by 96 inches gusset, by 141 ± 1 inch long inside measurement
Type II	Size 202 ± 2 inches lay flat width, gusseted to 106 inches face width by 96 inches gusset, by 117 ± 1 inch long inside measurement
Type III	Size 144 ± 2 inches lay flat width, gusseted to 88 face width by 54 inches gusset, by 99 ± 1 inch long measurement

3.3 Workmanship. The fabricated bag shall be free from cuts, tears, creases, cracks or other imperfections which might impair its usefulness. The bag shall be free from dirt, grit or other uncleanness and shall not block to the extent that it cannot be readily handled manually.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless is approved 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 supplies and services conform to prescribed requirements.

*4.1.1 Responsibility for compliance. All items shall meet all requirements of sections 3 and 5. The inspection set forth in this specification shall become a part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the government to accept defective material.

4.2 Sampling for inspection. Sampling for inspection shall be performed in accordance with the provisions set forth in MIL-STD-105 except where otherwise indicated hereinafter. For purposes of sampling, an examination lot for inspection and test shall consist of a lot of bags of the same size and thickness of film submitted at the same time.

4.2.1 Inspection of materials. In accordance with 4.1, the supplier is responsible for insuring that materials were manufactured, tested and inspected in accordance with the requirements of 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 Inspection of the end item.

4.2.2.1 Examination of the end item. Examination of the end item shall be made in accordance with the classifications of defects, inspection levels and acceptable quality levels (AQLs) set forth below. The sample lot shall be bags of the same size presented for examination under 4.2.2.1.1, 4.2.2.1.2, and 4.2.2.1.3, and lots of shipping containers for examination under 4.2.2.1.4.

MIL-C-83991A (USAF)

4.2.2.1.1 Examination of the end item for defects in construction, appearance, material and workmanship. The sample lot for this examination shall be examined as follows:

<u>Examine</u>	<u>Defect</u>
Construction and appearance	Not type specified. Not formed from film, or tubing, as specified, with seams effected by proper methods. Seams not uniform, continuous or adequate. Seam edges not parallel with each other; not parallel with edges of the bag.
Material	Not fabricated from specified material.
Workmanship	Bag cut, scratched, cracked, torn or damaged. Any spot, stain or other discoloration. Not clean; evidence of dirt, grit, oil or other foreign matter on bag.

NOTE: Sporadic gel defects or unfused resin particles no larger than 1/32 inch in diameter, unless occurring in seam or side fold, will be acceptable.

4.2.2.1.2 Examination of the end item for dimensional defects. The sample lot shall be examined as follows:

<u>Examine</u>	<u>Defect</u>
Dimensions	Any dimensional deviation greater than specified dimensions and tolerance.

4.2.2.1.3 Examination for count of end item in intermediate containers. The polyethylene bags packaged for shipment shall be examined to determine conformance with package markings and specified quantity. Any box containing less than the specified or marked quantity of bags shall be classified as a defect. The inspection level shall be SI and the acceptable quality level (AQL) shall be 4.0 defects per hundred units.

4.2.2.1.4 Examination of preparation for delivery requirements. An examination shall be made to determine that applicable packaging, packing and marking requirements are complied with. Defects shall be scored in accordance with the list below. The sample lot shall be shipping containers fully prepared for delivery. The flat size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be SI and the AQL shall be 4.0 defects per hundred units.

<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	Omitted, incorrect, illegible, or improper size, location, sequence or method of application. Size or stock number on end item does not correspond to size or stock number of intermediate and/or shipping container.
Materials	Any component missing. Any component damaged, affecting serviceability.

MIL-C-83991A (USAF)

Workmanship	Inadequate application of components such as incomplete closure of case liners, container flaps, loose straps, inadequate stapling. Bulging or distortion of containers.
Weight or Content (exterior and interior)	Number of intermediate packages is more or less than required; gross/net weight requirements.

4.2.2.1.5 Inspection levels and acceptable quality levels for examinations. The inspection levels for determining the sample size and the acceptable quality levels (AQLs), expressed as defects per 100 units, shall be as follows:

<u>Examination paragraph</u>	<u>Inspection level</u>	<u>AQL</u>
4.2.2.1.1	S3	2.5
4.2.2.1.2	S1	6.5
4.2.2.1.3	S1	4.0
4.2.2.1.4	S1	4.0

4.2.3 Testing of test samples. The test samples shall be tested for the applicable characteristics as indicated in Table II herein. The inspection level shall be S1, except that minimum of five test samples shall be tested. The acceptable quality level (AQL) shall be 4.0 defects per 100 units for sample unit requirements.

TABLE II - INSTRUCTION FOR TESTING

Characteristic	Specification Reference Requirement	Test Method	Number of Determination per unit	Results reported as numerically to nearest
Sealed Seam				
Strength (Tensile Strength)	3.2.1	4.3.2	5	Amount of peel back of separation
Thickness of film	3.2.1	4.3.3	5	0.0001

4.3 Tests. Test procedures which differ from those specified herein may be used by the contractor if they provide a quality assurance equivalent to that specified. If the Government inspection activity determines that such procedures do not provide, as a minimum such quality assurance, the contractor 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 Conditioning. The conditioning period prior to tests shall be 48 hours. The atmospheric condition unless otherwise specified shall be 73.5 ± 2 degrees, and 50 ± 4 percent relative humidity.

MIL-C-83991A (USAF)

4.3.2 Seam strength. One hour after sealing, 1-inch wide test specimens shall be cut perpendicular to the line of the seam from samples of seams. One leg of the test specimen shall be so clamped that the specimen hangs freely. A load of 3-1/2 pounds shall be applied to the free end in such a manner as to avoid impact loading the seam. The load shall be allowed to act for 5 minutes, after which the seam shall be examined for slippage or peel back. Any peel back or slippage shall be cause for rejection. The test shall be conducted at room temperature. (For reference purposes, room temperature shall be defined at 70° to 80°F). Peel back shall be defined as any separation of the seam from the inside line of contact of the sealer.

4.3.3 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 0.001 inch. The area of the presser foot and its weight and the weight of the parts connected therewith shall be such as to apply a pressure of 2.00 ± 0.05 pounds per square inch to the specimen. The presser foot and the anvil surface shall be plane to within 0.0001 inch and parallel to each other within 0.0001 inch.

5. PACKAGING

5.1 Application. The packaging, packing and marking requirements specified herein apply only to direct purchase by and direct shipments to the Government.

5.2 Packing. Bags of one style and size only shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. Containers shall be in accordance with rules or regulations of carriers applicable to such supplies.

5.3 Marking. Interior packages and shipping containers shall be marked in accordance with Standard MIL-STD-129.

6. NOTES

6.1 Intended use. Bags fabricated in conformance with the requirements of this specification are intended for use in covering items of military supply prepalletized on pallets, cargo, HCU-6/E and HCU-12/E.

6.2 Ordering data. Procurement documents should specify the following:

a. Title, number, and date of this specification.

b. Type of bag (see 1.2).

* c. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1).

*6.3 Subject term (Key Word) listing.

CARGO COVER

PALLET

POLYETHYLENE

MIL-C-83991A (USAF)

The margins of this specification are marked with an asterisk or vertical lines to indicate where changes (additions, modifications, corrections, deletion) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in the notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous specification.

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