

MIL-P-15035C
AMENDMENT 4
1 May 1984
SUPERSEDING
AMENDMENT 3
3 October 1967

MILITARY SPECIFICATION

**PLASTIC SHEET: LAMINATED, THERMOSETTING,
COTTON-FABRIC-BASE, PHENOLIC-RESIN**

This amendment forms a part of Military Specification MIL-P-15035C dated 10 January 1962, and is approved for use by all Departments and Agencies of the Department of Defense.

PAGE 1

2.1, under "SPECIFICATIONS, FEDERAL": Delete "L-P-406".

2.1, under "SPECIFICATIONS, MILITARY": Delete "MIL-L-10457 - Liners, Case, Waterproof", and substitute:

"MIL-L-10547 - Liners, Case, and Sheet, Overwrap; Water-Vaporproof or Waterproof, Flexible."

2.1, under "STANDARDS", add:

"FEDERAL
FED-STD-406 - Plastics, Methods of Testing."

PAGE 2

* 2.2, under "AMERICAN SOCIETY FOR TESTING MATERIALS", Add: "D-790 - Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials."

* 2.2: Delete reference to "Official Classification Committee" and substitute:

"UNIFORM CLASSIFICATION COMMITTEE AGENT
Uniform Freight Classification Ratings, Rules and Regulations

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

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* 3.1: Delete and substitute:

"3.1 First article. When specified (see 6.1), a sample plastic sheet shall be subjected to first article inspection (see 4.2 and 6.6)."

PAGE 3

* Table III, line 8 under "Decimal equivalent": Delete "0.94" and substitute "0.094".

PAGE 4

3.7, last line: Delete "bureau" and substitute "Command".

PAGE 5

Page 5, paragraphs 4.1 through 4.4.2: Delete and substitute:

"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 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 supplies and services conform to prescribed requirements.

"4.2 First article sample and tests. A first article sample shall be submitted to the contracting activity. First article tests and sample thicknesses of material required for tests shall be as shown in tables IV, V, VI and VII. The specimen for test shall be 36 inches, or greater, in length and in width.

"4.3 Sampling for quality conformance inspection. Sampling for quality conformance inspection shall be performed in accordance with the provisions set forth in MIL-STD-105, except where otherwise indicated. For purposes of sampling, an inspection lot for inspection and tests shall consist of all material of the same type, machine run and thickness range offered for delivery at one time.

"4.3.1 Inspection of the end item.

"4.3.1.1 Examination of the end item. Examination of the end item shall be made in accordance with the classification of defects, inspection levels and acceptable quality levels (AQLs) set forth below. The lot size, for purpose of determining the sample size in accordance with MIL-STD-105, shall be expressed in units of sheets for examination in 4.3.1.1.1, 4.3.1.1.2 and in units of shipping containers for examination in 4.3.1.1.3.

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"4.3.1.1.1 Examination of the end item for defects in appearance and workmanship of the plastic material. The sample unit for this examination shall be one sheet of the specified type plastic material.

<u>Examine</u>	<u>Defect</u>
Appearance and workmanship	Not grade specified. Not uniform in texture and finish. Presence of foreign matter, grit, or abrasives. Any crack, break, bulge, blisters, wrinkles, scratches, dents, or heat marks. Laminations not as specified. Any separation of laminations. Ragged or rough edges or sides.
Color	Not natural in color (see 3.4).
Marking	Sheet not marked as specified (see 3.7).
Finish	Not polished or semigloss, as specified.

"4.3.1.1.2 Examination of the end item for defects in dimensions. The sample unit for this examination shall be one sheet of the specified type plastic material.

<u>Examine</u>	<u>Defect</u>
Sheets (manufacturer's standard size) Length and width	Varies by more than ± 1 inch from size specified.
Sheets (cut) Length and width	Varies by more than the tolerances specified in table II for the applicable thickness and width.
Thickness (whole and cut sheets)	Varies by more than the tolerances specified in table III and for the applicable nominal thickness and type. (Note: At least 90 percent of the area of the sheet shall conform and at no point shall the variations exceed 125 percent of the permissible variations.)
Warp	Varies by more than the applicable percentage shown in table I (based on 36-inch dimension).
Twist	Varies by more than the applicable percentage shown in table I (based on 36-inch dimension).

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"4.3.1.1.3 Examination of preparation for delivery. An examination shall be made to determine that the packaging, packing and markings comply with the requirements of section 5 of this specification. The sample unit for this examination shall be one shipping container fully packed, selected just prior to the closing operation. Shipping containers fully prepared for delivery shall be examined for closure defects.

<u>Examine</u>	<u>Defect</u>
Packaging	Unit package not packaged as specified. Packaging material not as specified.
Packing	Not in accordance with contract requirements. Container not as specified; closures not accomplished by specified or required methods or materials. Any nonconforming component, component missing, damaged, or otherwise defective affecting serviceability. Inadequate application of components, such as: incomplete closures of case liners, container flaps, loose or inadequate strappings, bulged or distorted containers.
Count	Less than specified or indicated quantity.
Weight	Gross or net weight exceeds specified requirements.
Markings	Interior or exterior markings (as applicable) omitted, illegible, incorrect, incomplete, or not in accordance with contract requirements.

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

<u>Examination paragraph</u>	<u>Inspection level</u>	<u>AQL</u>
4.3.1.1.1	I	1.5
4.3.1.1.2	S-3	2.5
4.3.1.1.3	S-2	4.0

"4.3.2 Testing of the end item. The end item shall be tested for the applicable characteristics as indicated in table XV on each lot presented for examination. The lot size shall be expressed in units of whole or cut sheets of the same size, thickness and type. The sample unit shall be one sheet minimum size 200 square inches. Two sample units shall be randomly selected throughout the lot and tested. There shall be no evidence of failure of the results to meet the applicable sample unit requirements.

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Note: Whenever possible, test samples may be selected at time of manufacture from the stock material from which the sheets are cut, to eliminate the necessity of destroying a sheet of material for test purposes."

PAGES 6 THROUGH 9

- * Tables IV, V, VI, and VII, title: Delete "Preproduction" and substitute "First article".

PAGE 9

Table VII, last column: Opposite "Water absorption" delete "0.090" and substitute "0.90".

PAGE 10

Table VIII, in title: Delete "Lot-acceptance" and substitute "Quality-conformance".

PAGE 11

Table IX, in title: Delete "Lot-acceptance" and substitute "Quality-conformance".

PAGE 12

Table X, in title: Delete "Lot-acceptance" and substitute "Quality-conformance".

PAGE 13

Table XI, in title: Delete "Lot-acceptance" and substitute "Quality-conformance".

Add new table:

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"TABLE XV. Instructions for testing.

Characteristic	Specification reference		Requirements applicable to individual unit	Number determinations per unit	Results reported as numerically to nearest ^{1/}
	Requirement	Test method			
Property values (Type FBM)	3.2.2				
Dielectric breakdown parallel to laminations:					
Short time	Table VIII	4.6.2	X	1	Kv
Step-by-step	Table VIII	4.6.2	X	Avg of 4	Kv
Flexural strength, tested flatwise:					
Cut lengthwise	Table VIII	4.6.4	X	Avg of 4	psi
Cut crosswise	Table VIII	4.6.4	X	Avg of 4	psi
Bonding strength, cut lengthwise	Table VIII	4.6.5	X	Avg of 4	lb
Property values (Type FBG)	3.2.2				
Dielectric breakdown parallel to laminations:					
Short time	Table IX	4.6.2	X	1	Kv
Step-by-step	Table IX	4.6.2	X	Avg of 4	Kv
Flexural strength, tested flatwise:					
Cut lengthwise	Table IX	4.6.4	X	Avg of 4	psi
Cut crosswise	Table IX	4.6.4	X	Avg of 4	psi
Bonding strength	Table IX	4.6.5	X	Avg of 4	lb
Property values (Type FBE)	3.2.2				
Dielectric breakdown parallel to laminations:					
Short time	Table X	4.6.2	X	1	Kv
Step-by-step	Table X	4.6.2	X	Avg of 4	Kv
Flexural strength, tested flatwise:					
Cut lengthwise	Table X	4.6.4	X	Avg of 4	psi
Cut crosswise	Table X	4.6.4	X	Avg of 4	psi
Bonding strength	Table X	4.6.5	X	Avg of 4	lb
Property values (Type FBI)	3.2.2				
Dielectric breakdown parallel to laminations:					
Short time	Table XI	4.6.2	X	1	Kv
Step-by-step	Table XI	4.6.2	X	Avg of 4	Kv
Flexural strength, tested flatwise:					
Cut lengthwise	Table XI	4.6.4	X	Avg of 4	psi
Cut crosswise	Table XI	4.6.4	X	Avg of 4	psi
Bonding strength	Table XI	4.6.5	X	Avg of 4	lb

^{1/} Test reports shall include all values on which results are based."

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4.6.4.1, line 2: Delete "method 1031 of Specification L-P-406" and substitute "ASTM D 790".

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* 4.6.9: Delete "Specification L-P-406" and substitute "FED-STD-406".

5.2.1, second sentence: Delete and substitute: "When specified (see 6.1), shipping containers shall have caseliners conforming to MIL-L-10547, type I or II, grade A, B, or C, class 2."

PAGE 19

5.3: Delete and substitute:

"5.3 Marking. In addition to any special marking required by the contract or order (see 6.1), interior packages and exterior shipping containers shall be marked in accordance with MIL-STD-129."

* 6.1: Add three new subparagraphs as follows:

- "(e) Caseliners when specified (see 5.2.1).
- (f) Special marking if required (see 5.3).
- (g) First article inspection, if required (see 3.1)."

6.4: Delete and substitute:

"6.4 Cross-reference list of designations. Because of the past practices of the several Government agencies and industry, the following is provided as a cross-reference for equivalent designation of laminates:

Type PGB:	XX
Type PBE:	XXX
Type PBE-P:	XXXP
Type FBM:	C
Type FBI:	L
Type FBG:	CE
Type FBE:	LE "

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Table XIV, Test procedure column: Delete references to L-P-406.

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* 6.5: Delete and substitute:

"6.5 International interest. Certain provisions of this specification are the subject of international standardization agreement (ABC-NAVY-STD-17). When amendment, revision, or cancellation of this specification is proposed which will modify the international agreement concerned, the preparing activity will take appropriate reconciliation action through international standardization channels including departmental standardization offices to change the agreement or make other appropriate accommodations."

* Add as new paragraph 6.6:

"6.6 First article inspection. Invitations for bids should provide that the Government reserves the right to waive the requirement for samples for first article inspection as to those bidders offering a product which has been previously acquired or tested by the Government, and that bidders offering such products, who wish to rely on such production or test, must furnish evidence with the bid that prior Government approval is presently appropriate for the pending contract."

Delete "Notice" paragraph.

The margins of this amendment are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these 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 amendment.

Custodians:

Army - ER
Navy - SH
Air Force - 11

Preparing activity:

Navy - SH
(Project 9330-B115)

Review activities:

Army - MR, GL, MI, AR, EA
Navy - EC, AS
Air Force - 84, 85, 99
DLA - GS

User activities:

Army - ME
Navy - OS, YD