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MIL-P-22324A
3 April 1962
SUPERSEDING
MIL-P-22324(SHIPS)
28 January 1960

MILITARY SPECIFICATION

PLASTIC SHEET, LAMINATED, THERMOSETTING, PAPER-BASE, EPOXY-RESIN

This specification has been approved by the Department of Defense and is mandatory for use by the Departments of the Army, the Navy and the Air Force.

1. SCOPE

1.1 This specification covers type PEE paper-base, epoxy-resin, plastic thermosetting sheet material primarily for electrical insulating purposes.

2. APPLICABLE DOCUMENTS

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

SPECIFICATIONS

FEDERAL

PPP-B-576 - Box, Wood, Cleated, Veneer, Paper Overlaid.
PPP-B-585 - Boxes; Wood, Wirebound.
PPP-B-591 - Boxes, Fiberboard, Wood-Cleated.
PPP-B-601 - Boxes, Wood, Cleated-Plywood.
PPP-B-621 - Boxes, Wood, Nailed and Lock-Corner.
PPP-B-636 - Box, Fiberboard.
PPP-T-76 - Tape, Pressure-Sensitive Adhesive Paper, Water Resistant (For Carton Sealing).
PPP-T-97 - Tape; Pressure-Sensitive Adhesive, Filament Reinforced.

MILITARY

MIL-L-10547 - Liners, Case, Waterproof.

STANDARDS

FEDERAL

FED-STD-406 - Plastics: Methods of Testing.

MILITARY

MIL-STD-129 - Marking for Shipment and Storage.

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS

D229 - Method of Testing Sheet and Plate Materials Used for Electrical Insulation.

(Application for copies should be addressed to American Society for Testing and Materials, 1916 Race St., Philadelphia 3, Pa.)

OFFICIAL CLASSIFICATION COMMITTEE

Uniform Freight Classification Rules.

(Application for copies should be addressed to the Official Classification Committee, 1 Park Avenue at 33rd Street, New York 16, N. Y.)

3. REQUIREMENTS

3.1 Qualification. - The paper-base, epoxy-resin, plastic thermosetting sheet material shall be a product which has been tested, and passed the qualification tests specified herein, and has been listed on or approved for listing on the applicable qualified products list.

3.2 Material. -

3.2.1 Construction. - The material shall consist of a suitable paper base or filler properly impregnated and bonded with an epoxy-resin compound or binder, processed to conform to this specification.

3.2.2 Property values. - The material shall conform to the property values shown in tables IV and V, as applicable. The values obtained from each

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set of specimens taken from the same sheet shall be averaged before comparison with the applicable table.

3.2.3 Uniformity. - All sheets of any lot shall be uniform in texture and finish.

3.2.4 Surface defects. - The material shall be free from blisters, wrinkles or cracks, and free from other small defects such as scratches, dents and heat marks to the degree that the usefulness of the sheet will not be affected.

3.2.5 Warp or twist. - The warp or twist of material as delivered shall not exceed that shown in table I (see 4.6.7). Percentage of warp is given in terms of the lateral dimensions (length and width) of the material and percentage of twist is given in terms of dimensions from one corner to the opposite corner.

Table I - Warp or twist.

Thickness	Permissible variation on basis of 36-inch dimension 1/
Inch	Percent (max.)
1/32 to under 1/16	5.00
1/16 to under 1/8	2.50
1/8 to 1/4, inclusive	1.00

1/ These values do not apply to cut pieces but only to sheet sizes as manufactured. For any standard sheet size other than 36 inches, use the following formula:

$$\frac{D_x}{D_{36}} = \frac{(L_x)^2}{(36)^2}$$

Where:

D_x = Permissible deviation from straight edge in inches for the given length.

D_{36} = Permissible deviation in inches for 36 inch length.

L_x = The given length in inches.

3.3 Dimensions and tolerances. -

3.3.1 Length and width. - Unless otherwise specified by the bureau or agency concerned, the manufacturer's standard sizes between 24 and 50 inches in width and between 36 and 96 inches in length will be acceptable. The length and width of sheets may vary 1 inch over or under the manufacturer's standard size. Nonuniform standard sheet dimensions caused by cutting specimens for test required by this specification shall not be cause for rejection, unless particular dimensions are specified. When particular sheet dimensions are specified (see 6.2), the permissible variation from the specified length or width shall be as shown in table II.

Table II - Permissible variations in length or width.

Nominal thickness	Permissible variations in length or width, in inches (±)		
	6 inches and under	Over 6 to under 24 inches	24 inches and over
Inch			
1/32 to 1/4, inclusive	0.010	0.015	1/32

3.3.2 Thickness. - Sheets shall be furnished in the nominal thickness shown in table III, as specified (see 6.2). At least 90 percent of the area of the sheet shall be within the variations specified in table III, and at no point shall the thickness as measured vary from the nominal thickness by a value greater than 125 percent of the permissible variations.

Table III - Thickness. 1/

Nominal thickness		Permissible variations in inch (±)
Inch	Decimal equivalent in inch	
1/32	0.031	0.0035
3/64	.047	.0045
1/16	.0625	.005
3/32	.094	.007
1/8	.125	.008
5/32	.156	.009
3/16	.1875	.010
7/32	.219	.011
1/4	.250	.012

1/ For sheets of nominal thickness not listed in this table, the permissible variations shall be the same as for the next greater thickness.

3.4 Machinability. - The material shall be such that it can be drilled, tapped, sawed, and machined in all directions 1/ in accordance with the manufacturer's recommended technique without cracking, splitting, or otherwise impairing the material for general use.

1/ The nature of laminated materials necessitates special precaution when drilling and tapping parallel to laminations.

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3.5 Surface finish. - Unless otherwise specified by the bureau or agency concerned, the surface finish of sheets shall be semi-gloss or dull as produced by the laminating operation.

3.6 Marking. - Each full-size sheet shall be legibly marked with the manufacturer's name or trademark, and the type. The method of marking shall be satisfactory to the bureau or agency concerned.

3.7 Workmanship. - The laminated materials shall be manufactured by such process or manner as to assure compliance with the requirements of this specification.

4. QUALITY ASSURANCE PROVISIONS

4.1 Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. 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 Classification of inspection. - The inspection shall be classified as follows:

(a) Qualification inspection.
(b) Quality conformance inspection.

4.3 Qualification tests[2/]. - Qualification tests shall be conducted at a laboratory satisfactory to the Bureau of Ships. Qualification tests shall consist of the tests specified in table IV. One sheet 18 by 36 inches in each sample thickness will be required for the tests.

[2/] Application for Qualification tests shall be made in accordance with "Provisions Governing Qualification" (see 6.3 and 6.4).

Table IV - Qualification tests for type PEE.

Property to be tested	Test paragraph	Number of specimens for each thickness	Test per specimen	Conditioning (see 4.5)	Unit of value	Value required for each sample thickness	
						1/16 inch	1/8 inch
Dielectric breakdown parallel to laminations, step-by-step test	4.6.2	[1/] 1	1	A	Min. kv.	60.0	60.0
		[2/] 4	1				
		[1/] 1	1	D-48/50	Min. kv.	30.0	30.0
		[2/] 4	1				
Flexural strength, tested flatwise:	4.6.3			A	Min. p.s.i.		
Cut lengthwise		4	1			20,000	20,000
Cut crosswise		4	1			16,000	16,000
Water absorption	4.6.4	4	1	Precondition at E-1/105; at $D_1$24/23	Max. percent	0.65	0.50
Dielectric constant at 1 megacycle	4.6.5	4	1	D-48/50	Max.	----	5.0
Dissipation factor at 1 megacycle	4.6.5	4	1	D-48/50	Max.	----	0.045
Volume resistivity	4.6.6	4	1	C-96/35/90	Min. meg. cm.	(3/)	1,000,000
Surface resistance	4.6.6	4	1	C-96/35/90	Min. meg.	(3/)	1,000

[1/] Short-time.
[2/] Step-by-step.
[3/] Not required.

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4.4 Inspection. -

4.4.1 Examination. - Each sheet of every lot shall be examined to determine compliance with section 3, except 3.1 and 3.2.2. Conformance with 3.2.1, 3.2.3, 3.2.4, 3.4, 3.5, 3.6, and 3.7 shall be determined by visual examination. Conformance with 3.2.5 shall be determined as specified in 4.6.7. Conformance with 3.3.1 shall be determined by means of a steel scale. Conformance with 3.3.2 shall be determined as specified in ASTM-D229. If any of the sheets fails to conform to any of these requirements, such sheet shall not be offered for delivery.

4.4.2 Tests. -

4.4.2.1 A production lot shall consist of all sheets of a given machine run and of a particular thickness range as shown in table V and offered for delivery at one time. (For instance, sheets of 1/16 and 3/32 inch thicknesses fall within one thickness range (0.032 to 0.094) and may be included in one production lot.) A machine run shall consist of all of the material pressed from a coating operation in which the basic resin and filler and treating conditions are the same.

Table V - Tests for type PEE.

Property to be tested	Test paragraph	Number of specimens for each sample	Test per specimen	Conditioning (see 4.5)	Unit of value	Value required for each sample thickness range 3/ inch			
						0.031	0.032-0.094	0.095-0.125	0.126-0.250
Dielectric breakdown parallel to laminations, step-by-step test	4.6.2	1/ 1 2/ 4	1 1	D-48/50	Min. kv.	30.0	30.0	30.0	30.0
Flexural strength, tested flatwise: Cut lengthwise Cut crosswise	4.6.3	4 4	1 1	A	Min. p.s.i.	20,000 16,000	20,000 16,000	20,000 16,000	20,000 16,000

1/ Short-time.
2/ Step-by-step.
3/ These ranges are for nominal thicknesses subject to the tolerances specified in table III.

4.4.2.2 Sampling. - Sample sheets shall be selected in accordance with table VI and the required number of specimens shall be cut from each sample sheet as specified in table V. All of the tests of table V shall be performed on each specimen and the results on the specimens averaged for each sheet and compared with the requirements to determine conformance (see 6.2).

Table VI - Sampling for tests.

Lot size (sheets)	Sample (sheets)
15 and under	1
16 to 25	2
26 and over	3

4.4.2.3 Acceptance or rejection of lots. - If any of the sample sheets tested fail any of the tests shown in table V, this shall be cause for rejection of the lot.

4.4.2.4 Report of test results. - Three copies of the test report, certified by the inspector, shall be forwarded to the bureau or agency concerned with a statement as to whether the lot was accepted or rejected.

4.5 Conditioning. -

4.5.1 Nomenclature. - The following letters shall be used to indicate the respective general conditioning procedures:

Condition A - As received; no special conditioning.
Condition C - Humidity conditioning.
Condition D - Immersion conditioning in distilled water.
Condition E - Temperature conditioning.

Note. - Whenever a conditioning letter is followed by an inferior 1 as D_1 a prior temperature conditioning has been carried out.

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4.5.2 Designation.- Conditioning procedures shall be designated as follows:

(a) A capital letter indicating the general condition of the specimen, that is, as received, humidity, immersion, or temperature conditioning.
(b) A number indicating in hours the duration of the conditioning.
(c) A number indicating in degrees centigrade the conditioning temperature.
(d) A number indicating relative humidity whenever relative humidity is controlled.

The numbers shall be separated from each other by a slant mark, and from the capital letter by a dash.

Examples:
Condition C-96/35/90 - Humidity condition, 96 hours at 35°C. and 90 percent relative humidity
Condition D-48/50 - Immersion condition, 48 hours in distilled water at 50°C.

4.5.3 Time tolerances.- Oven conditioning shall be followed by a cooling to room temperature (23°C.) in a desiccator, and immersion conditioning shall be followed by cooling to room temperature in distilled water, as specified in table VII.

4.5.4 Temperature tolerances.- The conditioning temperature tolerances shall be as follows:

Nominal temperature Degrees C.	Tolerance (±) Degrees C.
23	2
35	1
50	2
105	2

4.5.5 Humidity tolerance.- Tolerance on the nominal relative humidity of 90 percent shall be ±2 percent.

4.6 Test methods.-

4.6.1 Definitions.- In conducting tests, the term "lengthwise" shall be interpreted to mean that sheet direction known to be the stronger in flexure. "Crosswise" shall then be the sheet direction known to be the weaker in flexure.

Table VII - Conditioning time tolerances.

Conditioning		Cooling		Comments
Condition	Time tolerance	Time	Time tolerance	
D-48/50 D-24/23	-0 hours +1/2 hour	1 hour	-0 hours +2 hours	Cool by immersion in a sufficient quantity of distilled water to reduce the temperature to 23° C. within 1 hour. Remove individually as needed, and wipe surface water off with a cloth. Start test within 1 minute after removing specimen from water.
E-1/105	-0 minutes +6 minutes	2 hours or more	-0 hours	See water-absorption test (see 4.6.4).
D_1-24/23	-0 hours +2 hours	-------	-------	See water-absorption test (see 4.6.4).
C-96/35/90	-0 hours +2 hours	-------	-------	Tests after humidity conditioning shall be made on specimens in the humidity chamber (see 4.6.6).

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4.6.2 Dielectric breakdown parallel to laminations (step-by-step).-

4.6.2.1 Specimens.- The test specimens shall be 2 by 3 inches by the thickness of the sheet. American standard tapered pins having a taper of one-quarter inch per foot shall be used. Number 3 American standard tapered pins[3/] 3 inches long and having a diameter at the large end of seven thirty-seconds of an inch shall be used. Drill two 3/16-inch diameter holes, centrally located, 1 inch apart, center to center, and perpendicular to the faces of the specimen. Using standard tapered pin reamer, ream holes to a sufficient depth to allow the pins to extend approximately 1-1/2 inches from the small end of the hole. The electrodes shall be inserted after the conditioning of the test specimen. Spheres having a 1/2-inch diameter, when placed on the extremities of the tapered pins, will decrease the tendency to flashover.

4.6.2.2 Procedure.- All tests shall be made under oil, at commercial power frequency of 60 cycles. One specimen only shall be tested by the short-time method for the purpose of providing a basis for the initial voltage applied in the step-by-step test. In the short-time test, starting at zero, the testing voltage shall be increased as uniformly as possible at a rate of 500 volts per second. On the remaining specimens, the step-by-step method shall be used. The initial voltage applied in the step-by-step test shall be 50 percent of the short-time breakdown voltage. The initial voltage in the step-by-step tests, determined as specified above, shall be applied for 1 minute and the voltage shall then be increased in increments as follows, holding the voltage at each step for 1 minute.

Breakdown voltage by short-time method	Increment of increase in step-by-step method
Kilovolts	Kilovolts
12.5 or less	0.5
Over 12.5 to 25, inclusive	1.0
Over 25 to 50, inclusive	2.5
Over 50 to 100, inclusive	5.0

4.6.2.3 Report.- The breakdown voltage shall be reported in kilovolts and the time required to break each specimen shall be reported in seconds.

4.6.3 Flexural strength (tested flatwise).-

4.6.3.1 Specimens.- Specimens of sheet in thicknesses of 1/32 to 1/4 inch, inclusive, shall be tested flatwise in accordance with method 1031 of Standard FED-STD-406, except that the dimensions and speed of test shown in table VIII shall be used. Different sets of specimens shall be cut lengthwise and crosswise of the sheet.

Table VIII - Dimensions of specimen and speed of test.

Nominal specimen thickness	Width of specimen	Length of specimen	Span	Speed of test per minute
Inch	Inch	Inches	Inches	Inch
1/32	1	2-1/2	[1/] 5/8	0.025
1/16	1	3	1	.026
3/32	1	3-1/2	1-1/2	.040
1/8	1	4	2	.053
3/16	1/2	5	3	.080
1/4	1/2	6	4	.106

[1/] This span depth ratio is greater than 16 to 1 in order to give clearance between moving head and specimen supports.

4.6.3.2 Procedure.- The breadth and depth of the specimens shall be measured to the nearest 0.001 inch. The span length shall be measured to the nearest 0.01 inch. No modulus data need be taken. Care shall be taken that the specimens are centered properly in the jig prior to being tested.

4.6.3.3 Calculations.- The maximum fiber stress shall be calculated as follows:

$$\text{Maximum fiber stress} = \frac{3\,PL}{2bd^2}$$

Where:
P = breaking load in pounds.
L = the span in inches.
b = breadth of specimen in inches.
d = depth of specimen in inches.

4.6.4 Water absorption.-

4.6.4.1 Specimens.- The specimens shall be 3 inches by 1 inch by thickness.

4.6.4.2 Procedure.- The specimens shall be weighed individually and then subjected to 105°C. for 1 hour, cooled in a desiccator for at least 2 hours, and reweighed (W_1). The specimens shall then be immersed in distilled water for 24 hours at 23°C. They shall be removed individually as needed, all surfaces wiped off with a dry cloth, and then

[3/] For information on tapered pins, see Kents Mechanical Engineers Handbook, 12th Edition, Design and Production, page 15-14. (This handbook may be obtained from John Wiley & Sons, Inc., 440 - 4th Ave., New York 16, N.Y.)

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reweighed immediately (W_2). The test shall begin not more than 1 minute after removal of the specimens from the water and shall be completed as rapidly as consistent with accuracy. Specimens 1/16 inch or less in thickness shall be placed in a weighing bottle immediately after wiping and shall be weighed in the bottle. No correction shall be made for the water-soluble matter.

4.6.4.3 Calculations.- The percentage of water absorption shall be calculated as follows:

Percentage of water absorption in 24 hours

$$= \frac{W_2 - W_1}{W_1} \times 100$$

4.6.5 Dielectric constant and dissipation factor (at 1 megacycle).-

4.6.5.1 Specimens.- The specimens for dielectric constant and dissipation factor tests at 1 megacycle frequency, perpendicular to laminations, shall be 4-inch diameter disks or 4-inch squares cut from sheets 1/8 inch in thickness.

4.6.5.2 Procedure.- After the conditioning of the specimens, the electrical measurements shall be made by using a suitable bridge method, a twin-T impedance-measuring circuit, or a resonant-circuit substitution method. The method used shall have an accuracy of determination of dielectric constant of ±5 percent and an accuracy of determination of dissipation factor of ±5 percent but in no case closer than 0.0001. The specimens shall have been covered on both sides with metal foil using a thin layer of petrolatum as an adhesive, or with conductive silver paint electrodes. The dissipation factor shall be directly computed from the instrument readings and shall be considered nominally equivalent to the power factor.

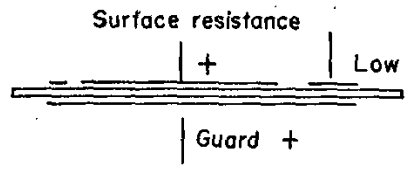
NOTE: For a complete discussion of theory, apparatus, electrodes, and calculation, refer to ASTM method D150.

4.6.6 Volume resistivity and surface resistance.-

4.6.6.1 Specimens.- The specimens for volume-resistivity and surface-resistance tests shall be 4 by 4 inches by thickness.

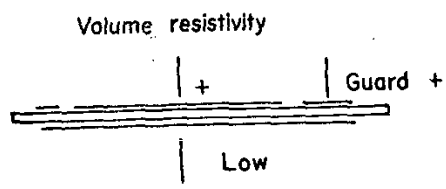
4.6.6.2 Procedure.-

4.6.6.2.1 Volume resistivity.- The test electrodes shall be made of conductive silver paint sprayed or brushed on the surfaces of the specimen. The upper electrode shall be in the shape of a circle 2 inches in diameter. A guard ring 1/4 inch wide shall be located concentrically with respect to the upper electrode and shall be spaced 1/4 inch from it. The bottom electrode shall be in the shape of a circle 3 inches in diameter. The centers of the upper and lower electrodes shall be centered as accurately as possible so that they are on the same axis. The potentials applied shall be as follows:



The volume resistance shall be measured by means of a 500-volt megohm bridge exactly 1 minute after the current is applied. Tests following the humidity conditioning shall be made on specimens in the humidity chamber.

4.6.6.2.2 Surface resistivity.- Surface resistance measurements shall be made on the same specimens as those used for volume resistivity. The test procedure shall be similar to that specified for volume resistivity, except that the potentials of the guard and bottom electrodes shall be interchanged as follows:



The surface resistance shall be measured by means of a 500-volt megohm bridge exactly 1 minute after the current is applied. Tests following the humidity conditioning shall be made on specimens in the humidity chamber.

4.6.6.3 Calculations.- The volume resistivity shall be calculated as follows:

$$r = \frac{RA}{L}$$

Where:

r = volume resistivity in megohm-centimeters.
R = measured volume resistance in megohms.
A = area of guarded electrode in square centimeters.
L = average thickness of specimen in centimeters.

Surface resistance shall be reported in megohms.

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4.6.7 Warp and twist. - The warp and twist test shall conform to method 6051 of Standard FED-STD-406 (see 3.2.5).

5. PREPARATION FOR DELIVERY

5.1 Packaging. -

5.1.1 Level A. - The laminated plastic sheets shall be wrapped individually or interleaved to protect sheets from abrasion, using not less than 25-pound basis weight kraft paper.

5.1.2 Level C. - The laminated plastic sheets shall be packaged in accordance with the supplier's commercial practice.

5.2 Packing. -

5.2.1 Level A. - Laminated plastic sheets, packaged as specified (see 6.2) shall be packed in overseas type, wood cleated fiberboard, nailed wood, wirebound wood, corrugated or solid fiberboard, wood cleated veneer paper overlaid, or wood cleated plywood boxes conforming to Specification PPP-B-591, PPP-B-621, PPP-B-585 (class 3), PPP-B-636 (class 3), PPP-B-576 (class 2), or PPP-B-601, respectively, at the option of the contractor. Shipping containers shall have case liners conforming to Specification MIL-L-10547 and shall be closed and sealed in accordance with the appendix thereto. Case liners for boxes conforming to Specification PPP-B-636 may be omitted provided all joints and corners of the boxes are sealed with a minimum of 1-1/2 inches width of pressure sensitive tape conforming to Specification PPP-T-76. Boxes shall be closed and strapped as specified in the applicable box specification or appendix thereto except fiber boxes may be banded with tape conforming to type IV of Specification PPP-T-97 and appendix thereto. The gross weight of wood boxes shall not exceed 200 pounds; fiberboard boxes shall not exceed the weight limitations of the applicable box specification.

5.2.2 Level B. - Laminated plastic sheets, packaged as specified (see 6.2) shall be packaged in domestic type wood cleated fiberboard, nailed wood, wirebound wood cleated plywood or wood cleated plywood or wood cleated veneer paper overlaid boxes of class 2 fiber boxes conforming to Specification PPP-B-591, PPP-B-621, PPP-B-585 (class 1), PPP-B-601, PPP-B-576 (class 1), or PPP-B-636, respectively, at the option of the contractor. Box closures shall be as specified in the applicable box specification or appendix thereto. Strapping of fiber boxes conforming to class 2 of Specification PPP-B-636 shall not be required. The gross weight of wood boxes shall not exceed 200 pounds; fiberboard boxes shall not exceed the weight limitations of the applicable box specification.

5.2.3 Level C. - Laminated plastic sheets, packaged as specified (see 6.2) shall be packed in containers which will insure acceptance by common carrier and safe delivery at destination. Shipping containers shall comply to the Uniform Freight Classification Rules or other regulations as applicable to the mode of transportation.

5.3 Marking. - In addition to any special marking required by the contract or order or herein, interior packages and exterior shipping container shall be marked in accordance with Standard MIL-STD-129.

6. NOTES

6.1 Intended use. - Type PEE material is intended for use in electronics applications requiring moisture resistance where a high degree of mechanical strength is not required.

6.2 Ordering data. - Procurement documents should specify the following:

(a) Title, number, and date of this specification.
(b) Sheet size and thickness required (see 3.3).
(c) Whether sheets, smaller in dimensions than specified in the procurement document due to cutting specimens for lot acceptance tests, are acceptable (see 3.3.1).
(d) Applicable levels of packaging and packing required (see 5.1 and 5.2).
(e) Special marking, if required (see 5.3).

6.3 With respect to products requiring qualification, awards will be made only for such products as have, prior to the time set for opening of bids, been tested and approved for inclusion in Qualified Products List QPL-22324, whether or not such products have actually been so listed by that date. The attention of the suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification, in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the qualified products list is the Bureau of Ships, Department of the Navy, Washington 25, D.C., and information pertaining to qualification of products may be obtained from that activity. Application for Qualification tests shall be made in accordance with "Provisions Governing Qualification" (see 6.4).

6.4 Copies of "Provisions Governing Qualification" may be obtained upon application to Commanding Officer, Naval Supply Depot, 5801 Tabor Avenue, Philadelphia 20, Pennsylvania.

6.5 Fabricated parts or equipment. - Requirements applicable to fabricated parts or equipment

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incorporating paper-base, epoxy-resin, laminated material should be specified in separate specifications or as part of contracts or orders.

Notice. - When Government drawings, specifications, or other data are used for any purpose other than in connection with a relatively related Government procurement operation, the United States Government thereby incurs no responsibility nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

Custodians:
Army - SigC
Navy - Ships

Preparing activity:
Navy - Ships
(Project 9330-0129)