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SPECIFICATIONS FOR MAT/MOUNTING BOARD FOR NON-PHOTOGRAPHIC MATERIAL

SPECIFICATION NUMBER 400-401-8/19/02

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I. GENERAL SPECIFICATIONS

A. Stock Composition

1. Pulp:

- ▶ **Fiber:** The stock should be made from rag or other high alpha-cellulose content pulp. It not contain any post consumer waste recycled pulp.
- ▶ **Lignin:** The stock must give a negative reading for lignin as determined by the phlorogl test when tested according to ASTM D 1030, X5 spot stains and shall have a Kappa number or less when tested according to TAPPI T 236 cm-85.
- ▶ **Impurities:** The stock must be free of metal particles, waxes, plasticizers, residual bleaching peroxide, sulfur (which will be less than 0.0008% reducible sulfur as determined by TAPPI T 236 cm-88), and other components that could lead to the degradation of the paper and artifacts stored therein.
- ▶ **Metallic Impurities:** Iron must not exceed 150 ppm and copper shall not exceed 6 ppm test according to TAPPI T 266.
- ▶ **Optical Brighteners:** The stock must be free of optical brightening agents.

2. pH:

The stock should have a pH value within a range of 8.0 - 9.5 ± 0.5 as determined by TAPPI T 236 cm-88, cold extraction (modified by slurring sample pulp before measurement).

3. Alkaline Reserve:

The alkaline reserve should be a minimum of 2% and a maximum of 5% calculated as CaCO₃ tested according to ASTM 4988-89.

4. Sizing:

Only neutral or alkaline sizing shall be used. No alum rosin or rosin sizing should be used as determined by ASTM D 549-88.

5. Thickness:

2 ply: (28 ± 2 pts.), **4 ply:** (54 ± 2 pts.), **6 ply:** (85 ± 2 pts.)

6. Color:

The color of the stock will be specified with a sample included with the purchase order. Color must be continuous throughout the thickness of the stock.

Bleeding: The color must show no bleeding when soaked in distilled water for 48 hours while under suitable weight in contact with white bond paper. The color must not rub off.

Retention: The color of the stock must not change more than 5 points of brightness as measured.

by directional reflectance at 457 nm (TAPPI T 452 om-92), when exposed 24 hours to a Xen lamp in an Atlas Weatherometer under the following conditions: Irradiance Level: 1.0 watts/420 nm. Inner filter: Borosilicate glass. Outer filter: clear soda lime glass. Black panel temp 50°C. Wet bulb depression: 8.5°C.

7. **Surfaces:**

The surface of the stock will be specified with a sample included with the purchase order. The surface must be a smooth to moderate texture with no repetitive pattern such as simulated textile pattern unless otherwise specified. The surfaces of the stock must be free of fingerprints, dirt, bubbles, knots, shives and other abrasive particles.

8. **Grain:**

The grain of the outer plies of the board must run in the long direction of all boards, unless otherwise specified.

9. **Adhesive:**

If an adhesive is required, it must not soften or run. The adhesive must not cause the stock to become transparent or alter the color of the stock. The adhesive must not yellow, discolor, or crack (causing delamination) over time. When used, the adhesive must not extend beyond the joint area.

10. **Moisture Range:**

To prevent warping, waving, or curling, the equilibrium moisture range should be between 4% at time of manufacture.

11. **Additional Components:**

Additional components included in the mat board which may or may not improve the performance of the mat board are not considered within the scope of this specification. Mat board manufacturers with additional components will be considered as not meeting the specification.

B. Identification

There should be no identification marks on the board.

C. Packaging

1. **Inner Wrapper:**

Boards should be grouped and wrapped in paper or polyolefin according to size and ply.

I.D.: Each package must plainly identify the type, size and number of items within, the name of the supplier or manufacturer, year of manufacture, manufacturing run or batch number, actual quantity, and NON-PHOTO.

2. **Outer Wrapper:**

The items must be packed in standard commercial containers which are constructed to ensure they arrive at the Library of Congress in dry, undamaged condition. If straps are used, the boards must be protected from possible damage caused by the straps.

I.D.: The outside of each container must be identified by type, size and number of items with the Purchase Order or Contract number and NON-PHOTO.

D. Testing

1. **Responsibility:**

The supplier is responsible for meeting all the requirements specified herein. The Library of Congress has the right to perform any of the tests set forth in the specification where such tests are deemed necessary to ensure that supplies conform to prescribed requirements.

2. **Sampling:** To sample for testing, shipments will be sampled according to MIL-STD-105E at inspection level S-2 with an acceptance quality level of 2.5 percent defective from each lot of 100. Copies of MIL-STD-105E are available from Naval Publications and Forms Center, Standardization Document Order Department, Building 4, Section D, 700 Robbins Avenue, Philadelphia, PA 19104.

3. **Methods:**

Tests will be conducted in accordance with specified test methods of the American National

Standards Institute (ANSI), the American Society for Testing and Materials (ASTM), and the Technical Association of the Pulp and Paper Industry (TAPPI). Publications describing these may be ordered directly from the technical associations at the following address:

- ▶ ANSI, 1430 Broadway, New York, NY 10018
- ▶ ASTM, 1916 Race Street, Philadelphia, PA 19103
- ▶ TAPPI, One Dunwoody Park, Atlanta, GA 30348

4. Tests:

	Requirements	Test Method
Lignin	negative/Kappa 5	ASTM D 1030, X5 or TAPPI 236 cm-85
Reducible Sulfur	< 0.0008%	TAPPI T 406 om-88
Iron	≤ 150 ppm	TAPPI T-266
Copper	≤ 6 ppm	TAPPI T-266
pH	8.0 - 9.5 pH	TAPPI T 509 om-88. cold extraction, slurrified pulp
Alkaline Reserve	2 - 5%	ASTM D 4988-89
Alum Rosin Sizing	negative	ASTM D 549-88
Color Bleeding	none	See above, "I. 6. Color"
Color Retention	≤ 5 points	TAPPI T 452 om-92

E. Quality Assurance Inspection

Sampling: To evaluate non-tested requirements, shipments will be sampled according to MIL-STD at inspection level S-2 with an acceptable quality level of 4.0 percent defective from each lot offered.

II. PRODUCT REQUIREMENTS: MAT/MOUNTING BOARD FOR NON-PHOTOGRAPHIC MATERIALS

A. Construction

1. Sizes must be accurate.
2. The boards in any order must come from the same batch or run number.

B. Workmanship

1. Edges should be cut square and clean.
2. The board must be free of bent corners and delamination of plies.
3. Surfaces must be free of fingerprints, specks, foreign material (dust, dirt, insects, mold, etc. scarring or incising of the board.

C. Dimensions

Will be given on the purchase order.

III. INSPECTION: MAT/MOUNTING BOARD FOR NON-PHOTOGRAPHIC MATERIALS

An examination will be made to determine whether the items comply with the Requirements Section qualities and characteristics which will be examined include the following.

Testing Inspection

- ▶ Materials must pass all composition and performance specifications stated in "I. General Specifications"

Visual Inspection

- ▶ Mat Boards in any one order must come from the same batch or run number.
- ▶ Color must match the submitted sample.
- ▶ Surface texture must match the submitted sample.
- ▶ Board stock must be free of knots, shives and other abrasive particles.
- ▶ Surfaces must be free of fingerprints, specks, foreign material (dust, dirt, insects, mold, etc.) : scarring or incising of the board.
- ▶ Edges must be cut square and clean.
- ▶ Sizes must be accurate.
- ▶ Mat boards must be free of bent corners and delamination of plies.
- ▶ Adhesives must not soften or run, nor cause the stock to become transparent or alter the color stock. The adhesive must not yellow or discolor, fail (causing delamination), or extend beyond joined area.
- ▶ Planar distortion should be non-existent or minimal.
- ▶ Identification markings should not appear on the mat board.
- ▶ The inner wrapper must be according to size and identified as specified in "I. D. Packaging."
- ▶ The outer wrapper must ensure arrival in dry, undamaged condition and be identified as specified "I.D. Packaging."

FAILURE TO MEET ANY OF THE SPECIFICATIONS WILL BE CAUSE FOR REJECTION.

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