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MILITARY SPECIFICATION

PAPER, WRAPPING, CHEMICALLY NEUTRAL (NON-CORROSIVE)

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

1. SCOPE

1.1 Scope. This specification covers requirements for chemically neutral non-corrosive wrapping paper.

1.2 Classification. Chemically neutral wrapping paper shall be of the following types as specified (see 6.2):

- | | |
|---------|---|
| Type I | - Flat. |
| Type II | - Creped. |
| Class 1 | - Creped in one direction. |
| Class 2 | - Creped in two directions, or creped in one direction and corrugated in the other. |

1.3 Form. The paper shall be flat cut or in rolls as specified (see 6.2).

1.4 Sizes. Unless otherwise specified, flat cut sheets shall be 24 by 36 inches (610 by 914 mm) and rolls shall be 300 lineal feet (91 m) or multiples thereof and 24 or 36 inches (610 or 914 mm) wide as specified (see 6.2).

1.5 Weights. Chemically neutral wrapping paper in accordance with this specification shall be furnished in the weights shown in table I as specified (see 6.2).

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: US Army Natick Research and Development Laboratories, Natick, MA 01760, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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* 2. APPLICABLE DOCUMENTS

2.1 Issues of documents. The following documents, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

SPECIFICATIONS

FEDERAL

- P-D-680 - Dry Cleaning Solvent.
- QQ-A-250/4 - Aluminum Alloy 2024, Plate and Sheet.
- QQ-A-611 - Anodes, Cadmium.
- QQ-B-626 - Brass, Leaded and Non-Leaded: Rod, Shapes, Forgings and Flat Products with Finished Edges (Bar, and Strip).
- QQ-C-502 - Copper Rods and Shapes; and Flat Products with Finished Edges (Flat Wire, Strips, and Bars).
- QQ-C-576 - Copper Flat Products with Slit, Slit and Edge Rolled, Sheared, Sawed, or Machined Edges, (Plate, Bar, Sheet, and Strip).
- QQ-M-44 - Magnesium Alloy Plate and Sheet (AZ31B).
- MM-A-260 - Adhesive, Water-Resistant, (For Sealing Waterproofed Paper).
- PPP-B-601 - Boxes, Wood, Cleated-Plywood.
- PPP-B-636 - Boxes, Shipping, Fiberboard.
- PPP-B-1055 - Barrier Material, Waterproofed, Flexible.
- PPP-T-45 - Tape, Gummed, Paper, Reinforced and Plain, For Sealing and Securing.
- PPP-T-60 - Tape: Packaging, Waterproof.
- PPP-T-76 - Tape, Packaging Paper (For Carton Sealing).

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- MIL-L-10547 - Liners, Case, and Sheet, Overwrap; Water-Vaporproof or Waterproof, Flexible.
- MIL-A-18001 - Anodes, Corrosion Preventive, Zinc Slab Disc and Rod Shaped.

STANDARDS

FEDERAL

- FED-STD-595 - Colors.

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- MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
- MIL-STD-129 - Marking for Shipment and Storage.
- MIL-STD-147 - Palletized Unit Loads.
- MIL-STD-1188 - Commercial Packaging of Supplies and Equipment.

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(Copies of specifications and standards required by contractors in connection with specific procurement functions should be obtained from the procuring agency 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 or request for proposal shall apply:

AMERICAN SOCIETY FOR TESTING AND MATERIALS

Specification for Nickel and Nickel-Base Alloy Clad Steel Plate. A-265-43T

(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY (TAPPI) STANDARDS

- T 401 - Fiber Analysis of Paper and Paperboard.
- T 402 - Conditioning Paper and Paperboard for testing.
- T 403 - Bursting Strength of Paper.
- T 404 - Tensile Breaking Strength of Paper and Paperboard.
- T 410 - Basis Weight of Paper and Paperboard.
- T 411 - Thickness (Caliper) of Paper and Paperboard.
- T 414 - Internal Tearing Resistance of Paper.
- T 433 - Water Resistance of Paper and Paperboard (Dry-Indicator Method).
- T 457 - Stretch of Paper and Paperboard.

(Application for copies should be addressed to the Technical Association of the Pulp and Paper Industry, 1 Dunwoody Park, Atlanta, GA 30341.)

3. REQUIREMENTS

3.1 Materials. The paper shall be made from sulfate pulp except that traces of other fibers (not exceeding 5 percent) may be present if reclaimed fiber is used. Reclaimed fiber, in any percentage, is permitted, provided that the other requirements of this specification are met. Reclaimed fiber is fiber collected from solid waste, or from waste collected as a result of an agricultural or manufacturing process, but not including material generated from and reused within the plant as a part of its own papermaking process. The papermaking process is the manufacturing process of producing paper up to and including the cutting and trimming of the machine reel into smaller rolls or rough sheets (see 6.3).

3.2 Physical properties. Physical properties of the paper, when tested as specified in 4.2.2, shall conform to the requirements shown in table I. Prior to determination of the physical properties, the paper shall be conditioned as specified in 4.2.2.

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- * 3.2.1 Thickness tolerance, type I (flat). Thickness tolerance for type I shall not exceed plus or minus 0.0002 inch (0.005 mm) for 15 pound (24 g/m²) and 30 pound (49 g/m²) basis weight paper, and plus or minus 0.0003 inch (0.008 mm) for 55 pound (90 g/m²) and 80 pound (130 g/m²) basis weight paper.

3.2.2 Length and width tolerance. Dimensional tolerances for width and length of flat cut sheets and width of paper furnished in rolls shall be plus or minus 1/8 inch (3 mm). The length of rolls shall be not less than the specified length (see 1.4).

3.2.3 Elongation (applicable to type II only). Type II creped paper, when tested as specified in 4.2.2 shall permit elongation without rupture in accordance with the following:

- Class 1 - Not less than 20 percent elongation in one creped direction.
- Class 2 - Not less than 15 percent elongation in each creped or corrugated direction

TABLE I. Physical requirements

| Characteristics | Type I (flat) | | Type II, class 1 (Creped in one direction <u>1/</u>) | | | | Type II, class 2 (Creped in 2 directions or creped in one direction and corrugated in the other) <u>1/</u> | | | |
|---|-------------------|-------------------|--|-------------------|-------------|---------------|---|-------------|-------------|---------------|
| | 15 (24) | 30 (49) | 55 (90) | 80 (130) | 35 (57) | 50 (81) | 70 (114) | 20 (33) | 40 (65) | 35 (119) |
| Basis weight 500 sheets (24 x 36 in.) (pounds) <u>2/</u> (g/m ²) | | | | | | | | | | |
| Average thickness (inches) (mm) | 0.0017 (0.043) | 0.0030 (0.076) | 0.0057 (0.144) | 0.0077 (0.195) | | | | | | |
| Average bursting strength (minimum) (points) (kPa) | 10 (69) | 21 (145) | 39 (269) | 56 (386) | 14 (96) | 20 (138) | 27 (186) | 14 (96) | 22 (152) | 30 (207) |
| Average tearing strength in weakest direction (minimum) (grams) (mN) | 15 (147) | 45 (441) | 100 (981) | 160 (1570) | 90 (883) | 130 (1275) | 160 (1570) | 40 (392) | 90 (883) | 150 (1472) |
| Average tensile strength per in. width in weakest direction (min.) (lbs.) (N) | 5 (22) | 10 (45) | 20 (89) | 35 (156) | 8 (36) | 10 (45) | 18 (80) | 3 (13) | 6 (27) | 11 (49) |
| Water resistance (dry indicator) (minimum average) (seconds) | 3 | 15 | 40 | 50 | 15 | 25 | 40 | 5 | 25 | 40 |

1/ Basis weight specified in creped condition.2/ A tolerance of minus 5 percent for type I (flat) and minus 10 percent for type II (creped) shall be allowed. Any basis weight above that specified shall be acceptable.

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3.3 Spring back. The angle of spring back of type I (flat) neutral paper, when tested as specified in 4.3.1 shall be not greater than 70 degrees in each direction of the paper. Type II (creped) neutral paper shall be required to meet this requirement in one direction only.

3.4 Hydrogen ion concentration (pH). The pH value of chemically neutral paper, when tested as specified in 4.3.2, shall be not less than 6.5 and not more than 7.5.

3.5 Corrosive properties. There shall be no evidence of corrosion on brass, copper, cadmium, zinc, aluminum, magnesium, nickel or silver when tested in accordance with 4.3.3. Bright green staining or dark brown or black discoloration giving positive test for sulfur compounds shall be cause for rejection. A slight discoloration or dulling of magnesium or silver panels will be permitted.

* 3.6 Identification. Chemically neutral wrapping paper shall be marked by single blue stripes. The color shall approximate color 35231 of FED-STD-595. Stripes shall be of a minimum width of 1/8 inch (3 mm). Intervals between stripes shall be 6 inches (152 mm) plus or minus 1/2 inch (13 mm). Stripes shall be applied either during manufacture or prior to creping. Stripes shall be parallel to each other and to the machine direction of the material. The stripe color shall be distinct and permanent.

* 3.7 Rolls. Rolls of wrapping paper shall be uniformly and smoothly wound on full width \pm 1/8 inch (3 mm) cores, having inside diameter of not less than 3 inches (76 mm). The cores shall have sufficient rigidity to prevent distortion of the roll under normal conditions of use. No roll shall contain more than two splices (3 pieces) and no piece shall be less than 20 yards (18.3 m) in length. Splices shall be evenly and neatly made the entire width of the roll and shall be flagged at both ends with brightly colored markers to indicate splices within the roll.

3.8 Workmanship. Workmanship shall be such that the finished material shall be uniform, free from holes, tears, sharp creases, cuts or other imperfections which may impair the usefulness of the wrapping paper.

4. QUALITY ASSURANCE PROVISIONS

* 4.1 Responsibility for inspection. Unless otherwise specified in the contract, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract, 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.

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4.2 Quality conformance inspection. Unless otherwise specified, sampling for inspection shall be performed in accordance with MIL-STD-105.

4.2.1 Component and material inspection. In accordance with 4.1, components and materials shall be inspected in accordance with all the requirements of referenced specifications, drawings, and standards unless otherwise excluded, amended, modified or qualified in this specification or applicable purchase document.

4.2.2 End item inspection.

* 4.2.2.1 End item examination. The end item shall be examined for the defects indicated in 4.2.2.1.1 through 4.2.2.1.4. The lot size shall be expressed in units of rolls or of unit packs for flat cut sheets, as applicable.

* 4.2.2.1.1 Visual examination. For examination of defects within rolls, the sample unit shall be 12 consecutive yards (11 m) long and the full width of roll. For examination of sheets, the sample unit shall be five sheets (flat cuts) randomly selected within a unit pack. Both sides of the paper shall be examined. Defects of each type shall be scored only once for each occurrence within a square yard (0.84 square meter) of roll material and once per sheet for flat cuts. The inspection level shall be S-4 and the acceptable quality level (AQL) shall be 2.5 defects per hundred units.

| <u>Examine</u> | <u>Defect</u> |
|----------------|---|
| Form | Incorrect type or class. Not in roll or flat cut sheets, as specified. |
| Appearance | Surfaces not thoroughly clean; presence of any foreign matter, dirt, grit, sand, or oil spots. (These defects do not apply to outer convolution of rolls.) Tear, cut, puncture, break, blister, split, hole, wrinkles, chafed spot or scuff mark. |
| Workmanship | Sheets not trimmed square on four sides; not trimmed clean; ragged, torn, uneven, or crushed edges. |
| Identification | Not longitudinal stripes; stripes not parallel to each other and to machine direction of material. Color not as specified. |

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- * 4.2.2.1.2 Dimensional examination. The sample unit shall be one roll or one flat cut sheet, as applicable. The inspection level shall be S-2 and the AQL shall be 2.5 defects per hundred units.

| <u>Examine</u> | <u>Defect</u> |
|-------------------------|--|
| Sheets | Length or width varies by more than plus or minus 1/8 inch (3 mm) from dimensions specified. |
| Rolls. Width | Varies by more than plus or minus 1/8 inch (3 mm) from size specified. |
| Core | Length of core varies by more than plus or minus 1/8 inch (3 mm) from width of roll material. Inside diameter less than 3 inches (76 mm). |
| Identification markings | Stripes less than 1/8 inch (3 mm) in width. Distance between lengthwise stripes less than 5 1/2 inches (140 mm) or more than 6-1/2 inches (165 mm). |

- * 4.2.2.1.3 Construction examination. The sample unit shall be one roll or one unit pack of sheets, as applicable. The inspection level shall be S-2 and the AQL shall be 4.0 defects per hundred units.

| <u>Examine</u> | <u>Defect</u> |
|--|--|
| Assembly of sheets | Not evenly stacked. Splice within sheet. Adjacent sheets stick together to the extent that separation causes tearing or injury to any surface. |
| Assembly of roll | Not suitably restrained to prevent unwinding. Material not wound evenly and tightly on roll causing soft or uneven edges, or telescoping of roll. Not wound on a substantial fiber core; core broken, collapsed, crushed or mutilated. Ragged, nicked, crushed, or uneven edges edges not clean cut. |
| Unwinding of roll (examine both sides) | When unwinding, material slips over core or material sticks together to the extent that unrolling causes tearing or injury to any surface. Does not unroll uniformly and evenly without ravelling. Roll wound unevenly causing wrinkles, creases, or folds within roll. More than two splices per roll, or splices not marked. Less than 20 yards (18 m) between splices. Splices not evenly and neatly made. |

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4.2.1.1 Length or roll or count per unit pack examination. The sample unit for this examination shall be one roll or one unit pack of sheets, as applicable. The inspection level shall be S-2 and the quality of the lot shall be unacceptable if the average length per roll or the average count of sheets per unit pack, or bundle, is less than the specified or indicated quantity. The length of a roll shall be determined by holding a counter against the face of the roll at a point where the material is not under tension while unwinding the roll.

4.2.2.2 End item testing. The end item shall be tested for the characteristics indicated in Table II. The sample unit shall be one piece full width of the roll by 48 inches (1219 mm) long, if rolls are specified, or two sheets full size if sheets are specified. No more than one sample unit, randomly selected, shall be drawn from any one roll or unit pack of sheets. Five sample units, randomly selected throughout the lot, shall be tested. Any test failure shall be cause for rejection of the lot. All samples shall be conditioned in accordance with TAPPI standard 1402 prior to testing.

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TABLE II. End item tests

| Characteristic | Specification reference | | Rqmts. appl. to | | Results reported as | |
|--------------------------------|-------------------------|---------------------------|-----------------|---------------------|---|--|
| | Require- ments | Test method 1/ unit | Indiv. unit | Lot aver- age | Number determinations per sample unit | Pass or Numerically fail 3/ to nearest 4/ |
| Stock | 3.1 | T 401 | --- | X | 1 2/ (on composite) | --- percent |
| Basis weight: (24 x 36-500) | | | | | | |
| Type I (flat) | Table I | T 410 | --- | X | 1 (Avg. of 5 sheets) | --- 0.5 pound (1 g/m ²) |
| Type II (creped) | Table I | T 410 | --- | X | 1 (Avg. of 5 sheets) | --- 0.5 pound (1 g/m ²) |
| Thickness (type I only) | Table I | T 411 | --- | X | Avg. of 2 per sheet | --- 0.0001 inch (0.001 mm) |
| Bursting strength | Table I | T 403 | --- | X | 6 (3 on each side) | --- point (1 kPa) |
| Tearing resistance. | | | | | | |
| Machine direction | Table I | T 414 | --- | X | Avg. of 5 | --- gram (1 mN) |
| Cross direction | Table I | T 414 | --- | X | Avg. of 5 | --- gram (1 mN) |
| Tensile strength | | | | | | |
| Machine direction | Table I | T 404 | --- | X | Avg. of 10 | --- 0.1 lbs/in width (1 N) |
| Cross direction | Table I | T 404 | --- | X | Avg. of 10 | --- 0.1 lbs/in width (1 N) |
| Water resistance | Table I | T 433 | --- | X | Avg. of 10 (5 on each side) | --- second |

TABLE II. End item tests (cont'd)

| Characteristic | Specification reference | | Qn'ts. appl. to | | Results reported as | |
|-------------------------------|-------------------------|------------------------|-----------------|---------------------|---|--|
| | Require- ments | Test method 1/ 2 | Indiv. unit | Lot aver- age | number determinations per sample unit | Pass or fail 3/ to nearest 4/ |
| Elongation (stretch) - | | | | | | |
| (Type II only) | | | | | | |
| Class 1 | | | | | | |
| Any one direction | 3.2.3 | T 457 | --- | --- | Avg. of 10 | 0.5 percent |
| Class 2 | | | | | | |
| 1 direction | 3.2.3 | T 457 | --- | X | Avg. of 10 | 0.5 percent |
| Other direction | 3.2.3 | T 457 | --- | X | Avg. of 10 | 0.5 percent |
| Spring back: | | | | | | |
| Type I | | | | | | |
| Machine direction | 3.3 | 4 3.1 | --- | Y | Avg. of 10 (5 on each side) | degree |
| Cross direction | 3.3 | 4 3.1 | --- | X | Avg. of 10 (5 on each side) | degree |
| Type II (Classes 1 and 2) | | | | | | |
| 1 direction | 3.3 | 4.3.1 | --- | X | Avg. of 10 (5 on each side) | degree |
| pH value | 3.4 | 4 3.2 | --- | --- | Avg. of 3 2/ (composite) | 0.1 pH |
| Corrosive properties | | | | | | |
| Brass | 3.5 | 4 3.3 5/ | X | --- | 2 | X |
| Copper | --- | --- | X | --- | 2 | X |
| Cadmium | --- | --- | X | --- | 2 | X |
| Zinc | --- | --- | X | --- | 2 | X |

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TABLE II End item tests (cont'd)

| Characteristic | Specification reference | | Rqmts. appl. to | | Results reported as | |
|-----------------------------------|-------------------------|-------------------|-----------------|---------------------|---|--|
| | Require- ments | Test method 1/ | Indiv. unit | Lot aver- age | Number determinations per sample unit | Pass or Numerically fail 3/ to nearest 4/ |
| Corrosive properties. (cont'd) | | | | | | |
| Aluminum | --- | --- | X | --- | 2 | X |
| Magnesium | --- | --- | X | --- | 2 | X |
| Nickel | --- | --- | X | --- | 2 | X |
| Silver | --- | --- | X | --- | 2 | X |

1/ Test methods, as referenced in table II, shall be performed in accordance with the applicable TAPPI standard, or test paragraph, except that the stipulation as to the number of specimens to test, number of determinations to perform, or the number of results to report, shall be as specified in table II.

2/ The composite sample shall consist of representative portions taken from each sample unit.

3/ If failure is indicated, report either description or numerical point of failure, as applicable.

4/ Test reports shall include all values on which results are based.

5/ See 4.2.3.

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4.2.3 Certification for corrosive properties. If the initial production lot meets the requirements of 3.5 when tested for corrosive properties as specified in 4.2.2.2, subsequent lots will be accepted, without corrosive properties testing, on the basis of the contractor's certification that the lot was produced under the same conditions and with the same materials, components, and formulation as the initial production lot.

4.2.4 Packaging inspection. An examination shall be made to determine that preservation, packing, and marking comply with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one shipping container fully prepared for delivery with the exception that it need not be closed. Defects of closure listed shall be examined on shipping containers fully prepared for delivery. The lot shall be the number of shipping containers in the end item inspection lot. The lot size shall be expressed in units of shipping containers. The inspection level shall be S-2 and the AQL shall be 4.0 defects per hundred units.

| <u>Examine</u> | <u>Defect</u> |
|---------------------------------|---|
| Marking (exterior and interior) | Omitted; incorrect; illegible; of improper size, location, sequence, or method of application. |
| Materials | Any component missing or damaged. |
| Workmanship | Inadequate application of components, such as: Fiberboard container or wrap material not as specified, incomplete closure of container flaps, loose taping or reinforcing. Bulged or distorted container. |
| Weight | Weight of contents greater than specified. |

4.2.4.1 Palletization. An examination shall be made to determine that the palletization complies with the section 5 requirements. Defects shall be scored in accordance with the list below. The sample unit shall be one palletized unit load fully prepared for delivery. The lot shall be the number of palletized unit loads in the end item inspection lot. The inspection level shall be S-1 and the AQL shall be 6.5 defects per hundred units.

| <u>Examine</u> | <u>Defect</u> |
|---------------------|---|
| Finished dimensions | Length, width or height exceeds specified maximum requirements. |
| Palletization | Pallet pattern not as specified (when applicable). Interlocking of loads not as specified (when applicable). Load not bonded with required straps as specified. Wood caps missing (when applicable). |
| Weight | Exceeds maximum load limits. |
| Marking | Omitted; incorrect; illegible; of improper size, location, sequence or method of application. |

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4.3 Methods of inspection.

- * 4.3.1 Spring back test. Cut ten strips, each 2 inches by 8 inches (51 mm by 203 mm), in both the machine and cross machine direction of representative sample sheets and condition for 12 hours at $73 \pm 2^\circ\text{F}$ ($23 \pm 1^\circ\text{C}$) and 50 percent plus or minus 5 percent relative humidity prior to test. Run the test under the same atmospheric conditions. Lay the specimen on a hard smooth surface and fold, without creasing, 2 inches (51 mm) of the strip onto itself. Set gently on the fold a 1-pound flat bottomed weight, 1-3/4 inches (44 mm) in diameter. The weight shall be centered on the fold. After 30 seconds, gently remove the weight and by means of a protractor, determine the angle of spring back 30 seconds after removing the weight. Determine the spring back angle for ten specimens in each direction of the paper, testing five in each direction for each side of the paper. Report the average, in each direction.

4.3.2 Hydrogen Ion concentration (pH). Place 5 g of air-dried shredded neutral paper in a 500 mL heat resistant Pyrex Erlenmeyer (or equivalent) flask and add 250 mL of boiling distilled or deionized water free of CO_2 and having a pH between 6.7 and 7.1. To avoid the tendency of the fibers to float on the surface, the flask shall be well shaken. Attach a water-cooled condenser and reflux gently for one hour with occasional shaking to insure that all of the fibers are immersed in the water. Stopper the flask, cool the solution to 25°C and determine the pH of the extract electrometrically, using a glass or quinhydrone electrode and calomel cell, or colorimetrically, using isohydric indicators. The average of three separate tests shall be determined. Electrometric determination of pH is preferred for control testing.

4.3.3 Corrosiveness.

* 4.3.3.1 Test specimen. Specimens, approximately 2 by 4 by 1/16 inches (51 by 102 by 2 mm) shall be polished with 320 grit paper, washed with dry cleaning solvent conforming to Specification P-D-680 at room temperature followed by a one minute cleaning in solvent conforming to P-D-680 heated to a temperature of $100 \pm 5^\circ\text{F}$ ($38 \pm 3^\circ\text{C}$). The panels shall be air-dried, immersed for approximately 30 seconds in boiling 95 percent ethanol and washed in boiling absolute ethanol. Panels of the following metals shall be used in the test:

| | |
|-----------|---|
| Brass | Specification QQ-B-626, Composition 22. |
| Cadmium | Specification QQ-A-671. |
| Copper | Specification QQ-C-576 or QQ-C-502. |
| Zinc | Specification MIL-A-18001. |
| Aluminum | Specification QQ-A-250/4 |
| Magnesium | Specification QQ-M-44. |
| Nickel | ASTM A265-43T. |
| Silver | |

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* 4.3.3.2 Procedure. Each panel shall be tightly wrapped in the neutral paper and suspended vertically in the humidity cabinet at not less than 95 percent relative humidity and 100°F (38°C). After 72 hours, panels shall be removed from the humidity cabinet and examined for corrosive effects. Pitting of the panels, bright green discoloration, or dark brown or black discoloration shall be cause for rejection. Light brown, purplish, pinkish, bluish or "peacocking" staining and other discoloration of the copper panels normally associated with oxidation of copper shall not be considered cause for final rejection of the material. In case of apparent corrosion on copper panels, a sodium azide-iodine test shall be conducted to check for the presence of sulfur bearing compounds on the panels. A drop of freshly prepared sodium azide-iodine solution, prepared by dissolving 1.3 g of iodine and 4 g of potassium iodide in 100 mL of water to which is added 3 g of sodium azide to the mixture, shall be placed in the test panels. An immediate and profuse development of gas, in the form of tiny bubbles rising through the liquid, indicates a positive test for sulfides. A magnifying glass or microscope is necessary for observing the bubble formation. A slow steady evolution of scattered bubbles is not a positive test for sulfides.

5. PACKAGING

5.1 Preservation. Preservation shall be level A or Commercial (see 6.2).

5.1.1 Level A.

5.1.1.1 Rolls. Each roll of paper, restrained from unwinding, shall be wrapped overall with clear polyethylene film, minimum thickness 0.0015 inch (0.004 mm) (+ 25% tolerance). The wrap shall be securely sealed with 2 inch (51 mm) minimum width tape conforming to type and class optional of PPP-T-60 or PPP-T-76.

5.1.1.2 Flat cut sheets.

5.1.1.2.1 Size 24 x 36 inches (610 x 914 mm) or smaller. Paper of one description only shall be unit packed flat in a snug-fitting fiberboard box conforming to style optional, W5c or W6c of PPP-B-636. Each box shall be closed in accordance with the appendix of PPP-B-636. Weight of contents of each fiberboard box shall not exceed 20 pounds (9.0 kg).

* 5.1.1.2.2 Sizes with length greater than 36 inches (914 mm). Paper of one description only shall be bundled in a quantity not to exceed 30 pounds (14 kg) and then be rolled and unit packed as specified in 5.1.1.1.

5.1.2 Commercial. Paper shall be preserved in accordance with MIL-STD-1188.

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

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- * 5.2.1 Level A packing. Paper of one description only, preserved as specified in 5.1, shall be packed in a snug-fitting shipping container conforming to style RSC or RSC-L (as applicable), grade V2s of PPP-B-636 or overseas type, style A or I, grade A or B, type 2 load of PPP-B-601, as specified (see 6.2). The inside of each fiberboard container packed with paper in roll form shall be fitted with a box liner conforming to type CF, class weather-resistant, variety DW, grade V15c of PPP-B-636. Each fiberboard container shall be closed in accordance with method III, waterproofed in accordance with method V and reinforced as specified in the appendix of PPP-B-636. Each wood container shall be closed and reinforced in accordance with the appendix of PPP-B-601 and have the contents waterproofed with a sealed case liner conforming to type I or II, grade C of MIL-L-10547. The weight of contents of each fiberboard container shall not exceed 65 pounds (29 kg) and for each wood container shall not exceed 150 pounds (68 kg).
- * 5.2.1.1 Rolls. When specified (see 6.2), each roll of paper, preserved as specified in 5.1.1.1 and 5.1.1.2.2, shall be wrapped overall with water-proofed barrier material conforming to PPP-B-1055, except that when class C-1 is used, two thicknesses shall be required. The wrapper shall be closed at the ends by means of inside and outside headers of the same material as the wrapper. When machine wrapped, inside headers are not required. Seams and outside headers shall be sealed with a water-resistant adhesive conforming to type I or II, grade B, class optional of TM-A-260, using sufficient adhesive to effect a watertight seal. The width of the continuous seam adhesive strip shall be not less than 3/4 inch (19 mm).
- * 5.2.2 Level B packing. Paper of one description only, preserved as specified in 5.1, shall be packed in a snug-fitting shipping container conforming to style RSC or RSC-L (as applicable), type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636 or domestic type, style A or I, grade B, type 2 load of PPP-B-601, as specified (see 6.2). The inside of each fiberboard container packed with paper in roll form shall be fitted with a box liner conforming to type CF, class domestic, variety DW, grade 275 of PPP-B-636. Each shipping container shall be closed in accordance with the appendix of the applicable container specification. The weight of contents of each fiberboard container shall not exceed 65 pounds (29 kg) and for each wood container shall not exceed 150 pounds (68 kg).
- * 5.2.2.1 Weather-resistant shipping container. When specified (see 6.2), the fiberboard shipping container specified in 5.2.2 shall be a grade V3c, V3s, or V4s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with method III as specified in the appendix of the container specification.
- 5.2.2.2 Rolls. When specified (see 6.2), each roll of paper, preserved as specified in 5.1.1.1 and 5.1.1.2.2, shall be wrapped overall with clean polyethylene film, minimum thickness 0.0015 inch (0.004 mm) (+ 25% tolerance). The wrap shall be securely sealed with 2 inch (51 mm) minimum width tape conforming to type and class optional of PPP-T-60 or PPP-T-76.

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- * 5.2.3 Commercial packing. Paper, preserved as specified in 5.1, shall be packed in accordance with MIL-STD 1188.

5.3 Palletization.

5.3.1 Shipping containers. When specified (see 6.2), paper of one description only, packed in shipping containers as specified in 5.2.1 and 5.2.2, shall be palletized in accordance with load type I of MIL-STD-147. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L. Pallet patterns shall be in accordance with the appendix of MIL-STD-147. Interlocking of loads shall be effected by reversing the pattern of each course. If the container is of a size which does not conform to any of the pallet patterns specified in MIL-STD-147, the pallet pattern used shall first be approved by the contracting officer.

5.3.2 Wrapped rolls. When specified (see 6.2), paper of one description only, packed as specified in 5.2.1.1 and 5.2.2.2, shall be palletized in accordance with load type XIII of MIL-STD-147. Wrapped rolls of paper shall be stacked vertically in single or multiple courses (as applicable) with a wood cap over and under the load and a double tray cap (as applicable) between courses. A strap shall be positioned around the load, outside of and at the vertical center of the wrapped rolls of paper in each course, and shall be the first strap applied to the load. Each prepared load shall be bonded with primary and secondary straps in accordance with bonding means K and L.

5.4 Marking. In addition to any special marking required by the contract, unit packs, wrapped rolls, shipping containers, and palletized unit loads shall be marked in accordance with MIL-STD-129 or MIL-STD-1188, as applicable.

6. NOTES

6.1 Intended use. Neutral paper covered by this specification is intended for use as an initial wrap of items requiring a noncorrosive, dust protective wrap applied prior to or as a part of unit packing wherein a greaseproof wrap is not required. This paper is not intended as an anti-tarnish paper for silver and magnesium. Precautions should be exercised in applications involving the use of the paper for wrapping critical or highly polished surfaces of these two metals, since some evidence of dulling of these metals may be found after a prolonged period of storage.

6.2 Ordering data. Procurement documents should specify the following:

- (a) Title, number and date of this specification.
- (b) Type, class (where applicable), form and size, and basis weight of neutral paper required (see 1.2, 1.3, 1.4 and 1.5).
- (c) Selection of the applicable levels of preservation and packing (see 5.1 and 5.2).
- (d) Type of shipping container desired for level A or B packing (see 5.2.1 and 5.2.2).
- (e) Method of packing paper in roll form when specified (see 5.2.1.1 and 5.2.2.2).
- (f) When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.1).
- (g) When palletization is required (see 5.3.1 and 5.3.2).

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- * 6.3 Recycled material. It is encouraged that recycled material be used when practical as long as it meets the requirements of the specification (see 3.1).

6.4 Changes from previous issue. The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, or deletions) from the previous issue 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 issue.

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