

# Specifications for Photo Enclosures

October 2015

## I. Scope

This specification describes the requirements of alkaline paper enclosures used as protective sleeves to house and protect photographic prints and negatives within a document folder.

## II. Requirements

### Construction

The enclosure shall be made from a single piece of paper with side seams of folded flaps of paper attached to the outside (See Figure 1). The seams must be sealed along the complete length of the seam by an adhesive that is at least 1/8 inch away from the fold edge. The gap between the fold of the seam flaps and the back of the sheet shall not be more than 1/16 inch on the inside. Corners of seams and open end must be rounded. Center seams and thumb cuts are not acceptable. The drop between the front and the back sheet of each enclosure should be between 1/4 to 3/8 inch.

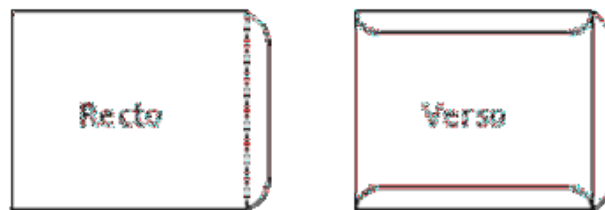


Figure 1

### Dimensions

The dimensions will be specified in the purchase order. The enclosures must allow the insertion of the photographic print/negative without binding and fit into standard sized containers for storage.

### Paper

#### Composition

The paper stock shall be made from rag or other high alpha-cellulose content pulp. It must not contain any post consumer waste recycled pulp. It must meet the following requirements:



- Free of groundwood:
  - test negative in ASTM D1030 phloroglucinol test with X5 Spot Stains (ASTM has withdrawn this standard in 2011. NARA is following 2007 version), or
  - Kappa #  $\leq 5$  in TAPPI T-236 test.
- Free of alum-rosin sizing (TAPPI T-408 or ASTM D 549)
- Contain  $<0.0008\%$  reducible sulfur (TAPPI T-406).
- Free of particles or other impurities such as:
  - metals,
  - waxes,
  - plasticizers (i.e. wet strength additives),
  - plastics,
  - residual bleach,
  - peroxide
  - optical brighteners

The paperboard shall pass the Photographic Activity Test as described in ISO 18916 or the latest version.

### Sizing

Alkaline sizing shall be used (surface, internal, or both). No alum rosin or rosin sizing shall be used (tested by TAPPI T 408 or ASTM D 549).

### Alkaline Reserve

The paperboard shall contain an alkaline reserve of calcium carbonate, magnesium carbonate, or a combination of both, within a range of 3-6% (calculated as  $\text{CaCO}_3$ ) when tested according to TAPPI T-553 or modified by slurring the sample pulp prior to measurement, and shall be evenly distributed throughout all plies and layers. NARA will provide slurry method procedure upon request

### Hydrogen Ion Concentration (pH)

The pH value of the paperboard shall be between 8.0 and 9.5 when tested according to cold extraction method TAPPI T-509 or modified by slurring the sample pulp prior to measurement.

### Thickness

The thickness shall be  $0.006 \pm 0.001$  inches (6 point) when tested according to TAPPI T-411.

### Surface Smoothness

The paper stock should be smooth (calendered, hot-rolled, and/or water polished). The smoothness of the stock must be within the range of 175-220 Sheffield units, when tested according to TAPPI T-538.

### Folding Endurance

The paper stock must meet the minimum requirement of 75 double folds for fold endurance in the machine direction as determined by TAPPI T-511 using a 1 kg load.

### Color

The color shall be white or as specified in the contract.

### Color & Dye Bleed/Transfer

The color must show no bleeding when soaked in distilled water for 48 hours while held in direct contact with white bond paper. The color must also not rub off.

## **Adhesives**

- When aging in a humidity chamber of 50°C and 87% RH for 4 hrs., the adhesive shall firmly and evenly adhere, not soften or run.
- The properties of the adhesive shall not negatively impact the specification of the product, such as reduce the pH or alkaline reserve, increase the sulfur content, decrease the folding endurance, or cause the product to fail the photographic activity test (ISO 18916).
- The adhesive shall not contain sulfur, iron, copper or other ingredients that may be detrimental to photographic records.
- If it is necessary to buffer the adhesive, the same buffer shall be used as those in the paper (calcium or magnesium carbonate, or a combination of both).
- The adhesive shall be invisible through or alter the color of the paper.
- The adhesive must not yellow, discolor, or fail (causing delamination) over time.
- The adhesive shall not contain or generate oxidants.
- Pressure-sensitive or rubber-based adhesives are not acceptable.
- The adhesive must not extend beyond the seam on either the inside or outside of the enclosure.

## Workmanship

Each enclosure shall meet the requirements stated in this specification, shall be constructed in accordance with good commercial practice, and shall be free of imperfections that may affect its utility or aesthetic appearance.

- Each enclosure shall be made to the dimensions specified.
- The enclosure must lie flat without curling or gapping. The seams must be smooth and flat with no puckering.
- All surfaces shall be smooth with no blisters, knots, or shives. Surfaces shall be free of bubbles and abrasive particles. The enclosure shall contain no surface dirt (smudges, fingerprints, and the like), no oozed adhesive and shall not be marred (scuffed, abraded, and the like) in any way.
- All edges shall be cut straight and shall be smooth and even.
- The corners on seams and open end flaps shall be evenly rounded and smooth.
- The side edges shall meet evenly.
- All folded edges and score lines shall be free of fraying, cracks, and breaks.

## III. Preparation for Delivery

### Identification Marking (product level)

Each enclosure should contain a watermark which identifies the paper or papermaker.

### Packaging and Marking (package level)

**Inner Wrapper:** The product must be wrapped in paper according to size.

**Marking:** Each package must be plainly marked with the name of the supplier or manufacturer, year of manufacturing, size, quantity, manufacturing lot or batch number, actual pH ( $\pm 0.2$  pH unit) and "passed P.A.T.".

**Outer Wrapper:** The product must be packed in standard commercial containers sealed with tape and constructed to ensure that the product arrives at the National Archives and Records Administration locations in dry, undamaged condition.

**Marking:** The outside of each container must be identified with the name of the supplier or manufacturer, product type, size and number of items within, year of manufacturing, lot or batch number, Purchase Order or Contract number and "passed P.A.T.".



## IV. Quality Assurance Provisions

### Testing

Test procedures and controls specified in this document shall be used to determine the quality of the product. Other procedures and controls must be approved by the National Archives before test results will be accepted.

Unless otherwise indicated, the tests shall be performed at, and the samples be conditioned to, a standard conditions of  $73\pm 3.5$  °F and  $50\pm 2\%$  RH (TAPPI T-402).

### Sampling for Test

#### Sampling Method

The sampling of corrugated boards in each shipment for examination shall be carried out according to methods specified in ANSI/ASQ Z1.4, inspection level S-2.

#### Acceptable quality levels

- For construction and workmanship at product level, the acceptable quality level shall be  $\leq 4.0\%$  defective from each lot of material delivered.
- For QC testing at product level, the acceptable quality level shall be  $\leq 2.5\%$  defective from each lot of material delivered.
- For compliance with packaging and marking requirements at package level, the acceptable quality level shall be  $\leq 4.0\%$  defective from each lot of material delivered.

### Test Methods

The requirements for quality and characteristics shall be tested in accordance with specified test methods of the American Society for Testing and Materials (*ASTM*), the Technical association of the Pulp and Paper Industry (*TAPPI*), the International Organization for Standardization (ISO) and the American National Standards Institute (*ANSI*). Publications describing these tests may be ordered directly from the technical associations.

### Responsibility for Tests

The Contractor is responsible for quality control to ensure the specifications of this contract are met. The Contractor shall provide test results to the Contract Specialist (CS) and/or Contracting Officer (CO), **for each production lot** used to provide supplies under this contract. The test results shall display, at a minimum, the characteristics



listed below and shall be provided at least 30 days prior to shipping any items from the production lot under this contract. The Contractor may use his or her own facilities or any commercial laboratory certified to run quality assurance test methods listed below. The National Archives and Records Administration (NARA) reserves the right to perform quality assurance at any time during the contract where such tests are deemed necessary to assure that supplies and services conform to the specifications. Therefore, the test results [pH, alkaline reserve, lignin, sizing, sulfur, surface smoothness, thickness, fold endurance, bleeding, PAT and adhesive], two samples of each item purchased, and a sample of at least 12" x 12" of the material used to make the item (for example boxboard), shall be sent together to the CS within 14 days after award of the contract. Additionally, the Contractor shall provide a sample of at least 12" x 12" of the material from a new production lot at any time, upon request of the Government.

**Table of QC Test Items and Specifications**

<b>Test Items</b>	<b>Spec. Targets</b>	<b>Notes</b> (test methods, test conditions, etc.)
<b>Alum-rosin sizing</b>	Negative	TAPPI T-408 or ASTM D 549
<b>Lignin</b>	Negative or Kappa number ≤5	Phloroglucinol test, ASTM D1030 (X5 Spot Stains) TAPPI T-236
<b>Reducible Sulfur</b>	<0.0008%	TAPPI T-406
<b>Alkaline reserve</b>	3 - 6% (calculated as CaCO <sub>3</sub> )	TAPPI T-553 (or slurry method)
<b>pH</b>	8.0 – 9.5	TAPPI T-509 (or slurry method)
<b>Surface Smoothness</b>	175-210 Sheffield units	TAPPI T 538
<b>Thickness</b>	0.006 ± 0.001 inch	TAPPI T-411
<b>Fold Endurance</b>	75 double folds	TAPPI T-511, 1Kg load and machine direction
<b>Color &amp; Dye Bleed / Transfer</b>	No visible transferring	See page 3 for detailed test method and conditions
<b>Photographic Activity Test</b>	Pass	ISO 18916 or the latest version

**Revision note:**

This is a revision of May 2014 version.