



MICROGRPAHICS STANDARDS

Wyoming State Archives
Division of Cultural Resources
Wyoming Department of State Parks and Cultural Resources

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Micrographics Standards State of Wyoming

Scope

This standard is established by the Director of the Department of State Parks and Cultural Resources pursuant to and required by W.S. 9-2-406(a)(vii). It is published by the State Archives, Division of Cultural Resources, a division of that department, and an agency of the Executive Branch of the State of Wyoming.

This standard has been prepared by the State Archives, acting as advisors to the Director. Its purpose is to develop criteria for proper microfilming of public and historic documents to ensure long-term preservation and accessibility of those records after microfilming is completed.

Standards governing long-term preservation are necessary for those public records required by law to be permanent or those records determined by the State Archives to possess legal, administrative or historical value. These standards also govern the microfilming of non-permanent records to ensure their accessibility if the source documents are destroyed or not available for research.

Authority

Authority to establish microfilm standards for all state, county, municipal agencies, and other political subdivisions is outlined in W.S. 9-2-401 thru 9-2-419. The following standards must be met for records which have been designated as permanent by the State Records Committee or when an agency desires to record by microphotography, substituting microfilm for the physical records.

Responsibility

Public officials and other custodians of public records:

To preserve, protect and make accessible permanent and non-permanent public records in accordance with these standards, and maintain documentation that the standards are being met.

State Archives:

To notify the person of authority in an agency if that agency is in violation of these standards, and to correct the problem and seek resolution with the public official or custodian of the records.

Requirements

1. Permanent record microfilm must be used as the master negative. An agency will use as the master negative only film that is composed and treated so that the silver halide image, as well as the film base, meet the technical standards for permanency as defined by the American National Standards Institute (ANSI).
2. Exposed films must be processed to meet standards established by ANSI. Processing must be accomplished using a processor, which provides a separate fixing stage and washes the film thoroughly following the fixing. Processed film containing thiosulfate concentrations of 0.014 grams per square meter, or less, meets the requirements of ANSI/NAPM IT9.1-1996, *Imaging Media (Film) Silver-Gelatin Type-Specifications for Stability*. This must be documented through regular testing of the processing operation using the Methylene Blue Test for Residual Thiosulfate. The methylene blue test is only meaningful and accurate if performed within two weeks after film processing. If the film does not meet the standard it must be rewashed and retested within two weeks of the initial processing. When using a commercial lab for processing, the lab must furnish records certifying the testing performed meets the ANSI standards. Long-term film stability depends on the physical and chemical nature of the film and also the conditions under which the film is stored. These standards must be adhered to in order that permanent microfilm remains stable.
3. The master negative of permanent records, as per Wyoming Statute, shall be sent to the State Archives. This negative must be silver halide emulsion type film; in isolated cases where the original master negative would be unacceptable, a silver direct print may be substituted. The master negative will be stored, at no cost to the agency of origin, in a controlled environment conducive to long-term preservation of the original negative. It will be duplicated by the WSA if the agency's research copy is destroyed or lost.
4. Only heat or sonic weld splices are acceptable. All splices should be made either to the start or end of the roll of film, never into the document portion of the film. A space of ten inches containing no documents should precede the splice so that the splice at no time is wound against documentation on the reel. *Pressure-sensitive tapes and staples will not be used to splice microfilm.*
5. Acid-free boxes or plastic containers and reels made of uncoated polyester (which includes polyethylene and polypropylene) are acceptable for microfilm storage. Pressure-sensitive tapes or adhesive labels must not come in contact with the film. Other foreign materials (e.g. paper strips [not made of acid free paper], rubber bands, tapes, other types of film, etc.) must never be placed in the film storage containers.
6. At least seventy-two inches of film shall be left blank at the beginning and at

the end of each roll of film to protect the film and allow for threading of the reader or duplicator.

7. The following target sheets are required on each roll of film that is created:
 - 3 pieces of plain white bond paper with no water marks (for use when taking a density reading), each followed by one blank space
 - 2 resolution targets, each followed by a blank space, followed by three blank spaces
 - Start target
 - Target showing the reduction ratio of the camera in use
 - Eye readable roll number
 - Certificate of Authenticity, this document certifies the images appearing on the film are accurate and complete reproductions of the original records
 - Notice to Processor, this document prohibits duplication of the roll of film without originating agency's permission
 - AR-2 form (Microfilm Project Information), if you have one
 - Project target and/or year target
 - An index of the records series to be filmed in the order filmed (chronological, alpha, numeric or other type of filing system), including date(s) or date range, followed by six spaces then the start of project (first document)
 - End target shall be filmed at the end of each roll, preceded again by the Certificate of Authenticity and the Notice to Processor followed by 6 spaces
 - 3 pieces of plain white bond paper with no water marks, each followed by a space
 - 2 resolution targets, each followed by a blank space
8. The position of the document image will depend on the dimensions of the material being filmed, but shall be uniform-either vertical (cine) or horizontal (comic) on the film.
9. Resolution measurement, for reduction ratios below 30x, shall be as follows:
 - below 79 lines/mm = unacceptable
 - 80 to 100 lines/mm = acceptable
 - 100 to 120 lines/mm = very good
 - 120 and above = excellent
10. The film image should be sufficient to permit easy reading and reproduction. Unless a different background density is required to produce a contrast, the material to be filmed shall be lighted so that the images on the camera negative will have a background density range of 1.0 to 1.3, with a minimum possible variation in any one frame as measured by a reliable densitometer. If a document has varied color/light/dark printing, etc., it is recommended that more than one image be taken when using a camera with manual exposure settings or a manual override of the automatic exposure.
11. Lightweight cotton gloves may be purchased and should be worn when handling film. This will eliminate much of the foreign materials and

skin oils that will cause contamination.

12. Consistency of information on the label is very important. Label each film container with the following information:
 - agency/department name
 - title of record series
 - date and numeric or alpha series of records
 - roll number
 - other beginning and ending reference information for that roll
13. Only roll forms of microfilm will be accepted for security with the single exception of computer-output-microfilm (COM). No other microforms (e.g. aperture cards, jacketed silver microfilm, etc.) may be substituted for the roll film.
14. A rotary type camera should have a reduction ratio of 20:1 to 32:1. A greater reduction ratio is acceptable, but should only be used if it is necessary to photograph both sides of the document quite frequently. On a planetary type camera (16mm or 35mm), the recommended reduction ratio is 18:1 to 24:1. Reduction may be higher if maps or large oversized documents are being filmed. Larger documents may require filming of the documents in sections, making certain to allow for overlap of the sections for reconstruction of the full document.
15. The film shall be inspected for quality prior to the return or the destruction of any material after it has been microfilmed. If a record, declared permanent by the State Records Committee, is microfilmed and the custodian of the record wishes to destroy the documents, special permission from the State Records Committee will be necessary to legally allow destruction of that record. Extreme caution should be exercised, as old deteriorating records might not reproduce on microfilm with one hundred percent legibility. In those instances, the source documents should not be destroyed.
16. The agency of origin shall create and maintain appropriate indices to all microfilm sent to the State Archives for permanent storage in the microfilm vault.
17. The agency of origin shall keep a record of when, where, by whom, and on what piece of equipment the micrographic record was produced.
18. A listing or receipt shall accompany each film shipment sent to the State Archives for permanent storage. The receipt/listing shall contain:
 - the name of the agency sending the records to the Archives for storage
 - the name of the agency of origin
 - the record series title

- dates of series
 - the roll numbers included in that shipment
 - how many shipping packages are in the total shipment
19. Upon implementation of a new micrographic system, the first roll of microfilm created shall be sent to the State Archives for inspection. Once approval of the system and the microfilm being produced is received from the State Archives, the project may then proceed. A written critique outlining any needed changes will be provided to the agency of origin.
 20. Records scheduled as non-permanent should not be included on the same roll of film as permanent records.
 21. Only microfilm negatives of *permanent record series* should be sent to the State Archives for storage. Due to space limitations, the State Archives can store negatives of permanent records only.

Please send microfilm negatives for permanent storage, along with a receipt or content listing to:

Wyoming State Archives
Technical Services
Barrett Bldg.
2301 Central Ave.
Cheyenne, WY 82002

A receipt acknowledging the shipment will be returned to you.
If you have any questions pertaining to Micrographics and/or Electronic Imaging Systems please contact the State Archives at (307) 777-7826.

Preservation Microfilming: Standards, Specifications and Guidelines

The following sections contain standards of the American National Standards Institute (ANSI) along with specifications and guidelines of other organizations and institutions.

The following are central to preservation microfilming:

ANSI/NAPM 1T9.1-1996

American National Standard for Imaging Media (Film)--Silver-Gelatin Type--Specifications for Stability.

ANSI IT9.2-1991

American National Standard for Imaging Media--Photographic Processed Films, Plates, and Papers--Filing Enclosures and Storage Containers (first edition as PH4.20-1958; subsequently ANSI/ASC PH1.53).

ANSI IT9.5-1992

American National Standard for Imaging Media (Film) Ammonia-Processed Diazo Films--Specifications for Stability (formerly ANSI/ASC PH1.60).

ANSI IT9.6-1991, ANSI/ISO 543-1990

American National Standard for Photography--Photographic Film Specifications for Safety Film (first edition as Z38.3.1-1943; subsequently ANSI/ASC PH1.25).

ANSI IT9.9-1990

American National Standard for Imaging Media--Stability of Color - Photographic Images--Methods for Measuring (revision of ANSI PH1.42-1969).

ANSI/NAPM 1T9.11-1993

American National Standard for Imaging Media--Processed Safety Photographic Film--Storage (first edition as PH5.4-c1957; subsequently ANSI/ASC PH1.43).

ANSI IT9.12-1991, ANSI/ISO 9718-1991

American National Standard for Photography--Processed Vesicular Photographic Film Specifications for Stability (first edition as ANSI/ASC PH1.67-1985).

ANSI/NAPM 1T9.13-1992

American National Standard for Imaging Media--Photographic Film, Papers, and Plates--Glossary of Terms Pertaining to Stability.

ANSI/NAPM IT9.15-1993

American National Standard for Imaging Media (Photography)--The Effectiveness of Chemical Conversion of Silver Images Against Oxidation--Methods for Measuring.

ANSI/NAPM IT9.16-1994

American National Standard for Imaging Media--Photographic Activity Test.

ANSI/NAPM IT9.17-1993, ANSI/ISO 417-1993

American National Standard for Photography--Determination of Residual Thiosulfate and Other Related Chemicals in Processed Photographic Materials--Methods Using Iodine-Amylose, Methylene Blue and Silver Sulfide (first edition as PH 4.12-c1954; subsequently ANSI/ASC PH4.8-1985).

ANSI/AIIM MS5-1992

American National Standard for Information and Image Management--Microfiche (first edition: 1975).

ANSI/AIIM MSII-1987 (R1999)

Standard for Information and Image Management--Microfilm Jackets (first edition: 1987).

ANSI/AIIM MS14-1996

American National Standard for information and Image Management--Specifications for 16mm and 35mm Roll Microfilm (first edition: 1947).

ANSI/AIIM MS18-1992

American National Standard for information and Image Management--Splices for Imaged Microfilm--Dimensions and Operational Constraints (first edition: 1987).

ANSI/AIIM MS19-1993

American National Standard for information and Image Management--Standard Recommended Practice--Identification of Microforms (first edition: 1978).

ANSI/AIIM MS23-1998

American National Standard for Information and Image Management--Practice for Operational Procedures/Inspection and Quality Control of First-Generation. Silver Microfilm of Documents (first edition, as an industry standard: 1979).

ANSI/AIIM MS24-1980 (R1987)

Test Target for Use in Microrecording Engineering Graphics on 35mm Microfilm (first edition: 1980). [A revision is under way.]

ANSI/AIIM MS26-1990

American National Standard for Information and Image Management--35 mm Planetary Cameras (top light)--Procedures for Determining Illumi-

nation Uniformity of Microfilming Engineering Drawings (first edition: 1984).

ANSI/AIIM MS34-1990

American National Standard Dimensions for Reels Used for 16mm and 35mm Microfilm (tint edition: 1968).

ANSI/AIIM MS37-1988

American National Standard for Information and Image Management-- Recommended Practice for Microphotography of Cartographic Materials (first edition: 1988). [A revision is under way.]

ANSI/AIIM MS43-1988

American National Standard for Information and Image Management-- Recommended Practice for Operational Procedures/Inspection and Quality Control of Duplicate Microforms of Documents and from COM (first edition: 1988). [A revision is under way.]

ANSI/AIIM MS45-1990

American National Standard for Information and Image Management-- Recommended Practice for Inspection of Stored Silver-Gelatin Microforms for Evidence Deterioration. [A revision is under way.]

ANSI/AIIM MS48-1999

American National Standard for Information and Image Management-- Recommended Practice for Microfilming Public Records on Silver-Halide Film.

ANSI/AIIM MS51-1991. ANSI/ISO 3334-1989

American National Standard for Microcopying--ISO Test Chart No. 2-- Description and Use in Photographic Documentary Reproduction.

ANSI/AIIM MS111-1994

American National Standard for Information and Image Management-- Recommended Practice for Microfilming Printed Newspapers on 35mm Roll Microfilm (first edition: 1977).

ANSI PH1.51-1990

American National Standard for Photography (Film) -- Micrographic Sheet and Roll Film Dimensions (first edition: 1979).

ANSI/NISO Z39.32-199x

American National Standard for Information on Microfiche Headings (first edition: 1980; withdrawn Mar. 1991). [A revision was approved in 1995 and publication by ANSI is forthcoming.]

ANSI/NISO Z39.48-1992

American National Standard for Information Sciences--Permanence of Paper for Printed Publications and Documents in Libraries and Archives (first edition: 1984).

ANSI/NISO Z39.62-1993

American National Standard for Eye-Legible Information on Microfilm Leaders and Trailers and on Containers of Processed Microfilm on Open Reels.

Technical Reports

AIIM TR2-1992

Association for Information and Image Management Technical Report--Glossary of Imaging Technology.

AIIM TR9-1989 (R1992)

Association for Information and Image Management Technical Report--Color Microforms (first edition: 1987).

AIIM TR11-1987 (R1993)

Association for Information and Image Management Technical Report--Microfilm Jacket Formatting and Loading Techniques (first edition: 1987).

ANSI/AIIM TR13-1998

Preservation of Microforms in an Active Environment-Guidelines.

AIIM TR26-1993

Association for Information and Image Management Technical Report--Resolution as It Relates to Photographic and Electronic Imaging.

Specifications and Guidelines

The specifications and guidelines in this section contain guidance in areas not covered in current standards, and they expand the preservation provisions of the standards in highly desirable ways. Institutions that do preservation microfilming or have work done for them under contract should, as applicable, adhere closely to the advice and recommendations presented in the following specifications and guidelines.

Association of Research Libraries. *Guidelines for Bibliographic Records for Preservation Microform Masters*. Prepared by Crystal Graham. Washington, D.C.: ARL, Sept. 1990. Reprinted in *Microform Review* 21 (spring 1992): 67-73.

Canadian Cooperative Preservation Project. *Guidelines for Preservation Microfilming in Canadian Libraries*. Ottawa: NLC, 1993.

Cybulski, Waiter, ed. *United States Newspaper Program Newspaper Preservation Microfilming Manual*. Albany, N.Y.: New York State Library, forthcoming.

Elkington, Nancy E., ed. *RLG Preservation Microfilming Handbook*. Mountain View, Calif.: RLG, 1992.

Elkington, Nancy E., ed. *RLG Archives Microfilming Manual*. Mountain View, Calif.: RLG, 1994.

Reilly, James M. *IPI Storage Guide for Acetate Film*. Rochester, N.Y.: IPI, 1993.

Preservation Microfilming: Standards, Specifications and Guidelines information taken from the following source: Association of Research Libraries. *Preservation Microfilming: A guide for Librarians and Archivists*. 2nd Edition . Edited by Lisa L. Fox. Chicago and London, 1996.