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Color Microforms

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Technical Report for Information and Image Management —

Color Microforms

An American National Technical Report prepared by
the Association for Information and Image Management

Approved as an American National Technical Report

June 5, 2000

Abstract:

This technical report discusses equipment, supplies, suggested practices, and the special considerations regarding the production of all types of full-color microforms.

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Foreword

Copy processes used in color micrographics and throughout the micrographics industry are used for the preservation and subsequent reproduction of color source materials. These materials include both colored and color-coded documents such as maps, charts, graphic materials, industrial and commercial catalogs, educational materials, engineering schematics, wiring diagrams, and a variety of other subjects.

The microrecording in color of color source materials has been attempted since the origins of commercially applied microfilm because such documents lose information content when recorded on black-and-white materials. Until quite recently, material and procedure technology used for color micrographics had not progressed to a level that would permit the majority of the above-mentioned subjects to be microfilmed in color. Improvements in optical technology, reproduction and duplication procedures, and the resolution capability, long-term keeping properties and dye stability of color microfilms (see Annex B) have added considerable breadth to the capabilities of color processes. Thus, there has been a corresponding growth of interest in color micrographics, its technology, advantages, and its present and future applications.

This technical report outlines the present status of commercially available color microfilm processes, technologies and techniques, and will be revised as appropriate to keep abreast of the new materials and equipment introduced to handle them. Suggestions for improvement of this technical report are welcome. They should be sent to Chairman, AIIM Standards Board, Association for Information and Image Management, 1100 Wayne Ave., Suite 1100, Silver Spring, MD, 20910.

This document was developed under the auspices of the Standards Board which approved it as an AIIM technical report. The Standards Board had the following members at the time it processed and approved this technical report:

Name of representative	Organization represented
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Jewel Drass	Bell & Howell
Basil Manns	U.S. TAG TC 171
Fernando L. Podio	Information Technology Laboratory, National Institute of Standards and Technology
Suresh Shenoy	Information Management Consultants
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This technical report was originally prepared by the Color Formats Subcommittee, C3.5, which had the following members:

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Jerry Owens	Anacomp Inc.
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American National Standard for Information and Image Management – Technical Report for Information and Image Management — Color Microforms

1 Scope and purpose

This technical report discusses equipment, supplies, suggested practices, and the special considerations regarding the production of all types of full-color microforms. The subjects covered include the various color microfilm categories, the characteristics of each, and the physical and performance characteristics of film types suitable for color micrographics.

Other subjects covered include exposure data, density and color balancing techniques, and system preferences for recording color input materials, including optics, format design and reduction ratio.

Discussions regarding processing, quality, duplication processes, and preservation include the recommended chromogenic and nonchromogenic processes; the mechanical, chemical, and environmental requirements; color image reproduction; test charts and scales; resolution; use of protective overcoats; contrast; reprographics; and storage, handling, and packaging recommendations.

Subsequent discussions provide information concerning technical specifications and recommended processes for films typically used for micrographic applications, dye stability characteristics, current formats, and use of color microforms. This technical report is intended to be a descriptive and subjective treatise on full-color micrographics technologies and techniques.

Hazard / Warning: Some of the chemicals described for use in this technical report are toxic or otherwise hazardous. Specific caution, warning and danger notices are given in the text, but, in addition, the normal precautions required for the use of a volatile, flammable, toxic, or corrosive chemical must be exercised at all times. It is recommended that anyone using these chemicals obtain from the manufacturer pertinent information about the hazards, handling, and use of these chemicals. Such information is usually furnished by the chemical manufacturer in the form of a Material Safety Data Sheet (OSHA Form 20 or equivalent).

2 References

All standards are subject to revision. When the following documents are superseded by an approved revision, that revision may apply.

2.1 Referenced American National Standards

ANSI/AIIM MS14-1988 (R1996), *Standard recommended practice — Specifications for 16 mm and 35 mm roll microfilm*

ANSI/AIIM MS24-1996, *Standard test target for use in microfilming source document engineering graphics on 35 mm microfilm*

ANSI/AIIM MS26-1990, *35 mm planetary cameras (top-light) — Procedures for determining illumination uniformity for microfilming engineering drawings*

ANSI/AIIM MS37-1988 (A1996), *Recommended practice for microphotography of cartographic materials*

ANSI/AIIM MS51-1991 (ANSI/ISO 3334-1991), *Micrographics — ISO resolution test chart no. 2 — Description and use*

ANSI/ISO 5/2-1991, *Photography — Density measurements — Part 2: Geometric conditions for transmission density*

ANSI/ISO 6328-1982, (ANSI PH2.33-1983), *Photography (materials) — Method for determining the resolving power of photographic materials*

ANSI/NAPM IT9.1-1996 (ANSI/ISO 10602-1995), *Imaging materials — Processed silver-gelatin type black and white film — Specifications for stability*

ANSI/NAPM IT9.2-1991, *Imaging media — Photographic processed films, plates and papers — Filing enclosures and storage containers*

ANSI/NAPM IT9.6-1991, (ANSI/ISO 543-1990 (R1995)), *Photography — Photographic films — Specifications for safety film*

ANSI/NAPM IT9.9-1996, *Imaging materials—Stability of color photographic images — Methods for measuring*

ANSI/NAPM IT9.10-1996 (ANSI/ISO 4330-1994), *Imaging materials — Photographic film and paper — Determination of curl*

ANSI/NAPM IT9.11-1993, *Imaging media — Processed safety photographic films — Storage*

ANSI/NAPM IT9.17-1993 (ANSI/ISO 417-1993), *Photography — Determination of residual thiosulfate and other related chemicals in processed photographic materials — Methods using iodine-amylose, methylene blue and silver sulfide*

ANSI PH1.51-1983, *Photography (film) — Micrographic sheet and roll films — Dimensions*

ANSI PH2.39-1977 (R1990), *Method of measuring the photographic modulation transfer function of continuous-tone black-and-white photographic films*

2.2 Referenced international standards

ISO 5466-1996, *Photography — Processed safety photographic films — Storage practices*

ISO 6148-1993, *Photography — Film dimensions — Micrographics*

ISO 9923-1994, *Micrographics — Transparent A6 microfiche — Image arrangements*

ISO 10214-1991, *Photography — Processed safety photographic films — Filing enclosures for storage*

2.3 Referenced publications

ANSI/AIIM TR2-1998, *Technical report for information and image management — Glossary of document technologies*

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Storage and Care of Kodak Photographic Materials Before and After Processing. Kodak Publication No. E-30, Cat. No. 827-0852. Rochester, NY: Eastman Kodak Company: 1996.

Woodlief, Thomas, Jr., ed. *SPSE Handbook of Photographic Science and Engineering*. New York, NY: Wiley-Interscience Publication, John Wiley & Sons, 1973.

2.4 Related standards

ANSI/AIIM MS5-1992, *Microfiche*

ISO 5/1-1984, *Photography — Density measurements — Part 1: Terms, symbols and notations*

2.5 Related publications

Bard, C.C. and Kopperl, D.F. Treating insect and microorganism infestation of photographic collections. In *Transcript Summaries, 2nd International Symposium: The Stability and Preservation of Photographic Images*, pp. 313-334. Ottawa, Canada: SPSE, August 25, 1985.

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